Using Evaluation as a Bridge for Partnership Development

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Introduction

In this article, we report on work thus far (Years One and Two) of the Southwest Pennsylvania Math Science Partnership in using evaluation as a "bridge" to support and encourage the development of collaborative partnerships. We begin with a description of the SW PA MSP followed by its "theory of action" for intervention among and with stakeholders. We explore the overall evaluation plan that is built from this logic model (theory of action) and discuss examples of the role evaluation has served for the project in partnership development. We then consider a number of factors we have found to be of issue in the key school-level (K-12) / higher education (IHE) partnerships the Math Science Partnership is designed to foster.

The Southwest Pennsylvania Math Science Partnership

The Math Science Partnership of Southwest Pennsylvania (SW PA MSP) is one of seven comprehensive partnership projects funded by NSF in 2003. It is a partnership of 48 school districts, four institutions of higher education (IHEs), and four regional educational service agencies known as Intermediate Units (IUs). The NSF award supports 40 of the school districts, and a Math and Science Partnership award from the Pennsylvania Department of Education (PDE) supports the remaining eight. The MSP is headquartered at the Allegheny Intermediate Unit (AIU), the central IU representing also the greatest density of school districts in the region. The region includes the urban fringe of the City of Pittsburgh, several smaller urban areas, suburbs, and rural areas. Total enrollment in the MSP school districts is approximately 114,000 students, with approximately 3,800 teachers who teach math or science topics.

On average, about 39% of students in MSP schools are economically disadvantaged,[1] compared with a statewide average of 36%. This figure is higher in the PDE MSP districts (59%) than in the NSF MSP districts (35%). The enrollment of underrepresented minorities[2] is approximately 19%, compared with a statewide average of 22%. Again, this figure is higher in the PDE MSP districts (25%) than in the NSF MSP districts (18%). These demographics vary widely across schools. The reported percentages for both economically disadvantaged and minority populations vary from 0% to nearly 100% in individual schools. Similarly, there is a broad range in student achievement levels across the MSP. A substantial portion of MSP schools (17%) are not making adequate yearly progress under NCLB; two MSP districts are identified as "empowerment districts" meaning that they are subject to state control if they do not improve, and one of those districts is already being operated under a state board of control. At the other end of the spectrum, the MSP includes several "blue ribbon" schools, which are among the highest achieving in the state.

The four partner IHEs are small- to mid-sized, teaching-oriented, private institutions located in southwest Pennsylvania: Carlow University, Chatham College, Robert Morris University, and Saint Vincent College. Approximately 8,600 students are enrolled in these IHEs, and 46 members of their math, science, engineering and education faculties are participating in this project. Although some of the larger, research-oriented universities in southwest Pennsylvania were invited to participate in the MSP, they declined. In some cases, the university was already involved in educational reform programs. For example, the University of Pittsburgh School of Education was already involved in a Math and Science Partnership through the university's Learning Research and Development Center.

The general organizational structure of the MSP is shown in Figure 1. It consists of the MSP Cabinet and the following five project leadership teams: Math Leadership Team, Science Leadership Team, IHE Leadership Team, Assessment and Evaluation Team, and the Budget and Finance Leadership Team. Three of the five project teams have a team leader and a project director. However, on the Assessment and Evaluation Team, the team leader is also co-project director with another team member, and on the Budget and Finance Team there is no separate project director. Team leaders are responsible for guiding the planning of project activities, allocating tasks among team members and developing quarterly team updates on progress and challenges for the

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[1] We adopt the common practice of using free or reduced-price lunch eligibility as a proxy for economic status.

[2] The racial/ethnic groups included in this category are African-American, Hispanic, Asian, and Native American students.

Figure 1: Organizational Structure of the MSP
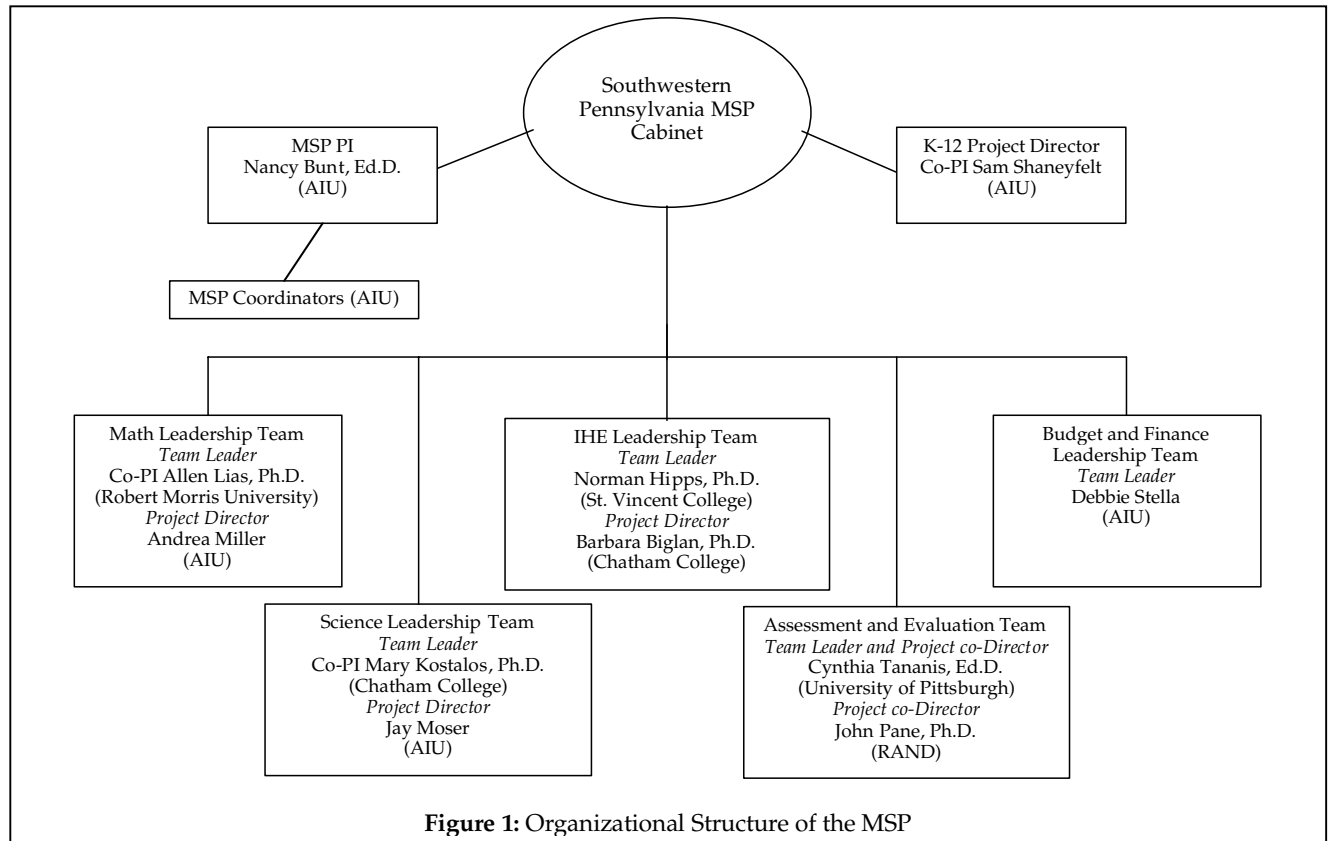
Cabinet. Project directors are responsible for the daily follow-up on implementation of specific tasks of the team, ensuring that project targets are accomplished according to schedule, maintaining project documentation, and providing quarterly updates on progress. The K-12, math, and science project directors are full-time employees of the MSP. The IHE project director devotes 75%-time to the project, and evaluation subcontract awards support the co-directors of the Assessment and Evaluation Team, in part. The three faculty members who serve as Math, Science, and IHE team leaders devote 25%-time to the project. Additional members of the math, science, and IHE teams provide their time for team meetings as part of their institutions' commitments to the project.

