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Leadership Orientations of FY00 eMINTS Principals

This report classifies FY00 eMINTS principals according to their leadership orientation. School visits were conducted during the 1999-2000 and the 2000-2001 school years. On-site visits including interviews with the principals and the eMINTS classroom teachers, illustrate four general leadership orientations among the FY00 principals. Principals with a *collaboration* orientation acted as catalysts to the full implementation of eMINTS. Principals with a *regulation* orientation limited the full implementation of eMINTS. Principals with a *disconnection* orientation had little impact on the implementation of eMINTS in their buildings. In addition to these three main orientations, a fourth, "hybrid" orientation was identified. These leadership orientations are clearly related to the ways eMINTS teachers conduct their lessons, and have clear impacts on student performance. Students in schools with collaborative principals score higher than students in schools with other types of principals. This report describes FY00 principal leadership orientations and to what extent leadership orientation affected the implementation of the eMINTS program.

Introduction

Instructional leadership is often reported as a key factor in school improvement. This report describes four leadership orientations found among forty-five FY00 eMINTS principals. Thirty-nine were interviewed twice, once in 2000 and again in 2001. Six principals were new to their schools in 2001. The leadership orientations were devised by analyzing the interviews and observations of the thirty-nine principals who were leading eMINTS buildings for at least two years. The leadership orientations were then applied to the six new principals.

The schools participating in the FY00 eMINTS cohort were significantly larger than other Missouri schools with the same grade spans. This is reflected in both the size of student enrollment and the total FTE in the building. In the 2000-2001 school year the average eMINTS school had an enrollment of 438 students, compared to 367 for the non-eMINTS schools. eMINTS schools had an average of 41 FTE compared to 34 FTE for non-eMINTS schools. In sum, eMINTS schools were larger and more complex than similar schools in the state.

The "leadership orientations" described below were derived from several sources of information: conversations with principals about their participation in the eMINTS program, informal observations of principal interactions with eMINTS teachers, and teacher interviews about the implementation of eMINTS in their schools.

During the period of this analysis the eMINTS program offered no formal training for participating principals, and provided minimal opportunities for principals to

communicate with each other. The results of this analysis suggest a clear relationship between the character of the principal's orientation towards the eMINTS program and the types of lessons in which participating teachers engage. This analysis suggests that the eMINTS program has an opportunity to work with principals to support the development of their teachers.

Limitations of the Orientation Profile

The categories of principal orientation described in this report are based on information gathered from the principal interviews, teacher interviews, and informal observations made by the evaluation team. The information in this report addresses the principals' relationship to the eMINTS program based on a relatively limited set of comments and observations. No attempt was made to collect information about all aspects of a principal's management style.

The Population of FY00 eMINTS Principals

Forty-seven schools participated in the FY00 cohort of the eMINTS program. Members of the evaluation team visited these schools twice, in the 1999-2000 school year and again in the 2000-2001 school year. Of the 47 principals in eMINTS schools 39 were interviewed twice, six were interviewed once, and two were not interviewed at all. The analysis below focused initially on the 39 principals who were interviewed twice, as a way of tracking changes in principal orientation over the two years of eMINTS teacher training. The analysis showed that none of these 39 principals changed their orientation between visits. After determining that the orientation of these principals did not change, the investigation was expanded to include 45 principals interviewed in the 2000-2001 school year. Two principals were removed from the analysis due to difficulties securing an interview.

Criteria for the Leadership Orientation Profile of FY00 eMINTS Principals

In an attempt to identify behaviors related to both internal and external linkages of the FY00 eMINTS building administrators, evaluators developed the Leadership Orientation Profile (see Appendix A)¹. This profile locates the FY00 principals in into one of four general leadership categories: "collaboration," "regulation," "disconnection," and "hybrid." These categories differ in four critical dimensions: (a) principal as administrator, (b) principal and staff relations, (c) principal and student interactions, and (d) evidence of community involvement in the school. These four dimensions characterize the individual principal's orientation to their school and the task of supporting the new teaching practices associated with the eMINTS program. A total of

¹ The profile was drawn from The School Portfolio by Victoria Bernhardt; the Southern Regional Education Board's review of literature on Leading School Improvement: What Research Says, available at www.wreb.org; and the International Electronic Journal for Leadership in Learning, available at www.ucalgary.ca/~iejll/volume5/hughes.html

ten indicators were examined among the four dimensions. When 70% of the indicators were consistently present, the principal was classified in that orientation. When less than 70% of the indicators fell into a particular orientation, but fell into two or three orientations, they were classified as hybrid.

Characteristics of Collaboration, Regulation, and Disconnection Orientations

The differences between collaboration, regulation and disconnection orientation highlight the different ways principals related to their roles as administrators, their faculties, their students and their communities. Most principals showed a mix of key characteristics, as seen in Table 1, 28.9% of the principals were placed in the collaboration category; 20.0% were placed in the regulation category; 11.1% were placed in the disconnection category, and 40.0% were classified as hybrid. These orientations were very stable. No differences in leadership orientation were discovered in the thirty-nine principals who were observed in the program for two years.

Four Critical Dimensions of the Collaboration Orientation

In the collaboration orientation, principals supported all aspects of the school community. Power and control were shared. It was recognized that working together would meet the needs of the school better than working alone. A comment from a principal with a collaboration orientation:

What we do is value the teachers' knowledge and their professionalism and value their expertise in what they do . . . I try very seldom to ever make a decision that affects them without their input.

A central theme within the collaboration orientation was one of shared power and control. The principals talked about inclusion and there appeared to be systems in place for an ongoing dialogue. Administrators, teachers, staff, and students learned from each other and with each other. Risk-taking was permitted. One principal with a collaboration orientation said, "Those teachers are risk takers and that's part of the reason that they were chosen. And, I'm a risk taker." Members of the school community were free to contribute their ideas, their ideas were listened to, and their ideas were part of the decision-making process. Linkages for those principals with a collaboration orientation meant making contact with, wanting to be known to and knowing, staff, students, and community. There were no blocks to communication. According to one principal:

I'm part of our teachers' team. I really work on building cohesiveness among the staff. I think most of the teachers can talk to me on a personal and professional level. We have a pretty close relationship.

