

8. Challenges and Lessons Learned

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We have long been operating as a major teacher enhancement and support center and could be perceived, in today's new terminology, as having large groups of teachers actually engaged in action research with technical support. Our projects have all been very complex ones that present us with many challenges. The following discussion is intentionally problem-centered and focuses on how others could benefit from what we have learned. They do not need to repeat problems that could be minimized or eliminated by realizing what might occur. In the discussion below, our challenges and the lessons learned are presented in italics.

Project and Lead Personnel

Securing appropriate facilities

Challenge: Our expenses for on-campus facilities increased because of changes in the university's methods of assigning costs and its expectations for generating income from its infrastructure through cost centers.

Many university and college administrations have adopted a cost-center model, which means that any space not used directly for research and teaching or university administration may be financially tied to self-support or profit generation. The facility that we had been using for teacher training was the student center, which has appropriate meeting facilities and guestrooms, is located close to the library, and has easy access to departmental labs. However, external organizations began to regard it as an affordable choice for conferences and meetings. We gradually found it more difficult to schedule our events at the student center, and the facility also started raising its fees and finally became a cost center.

Using the university had other issues. We had to work with teachers on weekends, holidays, and in the summer, but the centers preferred weekday, non-holiday scheduling. When we needed several rooms for breakout, access to copying, and computer labs, they reacted as if overwhelmed; they were really still used to traditional use of their space. Then there was the food issue. We had to feed teachers when we had them all day, and even fairly inexpensive menus or refreshments became expensive when we could not contract outside of the center or bring food in. They, too, *are* cost centers and expensive.

Using off-campus university centers also had issues. We explored the possibility of using off-campus university facilities, but they did not always cater to our needs for using special equipment, copying facilities, and Internet access. Also, other organizations, especially business and industry, had realized that these centers, although expensive to us, were not as expensive for them, and they began using them as well.

We did, of course, use on-campus facilities at both the university and community college. We used particular laboratories, and academic facilities were available on Saturdays and national holidays. Computer facilities sometimes required overtime for technicians to be available, but we could deal with that. As with many higher educational institutions, most of the good space was overbooked and hard to schedule or had become expensive as a cost center .

Lessons learned: We find non-educational facilities that allow us the space for the cost of meals – a cost within our state-federal allowed budget. They give us cost breaks, almost as partners, and do not hold us to traditional use of space. They give us full access to a copy machine, Internet plug-ins, or wired computers, and we use laptops in the meeting rooms. We manage to find suitable locations almost everywhere we work and acknowledge them as partners, which helps as well.

Indirect costs on grant budgets are supposed to cover the costs of facilities, but that is not really true, nor is it possible at some state institutions. Even with the most supportive administrations, there are limitations. They are dealing with very tight financial situations and try their best to work with us, but there is a list of priorities ahead of our requirements, even when the grant-funded projects are part of our mission and service.

These issues require a great deal of time for searching, discussing, negotiating, and coming back to people with creative ideas of how to work things out; many times we have to present them with ideas of how to make things work. Finding solutions requires asking the right questions for the doors to be opened to new ways of doing things. Grant administrators are not compensated very well, even on major grant initiatives, unless a full-time position is funded. However, the fact remains that the grant's administrator has to assume the responsibility for resolving issues, often with the realization that identifying creative solutions that work can be exciting, leading to new ways of thinking, new perspectives, and often new partnerships.

Administration

Challenge: Larger and complex initiatives, such as ours, entail a great deal of administrative work, but most granting agencies do not support full-time grant administrators or clerical staff, although they do support some graduate student assistance. Our project work included the processing of stipends, the purchase of equipment, reimbursement for travel, preparation and support of workshops, the purchase of materials and supplies, and more, for a project staff of 50+ and teacher participants, approximately 80 per year. It involved coordinating multiple sites for events and activities, negotiating with department administrators or deans, and more. Also, there was the coordination of external partners and their events, the external evaluator, peer teacher leaders, pilot monitoring, coordination, and faculty involvement, and most importantly, the leadership necessary to move faculty and partners forward to sustain a program of high integrity.

Lessons learned: It is possible to find matching funds, especially combinations of local, federal, and state. Matching NSF funds with state funds made our “center-like” activities possible. This worked very well for us. It enabled us to reward personnel more appropriately, though far less than other endeavors such as consulting or working with research laboratories.