The MSP Cabinet is the core decision-making body and has the ultimate responsibility for coordination and implementation of the partnership. This includes coordination among partners as well as among the five project leadership teams. The cabinet consists of the principal investigator (PI), the co-PIs, the team leaders, and project directors from the project leadership teams. District representatives are invited to attend cabinet meetings, and several have become monthly participants. Earlier in the project, IU representatives were also on the Cabinet but they later decided to stay up-to-date on the

project and share their input via existing IU network meetings. The MSP Cabinet meets monthly.

Consistent with the objectives of the overall Math and Science Partnership program, the primary goals of this partnership are to increase K-12 students' knowledge of mathematics and science; increase the quality of the K-16 educator workforce; and create a sustainable coordination of partnerships in the IUs, building intentional feedback loops between K-12 districts and IHEs, tapping the discipline-based expertise of the IHEs, and improving the mathematics and science learning experiences for all undergraduates.

The MSP plans to accomplish these goals through three crosscutting intervention strategies:

- *Professional Development for Leadership* is accomplished through academies and seminars for K-12 educators and IHE faculty. The overriding purpose of these activities is to equip teachers with the pedagogy, content, and leadership skills necessary to become effective leaders in their institutions.

- *Curriculum alignment and pedagogical and course refinement* is accomplished at the K-12 level through the use of curriculum frameworks, and at the IHE level through the contributions of teachers who spend one to two semesters or a summer on the campuses.

- *Support for and dissemination of research based resources and tools* is primarily accomplished through conferences and networks of educators using research-based curricula.

It is important to note that these are not distinct, stand-alone intervention strategies. Rather, they are intertwined in a design that unites K-12 and IHEs in working to achieve the three primary goals of the MSP. Within each strategy are a variety of planned activities that collectively comprise the overall project implementation plan. This highly detailed implementation plan contains hundreds of action steps across the teams and staff of the MSP. Over the life of the project, the strategies are expected to remain in place, even if the specific activities included within each strategy may change and/or shift in priority. Table 1 lists the primary activities designed to address these intervention strategies.

Table 1: Primary Activities of the MSP

MSP Activity	Description
Leadership Action Teams and Leadership Action Academies	Leadership Action Teams represent each school district and IHE. Each team assesses strengths and weaknesses in its institution and develops an action plan for improvement. The teams select teachers and administrators to participate in the other MSP activities. District LATs meet collectively four times per year in the Leadership Action Academies, and IHE LATs meet as necessary on their campuses.
Math and Science Curriculum Frameworks	The MSP developed a curriculum framework for science, and refined one for math, with the six to eight big ideas to be taught in these disciplines at each grade level (K-12). The frameworks are intended to help make effective teaching of Pennsylvania's academic standards in science and math manageable, by enabling teachers to focus their time teaching fewer concepts in more depth.
Teacher Leadership Academies	Leadership development for selected teachers, grouped by discipline/level (elementary math, secondary math, and 9th-12th grade science). Trainings will occur over a two-year period, and total 20 days: five days each summer and five days during each school year. The teacher leaders are expected to go back to their school districts and develop "communities of learning," sharing what they learned in the academies with fellow teachers during on-site professional development in their own districts.
Principals' Seminars	Training seminars, entitled *Lenses on Learning*, for district principals to build a deeper understanding of effective mathematics instruction, and develop effective observing and conferencing techniques. These sessions total 38 hours over a one-year period. An additional module has been added to support science education supervision as well.
Teacher Fellows	Support for two teachers from each district over the five-year grant period to spend one or two terms at a partner IHE. During each term, the Teacher Fellow will work with IHE faculty to help refine two IHE courses, take a college course, and assist in MSP activities.
Network Connections	Daylong conference held twice a year, for Leadership Action Teams and other math and science teachers and faculty to explore resources and tools.
Educator Networks	Activities to assist districts in implementing challenging courses and curricula. Groups of teachers from across the region (MSP and non-MSP districts) who are using the same curricula (e.g., Everyday Math, Connected Math, Investigations, etc.) meet to share best practices. State-funded Math Coaches have also formed an Educator Network to support shared learning.
Content Deepening Seminars	Vouchers and stipends to support teachers to attend professional development in math or science content areas sponsored by IHE partners and others, in order to help them become content area resources for peers in their districts.