Table 1
Leadership Orientation of FY00 Principals
(in Percent)

Principal Classification	Observed in 2000 and 2001	Observed in 2001	All Principals	Number of Principals
Collaboration	28.2	33.3	28.9	13
Regulation	20.5	16.7	20.0	9
Disconnection	7.7	33.3	11.1	5
Hybrid	43.6	16.7	40.0	18
All Principals	100.0	100.0	100.0	45
Number of Principals	39	6	45	

Principal as Administrator

Communication flow, information exchange, and decision-making were examined in this dimension.

Communication was consistent and meaningful between all levels in the school. There was a two-way influential relationship. Language suggested inclusiveness: “we as a staff,” “our team,” “it’s a collaborative thing,” “to work together,” “we made those decisions,” “our goal,” “we’re all putting our heads together” and “open door policy,” were heard. Because of the open flow of communication, one principal noted, “I know the teachers understand and appreciate the dedication of the two teachers who are eMINTS teachers.”

Information exchange was varied and continual. Staff bulletins, e-mails and face-to-face encounters were the norm.

Decision-making was transparent and participatory. With an emphasis on co-leadership, the principal solicited and supported decisions of the staff. One evident decision having to do with the eMINTS project was the furniture purchase and placement. The collaborative principals included the teachers in the process. In some cases, the teachers visited other schools before making the selection. One teacher said of the principal, “Our principal asked me to draw up some designs of what I would ideally like.” The teachers had their rooms wired to conform to their teaching preference, even if the wiring was different than other rooms in the school. In some cases, rooms were re-wired when the original idea did not work for the teacher as planned.

Principal and Staff Relations

Strong partnerships, support for innovation, and provisions for staff to work together were the hallmarks of principal and staff relations in the collaboration orientation.

The principals with a collaboration orientation paid attention to the interrelatedness and interdependency of the school as a system. A strong partnership fostered a sense of

ownership. In one school, the principal had a team of teachers' interview potential teacher candidates, "so they have input into someone who works with them." For example, eMINTS teachers were encouraged to teach professional development sessions for their non-eMINTS peers. The principal talked of using "our own teachers to show what expertise that they have."

Opportunities the used by collaborative principals to promote staff working together were numerous and varied. The list included: study groups, action research, collaboration days, grade-level meetings, in-service professional development, faculty meetings, at-risk committees, social committees, building climate committees, technology committees, and celebration teams. Here was how one principal summed it up, "We've worked on team building."

Principals described how their collaborative orientation helped their staff members, recognized the interrelatedness among each other and to students. Faculty with principals in the collaboration orientation category did not operate as a set of discrete classrooms, but as one element of the whole school. Three different principals commented, "They've been real gracious to do as much as they could to make [other] teachers feel like they were welcome" in their classes; "They've been great to share information with other teachers;" "They've taught teachers, they've taught other groups of children, they've team taught, they've done all kinds of things." Indication of the all for one, and one for all attitudes of the staff follows:

- eMINTS teachers provided in-service and workshops for non-eMINTS teachers
- eMINTS teachers became mentors
- eMINTS teachers shared material and web sites
- eMINTS teachers opened their rooms for colleagues use
- eMINTS students were "loaned" to assist in other classes, with other teachers, and with the building principal.
- eMINTS teachers brought other classrooms into their rooms and worked with the other teachers.

The eMINTS innovation was recognized and encouraged throughout the building in those led by collaborative principals. In one school, the principal allowed a student with special needs to attend a professional development session on the SMART Board. The principal said that it not only helped the student, but also helped the teachers in the building to understand that "our students are becoming our teachers." Teachers were recognized during staff meetings and given extrinsic rewards, such as coupons, extra storage, or simply given acknowledgement of their contributions. "I try to do things to let them know they are appreciated but also how important the job is that they are doing." Because eMINTS did require extra time the principal "tried to relieve [the teachers] of some of the other things in the building, and not make as many demands on those two teachers as far as committee work."

Principals with a collaborative orientation enabled the staff to work together. There were examples of principals rescheduling planning periods so that staff could meet within the school day; and giving eMINTS teachers extra release time for planning and developing

professional development activities. A critical difference between this orientation and others was that working together was an explicit goal of the principal and not left to chance.

Principal and Student Interaction

Principals in the collaboration orientation category, were aware of individual student achievement, had daily contact with students, and rewarded students for appropriate behavior.

There was evidence that the principals knew the achievement, progress, and accomplishments of the students. “The kids can research by far better than students that have not had the opportunity of an eMINTS classroom. Their research ability, not just on the computer, but in hard copy improved.”

Across the board, these principals could describe what was going on in the classes:

“[The students] did a web quest on the Pueblo Indians and the quest was why they became extinct. They got to follow a scientist and a journalist on their daily communications. I think that really helped the kids understand Native Americans.

They knew about student use of technology and computer applications, such as graphic organizers, WebQuests, PowerPoints, Excel, and the SMART Board. But more importantly, they were aware of what the technology afforded academically and the instructional methods for integrating technology into the curriculum:

They have learned to work together because they have shared the computer; they have learned life skills in that respect. They can take information, they can simplify it, [and] they can create graphs. They can do any kind of comparisons; they can research. They have obtained to a higher degree those kinds of skills than we were doing in the regular classroom. And, I think we’ve stretched those kids...I would say that the learning that was taking place has been probably the greatest benefit, as well as social skills that they have developed.

The teacher interviews conveyed that one of the reasons that the principals were receptive to inquiry-based teaching was that their principals recognized the benefit to the students.

Principals in the collaboration category routinely spent part of each school day with the student body. Many illustrations were witnessed while visiting the schools, the principals:

- greeted students as they got off the bus,
- joined the students for breakfast,
- administered a practice test,
- supervised a lunch shift,
- read to classes,
- directed car riders, and
- engaged in classroom activities with students.