Rewards and compensation

Challenge: Faculty members were willing to work with schools, but needed respectable stipends as well as other types of support. Higher-education faculty members worked with us in addition to performing their full academic duties. Most of our work with teachers was on weekends, national holidays, or during the summer.

We paid faculty nominal stipends for the number of days of delivery. This included preparation, follow-up with teachers, and so forth on their own. Many who worked with us were actually penalized in their departmental personnel-review process because some mathematics, science, and engineering personnel review committees felt that the time spent working with teachers, even if it was the professor's own time, could have been better spent on research. Also, publishing the results of our work was not always possible, for reasons discussed earlier, reducing that avenue of professional recognition for university faculty, who were evaluated by their departments according to research-oriented criteria.

Lessons learned: When deans and department heads recognize the importance of faculty involvement with schools, at least the professors are not penalized, although they are not always rewarded or recognized for their work. Strong departmental leadership results in appropriate recognition and value of professors' work with teachers and schools.

Program

Challenge: If lead personnel went off on tangents, came unprepared, did not model best practices, or did not use technology well and appropriately, there were problems.

Lessons learned: It is worth our time and effort to check the background, knowledge, skills, interpersonal abilities, technological prowess, and problem-solving ability of lead personnel, as well as their willingness to be responsible for their own sessions.

Challenge: Many teachers were weak in their discipline and unable to take full advantage of our approach.

Lessons learned: We gradually evolved a more multifaceted approach that incorporates discipline-based learning with learning about teaching and learning. This enables us to demonstrate good teaching and learning models and techniques as the participants learn about both. They begin to realize that the disciplines are not discrete, that their knowledge and concepts cross disciplinary boundaries, and the disciplinary strengths are the foundation for excellence in teaching.

The big picture

Challenge: Most program faculty claimed they wanted to understand the big picture, the whole program, the goals, strategies, research components, and all the rest. But, in fact, it was difficult to schedule them, hold their attention, and most of them did not follow through with reading material provided.

Lessons learned: It is important to hold a required orientation annually, with a follow-up meeting later in the year, to provide the "opportunity" for program leaders to understand the entire endeavor and their relationship to the program. This is especially important for more

complex endeavors. If the initiative occurs over several years, then an orientation has to mark the beginning of each year, with a midyear follow-up and a debriefing at the end. This works well for us as the core team, and we would expand it to include *all* program leaders and team members.

Maintaining quality

Challenge: It was crucial to maintain the integrity and quality of program content and process and to involve knowledgeable and skilled leaders. Once leaders understood the goals, they could usually take it from there.

Lessons learned: The first lesson is to involve people who understand the need to support schools. Those who do not know the teaching and learning buzzwords or formal concepts or best practices might, in fact, apply them to the satisfaction of all involved.

The second lesson is that professional development leaders need at least minimal training or education about the teaching and learning theory to be applied. They are asked to model the best practices as a way of deepening the focus on teaching and learning, as well as solidifying the program framework and building relationships while constructing applications across interdisciplinary contexts.

Work

Challenge: Some program faculty leaders were not prepared to organize and deliver work to meet deadlines or to perform to prescribed specifications.

Lessons learned: We recommend setting expectations related to communication, timelines, documentation (agendas and handouts), picture taking, and procedures or processes so that everyone can commit to them before beginning the program and can understand the importance of that commitment to the overall endeavor and their responsibility for delivering their own program components.

District or school administration

Challenge: Local leadership in schools was critical to success but not always easy to achieve. We could accomplish more if the administrators were involved. If they led and supported the teachers in making changes, and expected change, it happened and was sustained. The school principal was *potentially* the greatest barrier to implementation and sustainability. Principals and district administrators, even those who asked us to work with them, also sometimes showed poor follow-through. It took an exceptional leader to understand the opportunity and benefit that our type of partnership could provide; however, *when* the administrative leadership was in place, phenomenal changes could occur.