Theory of Action

In order for the MSP to achieve its goals, a series of sequential steps must occur. In Figure 2, we present a logic model that describes how the three primary goals will be achieved. There are many versions of logic models in the evaluation literature, and we are using a simplified version, which includes the traditional components of inputs, interventions, outputs, and outcomes. Below we describe each component of the logic model diagram, moving from left to right.
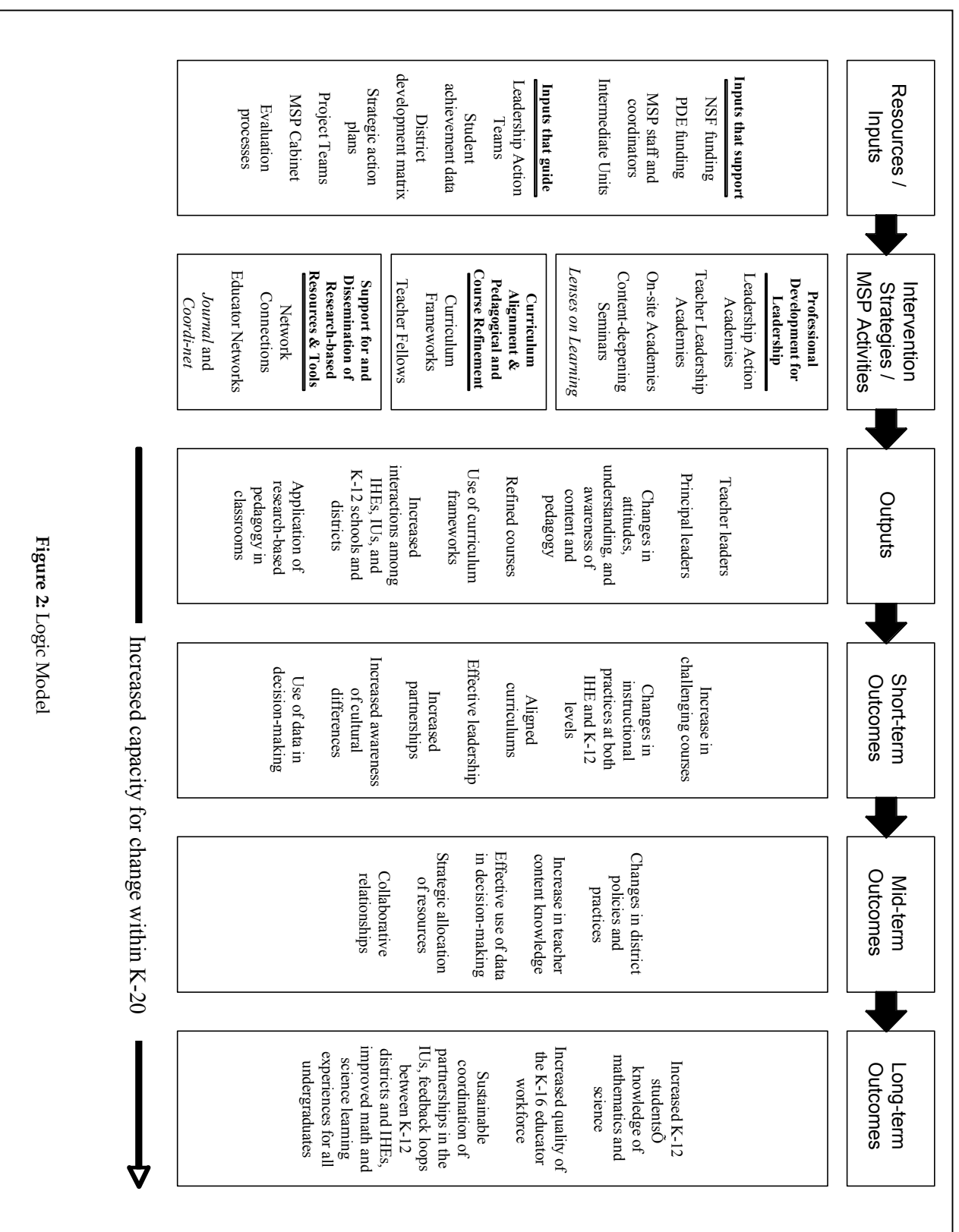
Figure 2: Logic Model

Resources / Inputs	Intervention Strategies / MSP Activities	Outputs	Short-term Outcomes	Mid-term Outcomes	Long-term Outcomes
Inputs that support	**Professional Development for Leadership**	Teacher leaders	Increase in challenging courses		Increased K-12 studentsÕ knowledge of mathematics and science
NSF funding	Leadership Action Academies	Principal leaders			
PDE funding	Teacher Leadership Academies	Changes in attitudes, understanding, and awareness of content and pedagogy	Changes in instructional practices at both IHE and K-12 levels	Changes in district policies and practices	Increased quality of the K-16 educator workforce
MSP staff and coordinators	On-site Academies			Increase in teacher content knowledge	
Intermediate Units	Content-deepening Seminars				
Inputs that guide	*Lenses on Learning*	Refined courses	Aligned curriculums	Effective use of data in decision-making	Sustainable coordination of partnerships in the IUs, feedback loops between K-12 districts and IHEs, improved math and science learning experiences for all undergraduates
Leadership Action Teams	**Curriculum Alignment & Pedagogical and Course Refinement**	Use of curriculum frameworks	Effective leadership	Strategic allocation of resources	
Student achievement data	Curriculum Frameworks	Increased interactions among IHEs, IUs, and K-12 schools and districts	Increased partnerships	Collaborative relationships	
District development matrix	Teacher Fellows		Increased awareness of cultural differences		
Strategic action plans	**Support for and Dissemination of Research-based Resources & Tools**	Application of research-based pedagogy in classrooms	Use of data in decision-making		
Project Teams	Network Connections				
MSP Cabinet	Educator Networks				
Evaluation processes	*Journal* and *Coordi-net*				

Increased capacity for change within K-20 →

Resources / Inputs

The inputs are the resources that support or guide the MSP activities. These include not only funding and human resources, but also the materials and expertise that provide guidance for the MSP activities. The distinction between the different types of inputs is important since a significant amount of MSP resources are expended in developing plans to guide the MSP activities. The NSF and PDE provide the primary funding to support the MSP activities. MSP staff, including the MSP Coordinators, facilitate many of the activities through administrative tasks (e.g., coordinating and maintaining contact with the different partners). As described earlier in the chapter, the LATs are the primary resource for providing guidance to the K-12 school districts and IHEs. Materials and tools such as student achievement data, the district development matrix, and the strategic action plans are all important in helping the LATs to assess and provide the appropriate guidance. The project leadership teams, the MSP cabinet, and feedback from evaluation processes also provide information and guidance that contributes to setting the direction of the MSP activities.