Students had contact with and were rewarded by the principal when they exhibited positive behavior. Being pictured in a “Hall of Fame” rewarded good student citizens. Improved students were rewarded with certificates, pencils, stickers, or public recognition in the newsletter, morning announcements or an assembly. Good attendance was rewarded with a party for the class.

They’ll [students] bring me a ticket and tell me what they did to get the ticket. There is a lot more focusing on the whole child and that character development beyond...test scores. We have to raise good kids too, so there’s a little more emphasis on that well roundedness as opposed to...academics.

One teacher said that the principal made requests for research from the students. The principal was overwhelmed with the students’ work and “couldn’t praise the kids enough, and that’s important to the kids that [principal] recognizes what they are doing.”

Community and School Involvement

Community, volunteer, and parent involvement were actively sought in schools where the principal exhibited a collaboration orientation. On entering the school, one was greeted with a prominent welcome sign, a guest book, and/or visual displays. One principal expressed it as:

Parental involvement, we constantly have parent volunteers in the building. That’s one thing I think we make parents real comfortable coming in. You know there are volunteers, a lot of volunteers, who come in and volunteer with the kids.

Many examples of reaching out into the community were found. Retired senior volunteers helped to grade papers, lunch buddies arrived to eat with students, businesses augmented class resources through “partners in education” programs, parents set student behavior expectations in parent advisory councils, and parents joined their students for math nights and technology nights. The community could access the school outside of school hours for scout meetings, alumni association meetings, and community clubs. These represent a sampling of the school and community interface.

Four Critical Dimensions of the Regulation Orientation

In the regulation orientation, the building principal was the person in charge of the school. The power and control come from that office. In the words of a principal holding a regulation orientation, “I have the final say so.”

In one example of a principal with a regulation orientation, the eMINTS teachers in that school volunteered to complete an application for the eMINTS Expansion program. The principal attempted to assemble the application alone, and consequently, the grant did not get submitted. The principal’s response was, “That’s the way it goes.”

A central theme within the regulation orientation was one of principal power and control. The principals talked about the staff following their lead. Staff was expected to respond to the initiatives and directives of the principal. Principal expectations included implementing structured schedules and enforcing uniform classroom behavior. A primary focus was on student grades and achievement standards. Risk-taking was discouraged. One principal imparted what was “passed on to my staff.” If a staff person could sell the principal on an idea, the response was, “It’s your baby, go for it, if it fails, you’ve failed.” Relationships for those principals were a minor concern; productivity was the main concern.

Principal as Administrator

As in the collaboration orientation, communication flow, information exchange, and decision-making were examined for the regulation orientation.

Communications were typically from the principal to the staff. Directives were apparent in the language used, “my goals, here as an administrator,” “my focus was,” “I made things happen here.” and “I’d tell them what we wanted.”

The information exchange was in the form of orders, delegations, and instructions. The orders flowed from principal to staff. One principal described the building as “very structured.” There was an emphasis on creating and enforcing rules, and staff following those rules. Teachers reported that faculty meetings were infrequent, rushed, and when the faculty met, the principal controlled the agenda.

With little regard for others’ suggestions or opinions, the principal with the regulation orientation made decisions for the school. For example, in the discussions of acquiring furniture for the eMINTS classrooms, principals in the regulation category took responsibility for all of the details: “I got the measurements.” “I looked through the catalogues.” “I made the diagrams.” “I wanted to get the biggest table.” “I picked what looked like would probably be the best.”

Principal and Staff Relations

In schools with principals in the regulation category, eMINTS was perceived as primarily a technology or computer project. Limited opportunities for cooperation and partnerships within the school were a second indicator. Thirdly, teachers were operating in discrete classrooms, doing solitary work. The principal saw the teachers as responsible for their own success or failure.

A misconception that many principals had was that eMINTS was all about technology. Often those with a regulation orientation, referred to the eMINTS class as a “computer lab.” When they talked about the eMINTS classrooms they referred to the equipment and the computer applications. A question about active engagement brought the response of “I’ve observed them hunting on the Internet.” They rarely spoke of the inquiry-based component or the cooperative learning component. In fact, they often were not convinced of the benefits of these teaching strategies. When asked what they would tell another principal about eMINTS, they singled out the technology aspect.

The principal was the provider of information and the staff and students were the receivers of information. Meetings were infrequent. One principal summed it up with, “I’m not big on staff meetings.” An example of limited partnerships follows:

A teacher was informed that the building principal would sit down with the teacher and “do some talking before [a decision] was made.” However, in the principal interview, it was said that the principal had already made the decision in question.

Teachers were expected to have little responsibility or influence outside of their own classroom. There was little if any common planning time. The principals with this orientation said that the teachers could meet after school, or during lunch. One said common planning time was “just not doable.” Another principal said that there was not enough time for the eMINTS teachers to share with the other staff members.

Teachers verified the regulation staff relations in their interviews. One teacher said that the principal would like to see all the teachers doing the same thing. The teacher’s response to the principal’s expectations for sameness was “How boring would that be?” In another school, a teacher was stressed because it was difficult to explain during a “staffing” with the principal, why there were not more paper and pencil grades to show from the eMINTS classroom. Another example comes from a teacher whose lessons are “hardly ever teacher-centered.” The principal is not used to the eMINTS teaching style because it is not part of the principal’s background. One teacher summed up the feelings of working with a principal with a regulation orientation by saying that the principal does not want to move forward. If something has worked in the past, “why try to change it?”

Principal and Student Interaction

The regulatory principal was aware of students as data, contact with students was primarily in the office, and students were controlled primarily through negative consequences in this orientation.

When the principals were asked about students, they largely responded with achievement data. Or before responding to a question, they had to check the data, or to be sure, they would have to look at the data. For example, “I’m not positive about that because I didn’t look at those figures.” One teacher holds that “The MAP is just a test and there are other things in life besides doing well on that test. I’m O.K. until my MAP scores are not up there and the principal comes and sees me.” When one principal talks about the reason for a student reading initiative, it was because “it’s going to be very important in MAP testing, and in the way we perform on MAP.” Another principal remarked,

You know you’ve got to teach the test [MAP], you’re a fool not to teach the test. You know this is the way they’re [students] are going to be tested. Why would you not teach in that manner?