Lessons learned: Strong and positive leadership accomplish or result in the following:

1. Follow-through with their commitments. Committed leaders block-schedule teachers for simultaneous preparation periods, or block-schedule students into teaching teams' classes, visit classrooms, and send reports as asked. They find avenues for teachers to

- share what they are learning and doing and the results of their efforts, and then they recognize the teachers and acknowledge their efforts to grow professionally.
2. Visibility. Committed leaders visit teachers during their learning experiences and workshops, remember to ask about particular events, and send feedback to us. They let the teachers know, visibly, that they are interested in and motivated by what they are learning and planning to try in their classrooms. They observe in the classroom during the pilot activities and provide feedback and encouragement.
 3. Sustainability. Good leaders work toward implementation and institutionalization of good results. They become the safety net for sustaining what was realized during the grant period, but then help teachers continue to grow by encouraging them to try new teaching and learning methods.
 4. Support. Strong leaders support their teachers in change efforts, establish partnerships with external groups, and help implement new teaching and learning strategies and curricula.
 5. Continuous improvement. Strong leaders understand that teachers are capable of leading themselves toward positive change and that small but continual improvement can produce great results over time.
 6. Networking. Effective leaders help teachers understand that when they work together, the workload is reduced for all and all learn more together. They lead internal partnerships and networking and find ways to extend them to interschool collaboration.
 7. Transforming leadership using the superleadership model. Involved leaders understand their responsibility to enable teachers and teacher teams to lead themselves (Bass, 1978; Manz & Sims, 1989).
 8. Project vs. initiative. Strategic leaders want to sustain the momentum gained during the formal “project” period. They realize that teachers need time, a most critical and difficult commodity to find, to work together. Sustainability is really at the heart of our initiative, and when we can work for longer periods of time with a district, we try to turn the leadership over to those who would assume it, gradually getting local leaders to join us in leading the events and making the project their own.
 9. Learning organizations. Principals today understand the importance of creating a learning organization by developing teachers as leaders (Burns, 1978; Senge, 1990; Tewel, 1995).
 10. Leadership by superintendents and boards of education. We encourage visible and active support from the highest levels. For grant-funded projects or partnerships to be accepted in a district, usually the board and superintendent must approve them. Too often that is where the support stops, when in fact that is where it should begin. The strong leaders know that they must keep the higher levels actively involved so that the teachers will feel supported. Principals have to see and feel active involvement by both to determine that the initiative is a priority, or they will not support it. Therefore, the priority has to be set by the superintendent and board, and then the principals have to sign on to it, and all three have to show active leadership. They need to schedule periodic reviews, less for accountability purposes than to inform

participants and stakeholders about progress and accomplishments and to resolve problems.

Teacher Participants and Related Issues

We faced many issues when developing our program for a broad range of teachers with varying knowledge, skills, capabilities, and attitudes. Our teachers had not been supported as they should have been. Many were endorsed rather than degreed in their disciplines and sometimes were teaching outside their primary fields. Furthermore, many of our teachers practice in teaching and learning climates and environments that are not conducive to the implementation of best practices.

Education, in-service training

Challenge: Teachers varied greatly in the depth of their understanding within a discipline; their knowledge across disciplines could be limited. Teachers, with the possible exception of particular vocational or technology teachers, had very limited exposure to MSTE in the working world. This was also true about pedagogy and best teaching and learning practices. Many teachers had not been to a national or state conference in years, had not visited other schools, did not have access to reading materials on teaching and learning (although that is changing with the Internet), and had not been supported or held accountable for implementing improvements that were observed with feedback. Even when opportunities or materials were available, teachers needed to be motivated to seek them out and use them when provided.

Lessons learned: The first lesson is that we could work with a group more effectively by involving leader assistants or by pairing or grouping teachers with peers. It is also effective to offer learning experiences in small groups and provide additional help sessions or one-on-one assistance. When this is not affordable, we seek matching funds. Using such strategies is critical, since our priority is to move the whole group together into best practices.

The second lesson is to keep a close eye on peer assistance because some teachers regard that as our responsibility, not theirs. We learned to provide our own assistants on particular topics of in-service. But we also tried to build sharing and networking into the program as an integral component, to enable teachers to experience the positive results of sharing successes as well as the difficulties and to realize that trying new strategies, curricula, and processes is what professionals do. We set the stage for peer leaders, but provide program assistants as well when groups are large enough to require it. We also establish, in the permanent district calendar, sharing and networking meetings throughout the year that teachers are expected to attend. It is important to hold them accountable for professional exchange.

Technological capabilities

Challenge: Gradually teachers were receiving computers for their classrooms, but many lacked the training to use them, and teachers did not know the underlying learning theory for using technology for teaching and learning enhancement. Teachers need to be supported with various types of in-service related to instructional technology, and the program needs to address the learning theory as well as skill building on the use of technological tools.

Lessons learned: We can use technology as a tool and process for learning knowledge efficiently; the technology can become almost invisible when enhancing the learning process. Teachers need to understand that technology can be understood as a myriad of sub-disciplines, each with its own knowledge and skill taxonomy. It is important to build participant knowledge of theory, process, and skill for both teaching and learning.