Interventions / MSP Activities

The inputs support the three primary interventions that were described earlier in this chapter. These interventions are based, in part, on research by Deborah Ball on teacher leadership development, Susan Loucks-Horsley on teacher change, and Peter Senge on better communication in learning communities (see, for example: Ball & Cohen, 1999; Loucks-Horsley & Stiegelbauer, 1991; and Senge et al., 2000). The second column of the logic model displays these interventions. Listed below each intervention are the MSP activities that primarily support it.

Outputs

The outputs, in the next column, are the direct and "tangible" products of the interventions. The outputs are aggregated into a single box because in many cases, a particular output is a result of more than one activity. For example, changes in attitudes, understanding, and awareness of content and pedagogy are clearly products of activities listed under the professional development for leadership intervention, but could also be a product of Network Connections or the Educator Networks, both of which are activities that support other interventions.

Outcomes

The next three columns list the expected outcomes that derive from these outputs. In this logic model, outcomes are defined as the products of "outputs + X," where X is an external factor such as time, or some other factor, such as changes in support structures. Short-term outcomes are therefore items that can be expected to occur as a result of

outputs along with additional time. Thus the outputs can be thought of as reasonable precursors to the short-term outcomes. For example, as teachers begin to use the curriculum frameworks, over time we would expect to see that curricula are aligned across the grade levels and with the big ideas outlined by the frameworks. In the case of increased interactions among IHEs, IUs, K-12 schools and districts, a reasonable next step will be increased awareness of cultural differences between and among these institutions. This short-term outcome is a critical precursor to actual change, which might be a mid-term or long-term outcome. Not surprisingly, mid-term outcomes are expected to take longer to achieve, and in some cases may require more than just time. For example, changes in support structures may need to occur before some of the mid-term outcomes can be realized. Finally, the long-term outcomes are the three primary goals of the MSP and should logically follow from the mid-term outcomes.

Evaluation in the Partnership

The Southwest Pennsylvania Math Science Partnership (SW PA MSP) exhibits a high value for evaluation through the development and active use of numerous networks for the collection, consideration, and use of evaluative evidence to support decision-making and day-to-day operation. The Assessment and Evaluation Team (AET) brings together a partnership of three major organizations: the University of Pittsburgh, the RAND, and the Allegheny Intermediate Unit Evaluation Services staff[3] to oversee evaluation and assessment activities. This unique blend of higher education, academic and corporate expertise, and local education agency staff, helps to build a larger regional capacity for evaluation services while most effectively blending skills and expertise for the specific MSP project. Additionally, the AET works closely with the MSP Cabinet (which includes representatives from each MSP stakeholder group --- K-12 educators, IHE education and STEM faculty, MSP staff and PIs) through monthly meetings and debriefings in support of decision-making. One of the AET co-Project Directors also is a member of the Project Directors' team which meets monthly to deliberate on operational and policy issues, and the team holds regular debriefings and discussions with the project PI. In addition to the formal efforts of the AET, the MSP staff is expected to regularly gather and use evidence linked to actions and decisions.

This deeply integrated approach to evaluative inquiry attempts to make best use of diverse evaluation resources as well as assuring the internal infrastructure to support full utilization of evidence to drive decision-making. As such, major decisions related to policy and practice are embedded in the evaluative process from the day-to-day decisions of line staff to the more overarching policy decisions made at the PI and

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[3] The Pennsylvania Department of Education local field support offices are referred to as Intermediate Units. The SW PA MSP is situated in IU3 – Allegheny which supports 42 school districts in Allegheny County. Four other geographically contiguous IUs are also partners in this initiative.

Cabinet level. Evidence is used to frame and guide discussions providing a common bridge for communication and decision-making across the IHE and K-12 cultures. The AET serves as a service arm to each of the decision-making teams and focuses discussion across the specific interests of stakeholder groups.

The evaluation investigates the effectiveness of the partnership, its impact on institutional practices and policies at partner educational institutions, changes in math and science instruction, and changes in student course taking and outcomes. Over the course of the project, data will be collected from numerous sources to address these points, including focus groups and interviews of key project personnel, surveys of principals and math and science teachers, case studies in partnership school districts, documentation of partnership meetings and activities, artifacts produced by the partnership, math and science achievement data for K-12 students, and course completion data for K-12 and IHE students.

The evaluation is designed to monitor progress through this logic model provided in Figure 2 in order to offer formative advice to the project, to measure its ultimate success in achieving its goals, and to document how well the model worked for the benefit of future initiatives that may seek to replicate it. With this in mind, we have identified four evaluation research questions that are not only relevant to the MSP, but are also well aligned with goals and objectives of the national Math and Science Partnership program. The evaluation research questions are:

1. Have MSP partners developed and implemented a comprehensive intervention targeting math and science curriculum and achievement? If so, how?

2. Have institutional practices and support structures changed at K-12 districts and IHEs participating in the MSP? If so , how?

3. Have math and science instruction changed in K-12 districts participating in the MSP? If so, how?

4. In what ways have student outcomes and course taking changed in K-12 schools and districts implementing the MSP? If change occurred, what is the connection between implementation of the MSP plan and these changes?

Question 1 addresses the need to provide formative assessment and documentation of MSP activities, which are important at both the project and program levels. In our annual evaluation reports, we describe things that the MSP is doing well and should continue to do. However, we also try to provide insight into the challenges faced by the

MSP and to provide recommendations so that the MSP might make mid-course adjustments.

In Question 2, we assess some of the institutional changes at both the district and IHE levels that have taken place as a result of MSP activities. This question is critical to understanding institutional change and sustainability, one of the five key features of the national Math and Science Partnership program. In Question 3, our evaluation examines one of the primary impacts of the MSP, changes in instructional practice at the classroom level. This evaluation question can inform both program and project aims to enhance teacher quality and offer challenging courses and curricula.