There was a conversation between this principal and one of the eMINTS teachers. The teacher said that a lot more could be done with the program. The teacher was hesitant:

We have testing and we have all these things being pushed on us for testing. And, I'm scared to just say, well let me just try this whole new thing right now.

Contact with students was primarily in the office. It was not unusual to spend the day in the building and find the principal with a regulation orientation, in the office the majority of the day.

Students were mainly controlled through negative consequences. Detentions, warnings, corporal punishment, teachers taking misbehaving students to the office were more apparent in the school lead by a principal with a regulation orientation. One principal said, "I do handle all the discipline." Another remarked, "We miss a lot of recesses." A third example:

I've noticed that I have to be meaner and meaner so that things don't get out of control. And so, I have rules and if they break the rules by fighting on the ground, or very certain things, then they get a paddling.

Community and School Involvement

The principal with the regulation orientation employed traditional methods of community involvement. Yearly parent teacher conferences and open houses were cited. When asked if the school was opened up for the community in any way, one response was, "Not really. We have open house. In this building we don't do a whole lot of community coming in. Really don't do any of it."

Four Critical Dimensions of the Disconnection Orientation

In the disconnection orientation, the principal exerted little power or control. The linkages between principals and teachers were tenuous and ill defined. When an interviewer asked about students in the eMINTS classroom, the only response was that the children were "excited." One teacher in the school remarked, "I've been disappointed in that [principal] doesn't come down and see what we are doing a little bit more often, without a special invitation to be here."

Largely disengaged from the staff, a marker for this orientation was minimal influence and minimal contact. As the linkages were loose and vague, there were no clear guides for involvement. The principals talked about something going on in the school, and the teachers held a different perspective. Few demands were placed on any of the staff and few incentives were present for staff. When asked the difference between a good school and a great school, the response from one principal was, "I don't think there's that much difference, really."

Principal as Administrator

Again, as in the previously described orientations, communication flow, information exchange, and decision-making were factors examined. Principals with a disconnection orientation were in place to communicate orders from the superintendent to the staff.

When a problem was encountered, the strategy was to pass the blame on to someone else. The communication style most associated with this classification was noncommittal. One principal depicted “front line communication” as a “drawback.”

Information exchange was lacking, or at best laissez-faire. The language used by principals in the disconnection orientation showed that they were often unaware of what was going on their school. During one interview, questions were repeatedly referred to the assistant superintendent, the curriculum director, the teachers, or other district personnel. This same principal said, “Too much information was not a good thing.” The second year’s interview was a repeat of the first. The principal got off the topic easily, frequently answered a different question than was asked, and again could not talk about fundamental things about the school.

The principals in the disconnection category exerted minimal influence with decisions for the school. When asked about how the building principal perceived the eMINTS project, one teacher responded, “I really don’t know. I’m not sure how [principal] feels about that.”

When speaking about decisions, the philosophy of one principal was that things “happened as they happened.”

Principal and Staff Relations

In schools with a disconnected principal there was no consensus on the intent of eMINTS. For example, one principal was unsure of which class he witnessed the students “going to town” on the computers. From this encounter the statement was made, “I don’t know, I can turn one on and I can turn it off, and I can get my e-mail, and that’s about it. That’s what I have a secretary for, and I’m not going to make any bones about it, that’s what I have her for.”

The disconnected principal rarely initiated or followed through on actions. Little contact was made in the classroom. As one principal says, “as far as in the room, I haven’t been involved in that.” The principal goes on to say that, “I hire the teacher to take care of the classroom.” In talking about the eMINTS teachers, the principal was vague, “there will be nice little comments to make about their instruction, just as I would if they were doing something else.”

Teachers verified the disconnected staff relations in their interviews. One teacher said, that the principal let them vent, but added, “You know, [principal] listens to us and it probably goes in one ear and out the other.”

Principal and Student Interaction

In the disconnected orientation, the principal had minimal contact with students. Unaware of what was going on in the classroom; comments about students were indefinite. Nothing more specific than “busy as little beavers.” When asked about student work hanging in the hallways, the principal could not speak to it. The principal was not sure and would have to “double check.” Likewise, the same principal could not

speak to changes in student work since eMINTS, “I don’t think that I could say that I have looked at that in a way that could tell me that for sure at this point.”

One teacher lamented that on many occasions the principal with a disconnection orientation, has said that a visit would be made to the class. Regrettably, the principal did not follow through.

Community and School Involvement

Those principals with a disconnection orientation did not actively engage the community or parents in the school. When one community member had a misconception about the eMINTS project, the principal did not make any effort to educate the community member. Another principal with a disconnection orientation did not seem interested in interfacing with parents.

On a very negative note, you know, I sometimes wonder if parents today don’t want their kids to do well. They don’t want them to have to work very hard, and they don’t want to be [put out].

Teacher Lessons by Principal Leadership Orientation

What impact does the leadership orientation of the principal have on the conduct of eMINTS lessons? Much of the eMINTS professional development program is focused on encouraging teachers to use student-centered, inter-disciplinary, constructivist lessons. Since teaching practice exists in the context of a school, and the principal is largely responsible for setting this context, it is logical to expect that differences in the ways principals lead their buildings would influence the ways eMINTS teachers conduct their classes. The combination of the principal leadership orientation categories and teacher lesson typology categories allowed us to investigate the interaction between principal leadership and classroom teaching practice.

The teacher lesson typology is described in the report; *A General Typology of eMINTS Lessons*². Four general classes of lessons were identified: teacher centered, student-centered, facilitated, student-centered unfacilitated, and hybrid. The main contrast is between teacher-centered lessons and student-centered, facilitated lessons. Teacher-centered lessons are traditional lecture-type lessons, where the teacher controls the content and conduct of the lesson. Student-centered facilitated lessons are the inter-disciplinary, project-based and constructivist lessons envisioned by the eMINTS program.