Experience outside the classroom

Challenge: Few teachers had experience outside the classroom.

Lessons learned: The first lesson is that we can identify business, industry, and community partners who provide a range of experiences for teacher development and then continue into the classroom or as partners for new curriculum modules, revised lessons, or new or enhanced lessons. The range and willingness of our partners has few limitations. Teachers participate in police department forensic workshops, open only to very few law enforcement employees; they have experiences at airports, hospitals, many businesses and industries, park and recreation facilities, research labs, and more. These awaken the teachers to a realization of how MSTE is used, to career and education requirements, to learning problems that are more authentic, and to new criteria for assessments and rubrics or student achievement expectations.

The second lesson is that, while we need to find an ongoing way to get teachers out of the classroom because they never return as the same teachers who left, this requires major orchestration. It also requires someone who knows how to make the connections when there are none to begin with, and someone who knows how to ask the right questions to create the best experiences for the teachers. We recommend that a coordinator with these abilities be a major project leader and that schools identify someone who can sustain the relationships.

Follow-through

Challenge: Most teachers wanted to follow through and finish things as expected and committed, but some could not keep up with the program's pace. On the other hand, some teachers found the pace too slow. Why the discussion on pace? Because we engaged teachers in learning, producing, and performing; they actually identified, adopted, built, or adapted their products and processes, and, in particular content areas. The product or process expected actually occurred during the in-service activities. However because of variances in learning curves, some did not complete everything during the formal sessions, while others finished early. So, how well the teachers follow through between sessions was critical to moving on with the next program component.

Lessons learned: The first lesson is that the best we can do is to plan around some kind of average, once teacher knowledge and skill levels are explored. The term explored is used intentionally because testing or formal assessment is not usually permitted or agreed to by teachers; it is too much like evaluation. Therefore, in-depth discussions have to occur between leaders and teachers and between project administrators and school administrators to gain a feel for what was needed and to project the potential pace.

Our second lesson is that the expectations and rewards should be discussed in great detail, making it clear that it is a personal and professional responsibility to come to each session with the work completed from the previous session. In all fairness, many of the teachers

have been burned by broken promises or an adversarial relationship between the administration and the union. Some have become very negative over the years about having more diverse and larger classes, the lack of leadership and support, tough finances, or lack of access to technology. In our initiatives, we have experienced all their issues. If the administration and union have an adversarial relationship, there are usually authority and accountability issues. Teachers sometimes transfer those feelings and attitudes to us because we have expectations and goals to accomplish, and we do hold them accountable for producing the deliverables before they receive their rewards. Thus, we are in an evaluative role about products, processes, and accomplishments and might even be assigning graduate credits, grades, and continuing professional development units (CPDUs).

The third lesson is the importance of having an established reward structure and clear responsibilities for participating teachers. It also helps to listen to the teachers, to learn more about their contexts and problems. We can be quite effective in helping to resolve conflicts or make teachers feel more empowered by our support. As outsiders, we can address problems and issues openly with both administrators and teachers, from the standpoint of accomplishing our goals with them. Listening honors them as individuals and also helps us gain insight about how they might learn best and what additional topics will benefit the program. This begins to build a climate of trust and respect; when we are responsive rather than critical or dismissive, we all gain. We plan time for discussion, negotiation, and problem solving. As trust and respect grow, teachers begin to focus on more important questions related to *how* to improve and begin to engage in what Senge (1990) identifies as the generative process.

Feelings and attitudes

Challenge: In complex schools and districts, the feelings, attitudes, and issues could be complex as well. There are no more complex districts in Illinois, perhaps the nation, than the public schools of Chicago and Rockford. In large and complex districts such as these, teachers may express strong feelings, either positive or negative, about their schools, administrators, and students. The strength of their emotions may be unknown to the college and university faculty who are on the project team. We have dealt with teachers who felt entitled to the rewards just for sitting with us each day, as well as with teachers who claimed that the district and contexts would never improve. We have encountered teachers who felt inadequate, unprepared, and too overwhelmed to manage their teaching and learning situations, climates, and environments.

Lessons learned: Members of the broader project group who have not been in the schools need preparation for the range of attitudes and emotions they will experience while working with the teachers. They also need to understand *why* the teachers have such strong feelings and to be prepared for this aspect of teacher development. It serves them well when advised about how to help teachers process their feelings.

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