Finally, Question 4 focuses on the bottom line of student outcomes and changes in course taking practices. Perhaps one of the most important aspects of our assessment will be analysis to determine whether changes in these outcomes can be linked to the implementation of MSP activities.

To address these research questions, we are using a mix of qualitative and quantitative methods in three distinct but overlapping areas of research and analysis: (1) a formative assessment and documentation of MSP activities, in relation to the institutional goals and student outcomes described above; (2) a qualitative and quantitative investigation of implementation at K-12 districts, including (a) institutional change at the district level, and (b) the links between involvement in partnership activities and curriculum implementation strategies at the district and school level and K-12 student outcomes; and (3) an evaluation of institutional change at IHE partners as a result of involvement in MSP activities.

Data collection activities include observations of MSP events; interviews and/or focus groups of key project personnel and IHE faculty; case studies, including observations and interviews in a sample of MSP school districts that was selected purposively[4]; surveys of K-12 teachers of mathematics and science and principals; pre-post analysis of student achievement data along with statewide comparisons; and pre-post analysis of course completion by K-12 graduates along with regional comparisons. (More information regarding the protocols and instruments is available on request from the SW PA MSP).

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[4] Districts were selected so that the case studies would sample a broad spectrum of MSP districts in terms of demographics and early implementation measures. Demographic variables included district size, location, economic need, and minority status. Implementation measures included factors such as appointing a full complement of personnel to MSP teams, and the levels of participation in early MSP activities. Seven case study districts were chosen from among the 40 NSF MSP districts and four were chosen from among the eight PDE MSP districts, for a total of 11 districts.

The AET carries out these evaluation activities, with roles divided among teams at RAND and the University of Pittsburgh, as well as an AIU staff member who is the evaluator on the companion PDE MSP project. The AET also includes members of the AIU data group, who are responsible for collecting and managing data on student enrollment, demographics and achievement. In addition to the team's quarterly meetings to report progress and receive input from the project PI, a working group meets at least monthly. A co-director represents the AET at monthly MSP project director and Cabinet meetings.

Partnership Development
A key feature across all MSP projects is partnership development, and the institutional practices and support structures that facilitate partnership. At the level of the Math and Science Partnership program, NSF places a considerable emphasis on partnership between K-12 districts and IHEs. Additionally, at the project level other partnerships are important, such as those among science, math and education faculty within IHEs; among faculty across IHEs; among IUs; among K-12 districts; and between IUs and K-12 districts.

Through Year Two (2004-2005), we observed that most of these partnerships were established and early in evolution. Substantial progress had been made, however changes in institutional structures and practices are further expected to fully realize the potential of these partnerships. Below, we focus our discussion on the nature of the partnerships between and among K-12 and IHE institutions since they are at the heart of the MSP intent.

There has been some interaction among faculty across IHEs, particularly among team leaders and project directors, but individual faculty reported in interviews that they would have preferred to have more direct interaction with faculty at other IHEs. To varying degrees, math, science and education faculty reported the development of partnerships among faculty within an IHE, either between math and science faculty, or between education and math or science faculty. However, within an institution, the degrees of partnership varied from strong to virtually non-existent across these groups. In many cases, these partnerships existed prior to the MSP project and continued participation in MSP activities has strengthened these connections. The strongest cases of partnership appear to exist in the IHEs where education faculty are members of the disciplinary department (for example, where math education faculty are members of the math department). In IHE interviews, discipline faculty members reported they are working with education faculty on courses, and in one case, collaborating to publish an article about the MSP.

The Teacher Leadership Academies and the Teacher Fellow program provided the first substantial opportunities for partnership building between K-12 school districts and IHEs. These were the first MSP activities in which a large number of IHE faculty directly interacted with K-12 teachers. In both of these activities, some groundwork has been laid for the partnerships, though most evolution is expected to occur in future project years.

Evaluation as a Bridge for Partnership Development[5]
The metaphor of a bridge serves as an apt description of the evaluation perspective for the SW PA MSP. Partnership assumes two distinct entities working together collaboratively toward a common goal or agreed upon agenda. In the case of the K-12 schools/educators and IHE institutions/faculty, these entities share a common mission of "education," yet they operate in quite different worlds of cultural expression, expectations, and responsibilities. To develop productive partnerships these two disparate cultures must find ways to travel to and within the others' spaces and cultures. While a bridge can serve as such a conduit for connection it can also serve to provide a different perspective. The bridge brings two cultures in contact with one another, yet it is not distinctly a part of one or the other --- by virtue of the perspective one has while *on* the bridge, views of both cultures can be seen that cannot be revealed while standing within either culture. The height and length of the bridge, the arch, provides for this somewhat removed, yet important, perspective.

Our evaluation is designed to focus on the key elements (both interventions and outcomes) that are of importance to the project, and thus, to the primary partners. This focus provides a common ground and language that can act as the bridge between the two cultures of K-12 and IHE. Deliberation of these key areas of focus allow for an exchange of perspective and ideas where both partners can learn from each other as well as their own more extended community. So too, the evaluation provides a more objective perspective that can initiate new understandings among partners of themselves and others. Our own evaluation team values the diversity of thinking that comes with more voices at the table, and, as a result, we have sought to work as a team with some representatives with more experience in K-12 settings while others have more IHE experience. Further, we balance our evaluation expertise with a diversity of perspective/stance and experience with certain methodologies. We have found this to be especially important in a complex partnership that has a diverse group of

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stakeholder partners as well. The next section explores the theory underpinning the notion of creating a "bridge" to encourage discursive deliberation among partners.

Discursive Deliberation to Strengthen Partnership
On one hand, it is relatively easy to develop (and document evidence of) relationships among partners. Tracking communication and decision-making, looking for joint activity and examples of coordination and shared knowledge systems are but a few methods used by other researchers (xxxx, xxxx, and xxx). What is more challenging is the development (and corollary documentation) of deeply collaborating partnerships that benefit each participant. To access "data" that can begin to portray this deeper level of collaboration and sustainable partnership requires not only ongoing deliberation among partners, but also a deliberative stance from the evaluators. As Schwandt (2002) advises, our "role" as evaluators is much more complex than a mere description of tasks.