According to *A General Typology of eMINTS Lessons* report 43.5% of lessons observed in the 2000-2001 school year were classified as "student-centered, facilitated". Table 2 shows a clear relationship between principal leadership orientation and observed lesson type. The first panel shows that half of “student-centered, facilitated” lessons were

² Available at <http://emints.more.net/evaluation>

observed in schools with collaborative principals, while the largest groups of other lessons were observed in schools with hybrid principals. The second panel of Table 2 shows that schools with collaborative principals over three-quarters of observed lessons (76.0%) were classified as “student-centered facilitated”, while the remainder were classified as “hybrid”. In contrast, one-third of the lessons observed in schools with principals classified as “regulation” were classified as “teacher-centered”.

The results of Table 2 suggest a clear picture of teacher change, namely, teachers with principals who are active collaborative leaders in their schools and supportive of the eMINTS innovation were more likely to apply their eMINTS training to create student-centered, constructivist lessons. Evidence for the pattern of change is seen in Table 3.

Table 3 compares the classification of lessons observed in the 1999-2000 school year with the classification of lessons observed in the 2000-2001 school year. These two years of observations cover the FY00 teachers’ participation in the eMINTS Professional Development Program. In Table 3, differences in observed lessons are organized into three categories: “Improved”, i.e., identifying teachers who moved closer to using student-centered, facilitated lessons in between 1999-2000 and 2000-2001; “Did not Improve”, i.e., identifying teachers who moved away from using student-centered, facilitated lessons in between 1999-2000 and 2000-2001, “No Change”, i.e., identifying teachers whose lessons were classified in the same categories each year.

Table 2
Teacher Lesson Typology Classification in 2000-2001 by Principal
Leadership Orientation
(in Percent)

Teacher Lesson Typology Classification	Principal Leadership Orientation				All Teachers	Number of Teachers
	Collaboration	Regulation	Disconnection	Hybrid		
Row Percentages						
Teacher-Centered	0.0	26.3	15.8	57.9	100.0	
Hybrid	25.0	16.7	12.5	45.8	100.0	
Student-Centered						
Facilitated	51.4	10.8	8.1	29.7	100.0	
Student-Centered						
Unfacilitated	0.0	40.0	20.0	40.0	100.0	
All Teachers	29.4	17.6	11.8	41.2	100.0	
Column Percentages						
Teacher-Centered	0.0	33.3	30.0	31.4	22.4	19
Hybrid	24.0	26.7	30.0	31.4	28.2	24
Student-Centered						
Facilitated	76.0	26.7	30.0	31.4	43.5	37
Student-Centered						
Unfacilitated	0.0	13.3	10.0	5.7	5.9	5
All Teachers	100.0	100.0	100.0	100.0	100.0	85
Number of Teachers	25	15	10	35	85	

Table 3 shows that 64.0 percent of teachers in schools with collaborative principals improved their lessons between 1999-2000 and 2000-2001. In contrast, one-third of teachers with principals in the “regulation” category, and 40.0% of teachers with principals in the “disconnection” category did not improve their teaching. Teachers with principals in these categories actually moved away from the instructional methods emphasized by the eMINTS Professional Development program. It is also clear from Table 3 that about forty percent of the teachers with principals in the “regulation”, “disconnection” and “hybrid” categories did not consistently change their teaching practices during this period. In contrast, only 32.0 percent of teachers with collaborative principals did not change, and most of these teachers were observed teaching student-centered, facilitated lessons in both years.

Table 3
Change in Teacher Lesson Category, 1999-2000 to 2000-2001 school
years by Principal Leadership Orientation
(in Percent)

School Year		Principal Leadership Orientation				
1999-2000	2000-2001	Collaboration	Regulation	Disconnection	Hybrid	All Teachers
<i>Improved</i>		64.0	20.0	20.0	25.7	35.3
Teacher-Centered	Student-Centered					
	Facilitated	12.0	6.7	0.0	2.9	5.9
Hybrid	Student-Centered					
	Facilitated	44.0	13.3	10.0	5.7	18.8
Student-Centered	Student-Centered					
Unfacilitated	Facilitated	0.0	0.0	0.0	2.9	1.2
Teacher-Centered	Hybrid	4.0	0.0	10.0	8.6	5.9
Student-Centered	Hybrid					
Unfacilitated		4.0	0.0	0.0	5.7	3.5
<i>Did not Improve</i>		4.0	33.3	40.0	28.6	23.5
Hybrid	Student-Centered					
	Unfacilitated	0.0	13.3	10.0	2.9	4.7
Student-Centered	Hybrid					
Facilitated		4.0	6.7	10.0	5.7	5.9
Hybrid	Teacher-Centered	0.0	13.3	20.0	17.1	11.8
Student-Centered	Teacher-Centered					
Facilitated		0.0	0.0	0.0	2.9	1.2
<i>No Change</i>		32.0	46.7	40.0	45.7	41.2
Teacher-Centered	Teacher-Centered	0.0	20.0	10.0	11.4	9.4
Hybrid	Hybrid	12.0	20.0	10.0	11.4	12.9
Student-Centered	Student-Centered					
Facilitated	Facilitated	20.0	6.7	20.0	20.0	17.6
Student-Centered	Student-Centered					
Unfacilitated	Unfacilitated	0.0	0.0	0.0	2.9	1.2
All Teachers		100.0	100.0	100.0	100.0	100.0

Impact of Principal Leadership, Building Free and Reduced Lunch Percentage and the eMINTS Program on Student Performance

The leadership orientation of eMINTS principals is clearly related to the likelihood that teachers will conduct student-centered, inquiry-based lessons. This section of the report considers the relationship between principal leadership on student performance in the eMINTS schools. This relationship was examined by analyzing MAP score differences by leadership orientation, by building Free and Reduced Lunch Percentage, and by teacher participation in the eMINTS program.

Variables Considered and Plan of Analysis

The role of the principal as an “instructional leader” has been a centerpiece of the effective schools literature for nearly twenty years (for example, see Rosenholtz, 1985) and the centrality of the principal in school management has been shown to have an impact of student performance (Fredkin and Slater, 1994). Based on the research into principal leadership, one would expect the leadership orientations outlined above to influence aggregate student performance.

Student performance is also related to the percentage of students in a building eligible for the federal Free and Reduced Lunch Program. Generally, this relationship is negative, that is, on average, students in high poverty schools score lower than students in low poverty schools. Following convention, the percentage of the student body eligible for the federal Free and Reduced Lunch Program used to determine the “poverty level” of the eMINTS schools. This information is taken from the DESE Core Data System. The percentage was measured in three categories, schools with less than 25 percent free and reduced lunch eligible students, schools 25 to 49 percent free and reduced lunch eligible students, and schools with 50 percent or more free and reduced lunch eligible students.

The third variable analyzed was teacher participation in the eMINTS program. A previous analysis demonstrated that teacher participation in the eMINTS program significantly increased student performance on the MAP tests administered in the spring of 2001.³

The analysis considered the mean MAP score for each of the four subject areas; Communication Arts and Science in the third grade, Mathematics and Social Studies in the fourth grade, according to the different categories of the above variables.

The Impact of Building Free and Reduced Lunch Percentage on Student Performance

In all subjects except science, students in low poverty schools score significantly higher than students in higher-poverty schools (see Table 4). The differences on the science test are not statistically significant, but students in high-poverty schools (schools where more than half of the students are eligible for the federal free and reduced lunch program) scored an average of seven points higher than students in low-poverty schools.

³ “Analysis of 2001 MAP Results for eMINTS Students”, available on the eMINTS web site: <http://emints.more.net/evaluation>

Table 4
MAP Scores by Building Free and Reduced Lunch Percentage

	Communication Arts			Science		
	Number of Students	Mean	Standard Deviation	Number of Students	Mean	Standard Deviation
Less than 25%	22	657.0	29.9	22	638.0	27.9
25% to 49%	995	642.3	29.5	997	640.3	37.8
50% or More	636	644.0	27.5	653	643.9	31.8
All Students	1653	643.1	28.8	1672	641.7	35.4
p-value	0.0394			0.1174		

	Mathematics			Social Studies		
	Number of Students	Mean	Standard Deviation	Number of Students	Mean	Standard Deviation
Less than 25%	278	655.1	31.3	284	665.5	18.6
25% to 49%	2257	643.3	35.0	2265	655.8	21.8
50% or More	837	645.3	39.5	842	656.4	24.0
All Students	3372	644.8	36.0	3391	656.7	22.3
p-value	<0.0001			<0.0001		

General Impact of Principal Leadership on Student Performance

Table 5 shows the mean MAP scores by Principal Leadership Orientation for each MAP subject area. In all subjects except Communication Arts students in schools with collaborative principals scored significantly higher than students with other types of principals. The general pattern of these results suggests that schools with principals in the “collaboration” and “hybrid” categories score higher than students with principals in the “regulation” and “disconnection” categories. These differences were modest, less than ten points on any given test, but the impact of principal participation in the school is clearly positive.

Table 5
MAP Scores by Principal Leadership Orientation

	Communication Arts			Science		
	Number of Students	Mean	Standard Deviation	Number of Students	Mean	Standard Deviation
Collaboration	698	644.7	30.2	700	643.4	36.1
Regulation	433	642.8	26.2	432	639.4	31.9
Disconnection	95	638.1	26.4	111	634.9	35.0
Hybrid	427	642.0	29.4	429	643.1	37.6
All Students	1653	643.1	28.8	1672	641.7	35.4
p-value		0.1166			0.0423	

	Mathematics			Social Studies		
	Number of Students	Mean	Standard Deviation	Number of Students	Mean	Standard Deviation
Collaboration	1321	647.4	37.3	1327	660.9	21.3
Regulation	620	642.6	34.3	624	652.6	21.6
Disconnection	391	641.9	34.8	391	653.5	21.7
Hybrid	1040	643.8	35.7	1049	655.0	23.2
All Students	3372	644.8	36.0	3391	656.7	22.3
p-value		0.0050			<0.0001	

Interaction of Building Free and Reduced Lunch Percentage and Principal Leadership Orientation

Tables 6 and 7 show the interaction of building free and reduced lunch percentage and building principal typology. Table 6 contains results from the tests administered in the 3rd grade (Communication Arts and Science). Table 7 contains results of the tests administered in the 4th grade (Mathematics and Social Studies).

Results for the Communication Arts MAP indicated significant differences for the principal leadership orientation only. Students in schools with collaborative principals scored higher, regardless of the percentage of free and reduced lunch students in the building.

For the Science test both the percentage of free and reduced lunch students in the building and the principal leadership orientation showed significant differences. One interesting feature of the Science results is that students in schools with between 25 and 49 percent of their students eligible for the free and reduced lunch program and with a hybrid principal scored higher than students in schools with collaborative principals, while schools where more than half of the students were eligible for the free and reduced lunch program and a collaborative principal scored 11 points higher than schools with hybrid principals.

Table 6
Interaction of Building Free and Reduced Lunch Percentage and
Principal Leadership Orientation
Grade 3

Building Free and Reduced Lunch Percentage	Principal Leadership Orientation	Communication Arts			Science		
		Number of Students	Mean	Standard Deviation	Number of Students	Mean	Standard Deviation
Less than 25%	Hybrid	22	657.0	29.9	22	638.0	27.9
25% to 49%	Collaboration	392	644.1	31.0	393	639.5	37.9
	Regulation	202	643.5	26.6	201	636.6	34.8
	Disconnection	35	628.2	23.6	35	632.8	38.9
	Hybrid	366	641.0	29.7	368	644.0	38.8
50% or More	Collaboration	306	645.5	29.2	307	648.3	33.1
	Regulation	231	642.3	26.0	231	641.7	29.1
	Disconnection	60	643.8	26.4	76	635.9	33.4
	Hybrid	39	642.1	23.8	39	637.8	29.2
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p-value							
Overall		0.0130			0.0034		
Building Free and Reduced Lunch Percentage		0.1150			0.0414		
Principal Leadership Orientation		0.0270			0.0097		
Interaction		0.0999			0.1392		