Gadamer (1989) discusses how we come to view, and subsequently, treat people as we encounter them. He offers three potential descriptions that are important to how we choose to relate to and with stakeholders in evaluation. First we can view "other" as detached and separate from us, so much so that we can make judgements without ever really interacting with them. Traditional research approaches value this framing of "other" as a way to control possible corruption of data from interaction with subjects as well as to control for at least some researcher biases. Second, on can view "other" as somewhat involved in the process of constructing knowledge, but only in a tertiary or confirming manner. Evaluation conducted from this stance often involves stakeholders in some limited participation with the evaluation, though most important decision-making and conclusions are developed *about* "others" without their direct input.

It is only framed as Gadamer's third conception of "other," where actual direct relationship with "other" is not only of benefit, but necessary. We assume we can only come to understand "other" as they choose to reveal themselves with us in dialogue. Our engagement in deliberation with others offers a created space to not just hear what we each say to each other, but to come to know each other through iterative cycles of revelation, challenge, expansion and interpretation. Deliberation requires us to engage "in a dialogue wherein one does not simply defend one's own beliefs or criticize what the other believes, but rather seeks to become clear about oneself" (Schwandt, 1999, p. 459) and in so doing, become more sensitive and aware of the "other." In this sense, through the interplay of dialogue, we not only reveal ourselves to others and come to know others, we also come to a deepening awareness that how we frame "other" in fact, reframes our conception of "self." Framing "other" as an object invites us to frame

ourselves as observer and judge, framing "other" as a partner in dialogue allows us to be situated as full participants in the dialogue (and the process of revelation and discovery it holds). To achieve the stance of a "discursive deliberator" (Tananis, 2000) there must be an openness to "risk confusion and uncertainty both about ourselves and about the other person we seek to understand" and be willing to engage in "genuine conversation" (Schwandt, 1999, p. 458).

Schwandt (2002) draws the distinction between a more structural/functional definition of role as "position, function, part, task or responsibility … associated with the classification of actions" (p.195) and a more fluid description of role that is praxis-oriented, concerned with "making sense of self (and one's actions)" as discursively accomplished or performed (p. 197). A praxis-oriented framing of evaluator role seems more conducive to inviting dialogue with "other" and represents a core issue of worldview. How we choose to construct "other" --- and the corollary construction of "self" --- determines, in large part, how we both construct and engage in relationship with one another. In evaluation practice, and perhaps even other forms of praxis, "going native" --- engaging in a direct, discursive relationship that values ongoing revelation and enhancement through dialogue --- creates a "genuine human bond" where "without such openness to one another" understanding is impossible (Gadamer, 1989, p. 361).

Marks (2001) points out that "the central defining attribute of evaluation approaches, and of views of evaluation roles, have shifted over time, from inquiry mode, to purpose, to the nature of the relationship between the evaluator and others." Different conceptions of both "other" and self, as indicated above, result in very different ways of framing and engaging in relationships. By adopting a conception of "other" that requires dialogue, there is a concomitant shift in focus to the nature of the relationship required with "other" as client, stakeholder, colleague, advocate or adversary. Expanding relationships can bring a rich diversity of voices to the table and may expand the potential for involvement, sustainability and utilization of evaluation. From that potential richness might emerge an evolving, co-created wisdom not possible when one assumes the stance of a lone, distanced "insulated expert" (Tananis, 2000). Shared deliberative space assumes an emerging, discursive nature of relationship that supports the co-creation of knowledge.

Deliberation requires openness to various perspectives of thought and action, and as Schwandt (1999) reminded us, it is a place to test out one's ideas against those of others. Conflicts or differences are viewed as opportunities of discursive tension which invite further deliberation, not as roadblocks to decision-making or consensus. A discursive deliberator does not seek to "win the argument" but rather to enter the evolving

conversation. Assuming a more deliberative stance allows one to go beyond simply acknowledging and responding to "others," but also to be open to revision and re-creation of the evolving "text" of dialogue. A deliberative stance assumes that we share dialogue with one another where language is "not simply an instrument for describing events, but is itself a part of events, shaping their meaning" (Garman, 1994).

Greene (2001) reminds us that within a participative (and, perhaps also, a constructivist) evaluation, "knowledge is not extracted from an objective social reality by the evaluator as scientific expert" (p. 58) but more so within the "social relations of inquiry" (Robinson, 1993). House and Howe (1998) claim that knowledge is *constructed* dialogically and deliberatively as part of a larger democratic process.

Factors that Influence Partnership Development

In large part, the MSP is a research and development effort specifically designed to examine if the resources of K-12 and IHE institutions can be effectively marshaled, in partnership, to impact mathematics and science education across the broad educational spectrum (NSF, 2003). While many initiatives have attempted to pair IHE and K-12 partners in education, few (if any) have achieved a deep working partnership to support *co-institutional change*. The barriers are many. We have already identified a few operating within the SW PA MSP through our evaluative efforts to date.

Awareness of cultural differences among the partners has been an important milestone for the SW PA MSP. Many of these differences stem from responsibilities and pressures that vary across institutions. Based on information collected from our interviews, many MSP participants are aware of the cultural issues we describe and are taking steps to address them. The evaluation has provided evidence for partners to review and discuss. Through this evidence-driven deliberation, issues have been identified, clarified, and possible remedies suggested. Through this process the partners have developed both a shared understanding of the cultural similarities and differences among their members and institutions and also developed strategies for collaboration. Below we describe some of the issues which have emerged during the first two years of the SW PA MSP project and the ongoing responses determined by partners.

Incentives and Reward Structures

Incentives, rewards, and perceived benefits play a pivotal role in any project that requires individuals to change. District case studies indicate that at the K-12 level the perceived benefits of participation are related directly to teaching, promotion and career advancement. Case study participants also indicate that, given the demand for accountability at the school level in K-12 settings, the potential of improved student outcomes serves as an incentive for participation. Teacher leaders are paid to participate

in some activities, and can receive college credit or continuing education credit, for their attendance.

It is not surprising that the incentives, rewards and perceived benefits of participating in the MSP are different for IHE faculty. IHE team leaders reported that they had used both course reductions and extra salary to compensate faculty for involvement with the MSP, but some stated that the course reduction did not work well. Most of the departments are small, and cannot easily adjust when a faculty member is not teaching a full load. In addition, some IHE leaders reported that faculty seem to respond better to monetary compensation.

Individual faculty members have varied incentives to be involved in the MSP. All of the faculty interviewed were able to describe some of the overall goals of the MSP, and stated they were aligned with their individual goals. They also reported that they hope involvement in the MSP might improve the academic foundation of their incoming undergraduate students. Most faculty acknowledged that their own teaching skills have improved as a result of participating in the Teacher Leadership Academies, although they did not state this was a major motivation for them to be involved in the project.

At the *institutional* level, the primary incentives for IHEs appear to be related to financial benefits and improvements in public relations. Faculty reported that being a partner on an NSF grant provides some additional financial support for faculty at the IHEs but just as important is the increased publicity for the IHEs, potentially leading to increased enrollment. In addition, having K-12 teachers frequent their campus to participate in project activities increases overall exposure of the IHEs and may attract more adult students as well as traditional students to their campuses. These incentives are considerably different from those of the K-12 school districts, which are primarily focused on improving student outcomes by improving teaching and aligning curricula.

K-12 teachers and IHE faculty face a number of challenges to full participation in the MSP project. For example, the incentive/reward structures of these two partners are not well aligned. In IHEs, faculty members are rewarded for their publication records. Participating in projects such as the MSP may be viewed as a distraction from the primary role of faculty. The potential positive impact of the MSP on IHE teaching practices is not widely recognized or is undervalued. Because IHE faculty are likely to consider themselves experts in their content areas, they show little commitment to considering K-12 standards in their courses. The collective cultural differences and potential disincentives may make partnership and true collaboration very difficult to build and sustain. The IHE team in conjunction with the K-12 teams (both science and

math) have begun joint conversations to, in part, address these issues and seek remedies as the project moves into Year Three.

Promotion and Tenure of IHE Faculty

Career advancement for IHE faculty, in the forms of promotion and tenure, is clearly an important factor in the sustainability of the partnership. Tenure considerations play a major role in the ability or willingness of IHE faculty to invest time in MSP activities. The faculty members who are involved in the SW PA MSP are split among tenured, tenure track (or probationary), and non-tenure track. Tenure and promotion decisions at the partner IHEs are based on three aspects of the faculty member's performance: scholarship and research, academic and teaching, and service. In interviews, faculty members reported that MSP involvement primarily counts toward the service component of the tenure portfolio, and that service is the least important piece and the easiest to fulfill. Tenure track and probationary faculty reported they feel pressure to develop research portfolios and publish original research articles in peer-reviewed journals, and are uneasy with spending large amounts of time involved with the MSP.

In response to these concerns, the IHE team leaders are working to make MSP activities count more broadly in the promotion and tenure decision process. Their arguments are twofold. First, the MSP activities are extensions of, or related to teaching, and should count as academic/teaching activities for tenure decisions. Second, they consider the MSP activities to be research related, and, when coupled with publication in peer-reviewed journals, should therefore be counted as research. However, a number of senior faculty members noted that changing the promotion and tenure policies at IHEs is inevitably a slow process. Addressing these issues is an ongoing need in order to ensure long-term support and involvement by tenure-track faculty. This is especially true since the IHEs involved in this project are striving to bring their level of faculty credentials up to par with more prestigious research-based universities in the region.[6]

One way for the project to help address this is to more actively encourage faculty to publish MSP-related research. Some publications have been written by IHE faculty, in some cases in collaboration with K-12 teachers. In addition, faculty from one IHE reported on MSP activities at a regional conference. These publications are also good examples of partnership building between IHE faculty and K-12 teachers, as well as an incentive for IHE faculty to be involved in the MSP. One publication stemmed from conversations between an IHE faculty and a K-12 teacher during one of the Teacher

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[6] This is more than a regional trend. Smaller liberal arts colleges and universities across the country are pressing for higher levels of research and publication efforts by faculty.

Leadership Academies. The other was a collaborative effort at one IHE, among education faculty, discipline faculty and a Teacher Fellow.

Administrative Support

Administrative support is important for successful implementation of MSP activities at both the K-12 and IHE levels. At K-12, the case studies of high- and low-implementing districts and interviews with teacher leaders illustrate some of the differences administrative support can make. In districts that appear to be implementing the MSP activities successfully, principals and superintendents tend to show direct support for the activities. For instance, principals from one district have attended the follow-up district-level professional development activities. In addition, the superintendents have attended and introduced some sessions. At one school district, administrators sought and received additional funding to cover the extensive district level professional development, enabling all the teachers, not just math and science teachers, to attend the professional development sessions. In contrast, at K-12 case study districts that are struggling to implement MSP activities, the evaluation team has been unable to even schedule time to interview superintendents in order to begin to understand what the impediments are.

High implementing districts also seem to be flexible in how they implement MSP activities. As mentioned above, one district opened the district level professional development to all teachers, not just math and science teachers. In another instance, a district scheduled only one elementary school to participate in the district level professional development, but after a successful year, it has decided to include all elementary schools in the program.

At IHEs, deans and department chairs play important roles in the tenure process, including setting the criteria for promotion. All four of the IHE Leadership team members hold or have previously held administrative positions such as associate dean or department chair, or have served on rank and tenure committees. As such, they have lobbied with limited success to have MSP activities count for more in the tenure process. Also, in some IHEs, an administrative person handles student teacher placements, and this person must be onboard with the project if they are to facilitate the placement of pre-service teachers with teacher leaders.