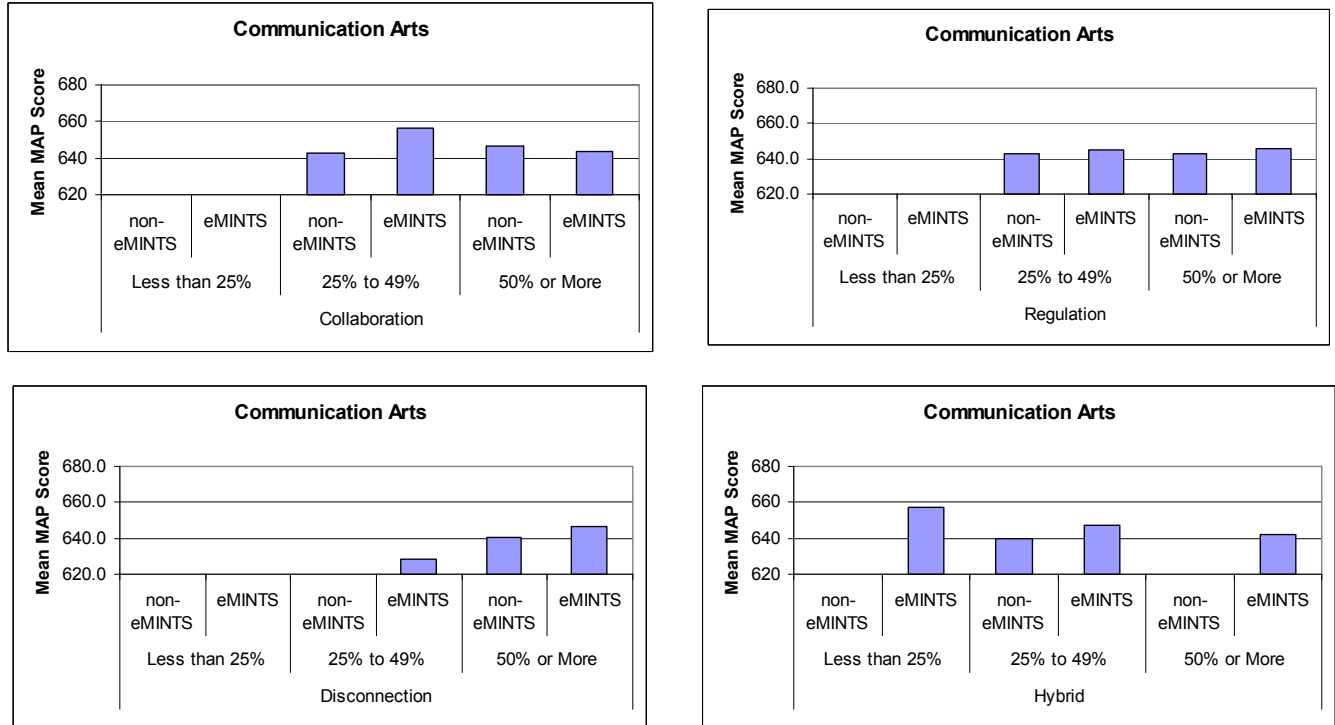
For the 4th grade tests, the interactions between the percentage of students eligible for the free and reduced lunch program and the principal leadership orientation, are statistically significant. There are substantial differences between categories of principal leadership orientation at every level of the free and reduced lunch percentage variable. On both tests, students in schools in with collaborative principals scored higher than students in schools with other types of principals regardless of the percentage of free and reduced lunch students. Among schools with collaborative principals, students in schools where more than half of the students were eligible for the free and reduced lunch program, students scored as high as students in schools where less than 25 percent of the students were eligible for the free and reduced lunch program.

Table 7
Interaction of Building Free and Reduced Lunch Percentage and
Principal Leadership Orientation
Grade 4

Building Free and Reduced Lunch Percentage	Principal Leadership Orientation	Mathematics			Social Studies		
		Number of Students	Mean	Standard Deviation	Number of Students	Mean	Standard Deviation
Less than 25%	Collaboration	130	657.2	30.6	133	664.7	15.2
	Regulation	44	645.0	28.8	44	663.0	22.5
	Hybrid	104	656.7	32.7	107	667.5	20.5
25% to 49%	Collaboration	873	643.1	35.6	874	658.8	21.2
	Regulation	277	644.4	34.5	281	652.7	20.1
	Disconnection	234	645.1	35.3	232	657.3	21.7
	Hybrid	873	642.7	34.6	878	653.3	22.4
50% or More	Collaboration	318	655.4	41.9	320	665.0	22.9
	Regulation	299	640.6	34.9	299	651.1	22.5
	Disconnection	157	637.1	33.7	159	648.1	20.5
	Hybrid	63	637.7	49.8	64	658.6	30.4
<hr/>							
p-value							
Overall		<0.0001			<0.0001		
Building Free and Reduced Lunch Percentage		0.0046			<0.0001		
Principal Leadership Orientation		<0.0001			<0.0001		
Interaction		<0.0001			<0.0001		

The interactions seen in Table 7 suggest that, for the 4th graders in the eMINTS schools, the presence of a collaborative principal helped create an environment that addressed the performance deficits associated with high poverty schools. The question then is, what is the role of the eMINTS in addressing this deficit?