The MSP project has recognized from its inception the importance of administrative support in K-12 schools. School principals typically control access to resources, scheduling and priority of professional development and accommodation of new curricula, courses and pedagogy. Further, central office support is essential for any type of sustainable reform. To that end, the MSP has planned for administrative professional
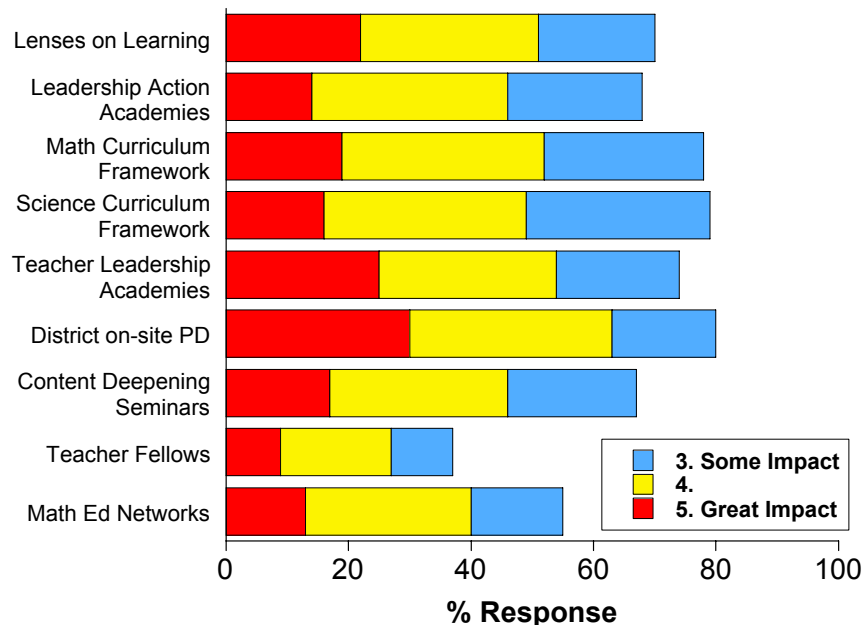
Figure 3: Impact of MSP activities on instructional practices, as reported by principals.

development and support through *Lenses on Learning*. As mentioned earlier, this activity is now a required first step for inclusion among the MSP expansion districts in Year Three.

Administrator perception of the effectiveness and impact of the MSP is crucial to continued support. In a survey administered early in Year Two, principals reflected on the relative impact of various MSP activities on math and science instructional practices. One principal was surveyed in each of the 201 MSP schools, and 71% responded. Figure 3 summarizes the responses. Among activities rated as having great impact (five on a five point scale), district professional development was cited most frequently, followed by the MSP's

Teacher Leadership Academies and *Lenses on Learning*. The MSP activities rated least frequently as having at least some impact were Teacher Fellows, Educator Networks, and Content Deepening Seminars. These perceptions are not surprising because relatively few teachers have served as Teacher Fellows, the Educator Networks have the most direct benefit in the subset of districts that are involved in this activity, and the Content Deepening Seminars were just beginning this past summer (2005). As the focus on various project activities shifts over time, it will be interesting to track administrator perceptions of MSP impact on instruction.

An important strategy to leverage the capacity being built by the MSP in K-12 schools is to ensure that student teachers are exposed to the communities of teacher leaders being developed in K-12 settings. This can be accomplished by placing student teachers with MSP-participating teachers. This will afford student teachers opportunities to be mentored on the implementation of reform-oriented teaching strategies and to be fully supported in their first experiences implementing them. These student teaching experiences will help to improve the pipeline of new teachers feeding into MSP schools and other schools in the region, thus building the capacity of highly qualified teachers in southwest Pennsylvania. IHE faculty indicate they are convinced of the benefits of this synergy, and are working to enact it; however, thus far the strategy has met with only limited success. District administrators and students themselves often have discretion over student teacher placements and can undermine this strategy. Moreover, IHE faculty often have little influence over student teacher placement, as it is handled by a staff person or administrator. For the strategy to fully succeed, more integrated and focused management of student teacher assignments will be needed.

IHE team members are also addressing how to best enlist and utilize upper level administrative support within their institutions. It was noted during a recent Cabinet meeting that because the size of the IHE partners is typically small, the representing Dean or other administrator "at the table" was usually placed high in the leadership of the IHE and could do much to influence policy and involvement. Certainly, some of the incentive for administrative support will come through the more indirect impacts of faculty involvement (as evidenced by publications and grants) and student enrollment (via enhanced visibility among educators).

Some Concluding Thoughts
Through the first two years of the project, K-12 districts and IHE partners have come to better understand the nature of the MSP intervention strategies, and to develop an understanding of the capacities needed to effectively implement the MSP model. So too, each partner has had to address a number of factors that have presented as hindrances to partnership. These include some of the cultural differences between the K-12 and IHE environments, the need to juggle already pressed K-12 schedules and school improvement agendas to accommodate project requirements and expectations, and in the implementation of a professional development model that represents a different conceptual approach than the type of individualized "make and take" workshops many have experienced. IHEs are also being asked to engage in change within their own institutions rather than taking a more traditional role of advising change in K-12 settings. To date, the partners have made good faith efforts to address these and other issues and engage fully in collaborative work. As the project evolves, it is hoped that the

complex web of interacting strategies and activities will provide a strong and sustainable foundation for continued reform.

At this early stage in the project, partnership building appears to be one of the most important factors in successfully implementing the SW PA MSP and ensuring its sustainability. Many of the institutional and support structures that have been identified as key elements in implementation affect partnership building and the willingness or ability of partners to become and stay engaged. Recognizing and addressing some of the cultural differences between partners continues to be important to ensure sustainability. Some of the same themes we identify here have surfaced in prior K-12 improvement efforts that have included IHEs as key participants. For example, in *Teachers for a New Era,* an effort to improve the education of pre-service teachers, IHE faculty reported concern about tenure and promotion if they were involved in teacher education reform (Kirby et al., 2004). In that same study, the evaluators noted the importance of engaging IHE administrators to "gain visibility and prestige" for the project, the flexibility given to IHE teams to implement their programs, and the difficulty in getting K-12 teachers involved in a meaningful way, in part because of scheduling problems. Each of these themes has emerged to some extent in the MSP.

Tananis (2000, 2003) and others (Patton, 1994; Greene, 2001) discuss how evaluation can become a vehicle to foster and support discursive deliberation among stakeholder groups. In this developmental role, the evaluation (and in part, the evaluator) becomes the negotiator of a common ground for discussion and consideration. By assisting in this more extended and complex process, evaluation helps to invite dialogue across diverse and disparate cultures, to focus deliberation on key areas for action, and to engage stakeholders in collaborative problem-solving.

The expectations and hopes for the MSP are broad and ambitious. Partnership is an essential element to the eventual success and sustainability of the MSP efforts. Evaluation can offer the more traditional services of providing accurate and useful information to decision-makers, but can also help the project in the development of meaningful and lasting partnerships through focused deliberation among stakeholders.

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