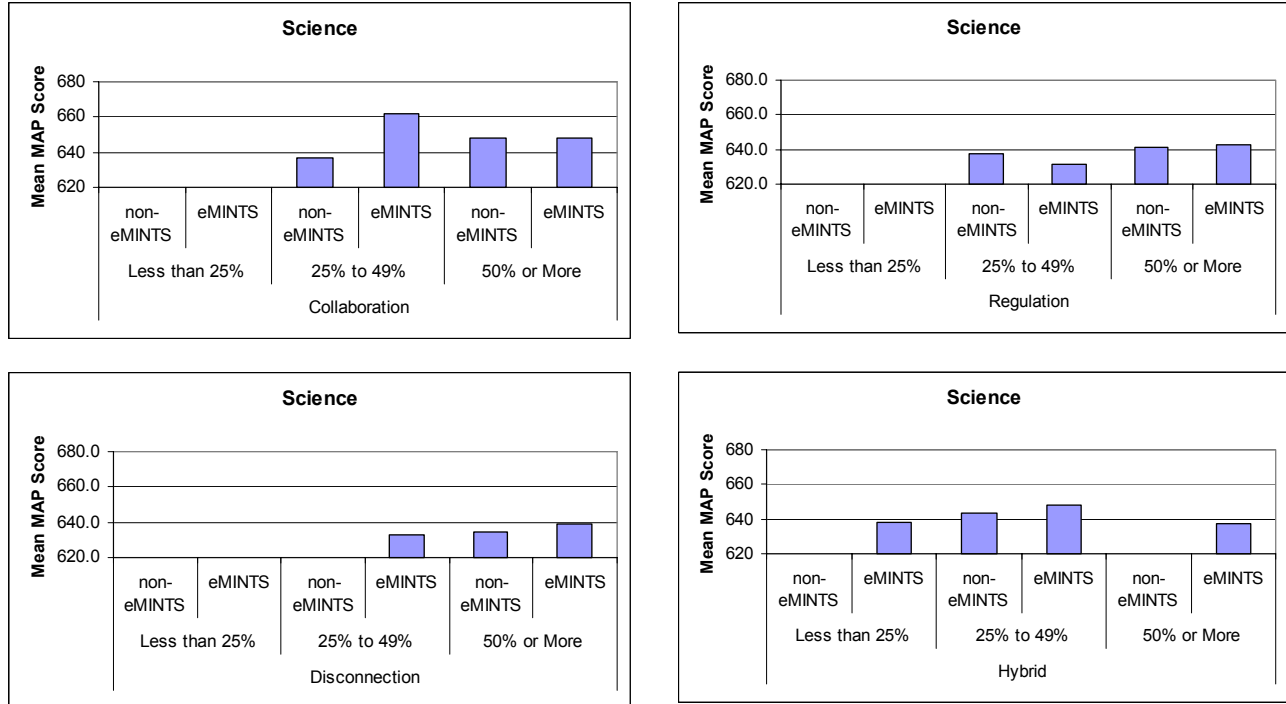
Figure 1
MAP Communication Arts Scores, by eMINTS classroom,
Building Free and Reduced Lunch Percentage and Principal
Leadership Orientation



Interaction of eMINTS, Building Free and Reduced Lunch Percentage and Principal Leadership Orientation

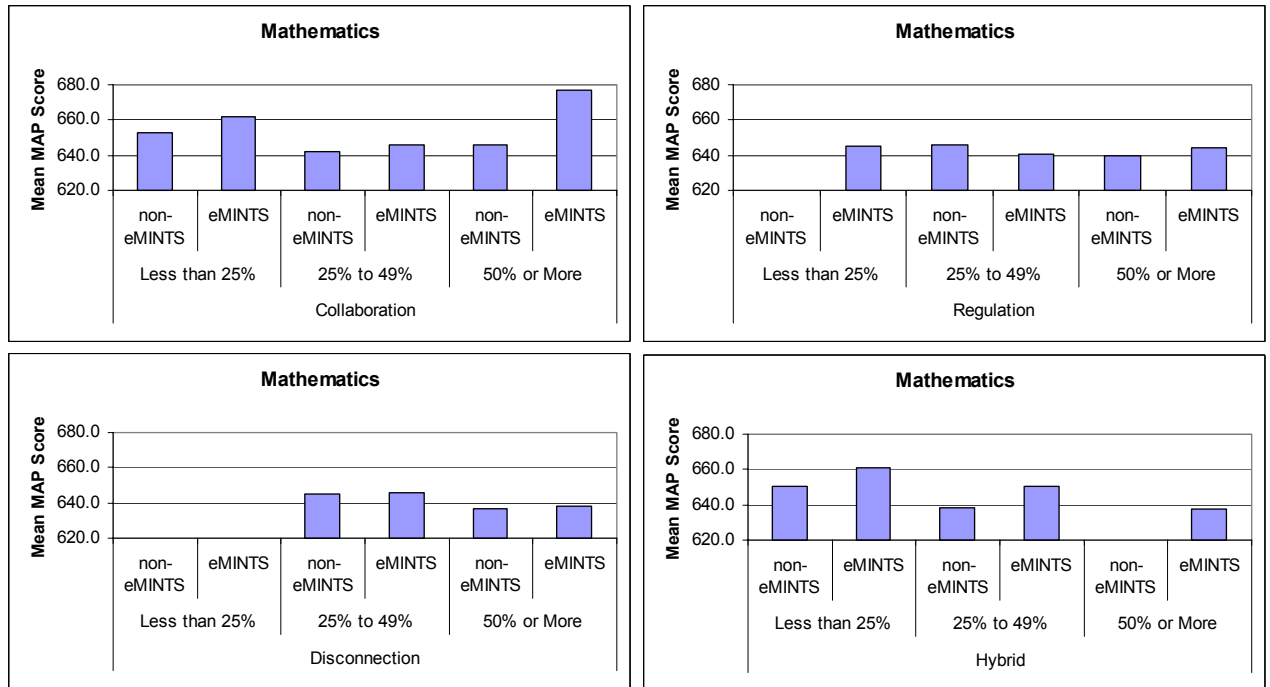
Figures 1 through 4 present the mean MAP score on each test for the combination of classroom participation in the eMINTS program, levels of building free and reduced lunch percentage and the categories of principal leadership orientation. In these graphs missing bars indicate that there are no students within a given set of categories.

Figure 2
MAP Science Scores, by eMINTS Classroom,
Building Free and Reduced Lunch Percentage and Principal
Leadership Orientation



The figures show that eMINTS students in schools with collaborative principals scored higher than eMINTS students in schools with regulating or disconnected principals. Differences in principal leadership orientation appeared to impact high and moderate poverty schools differently. For example, Figure 3 presents results on the Mathematics test. eMINTS students in high poverty schools with collaborative principals scored an average of twenty points higher than eMINTS students in low poverty schools with collaborative principals.

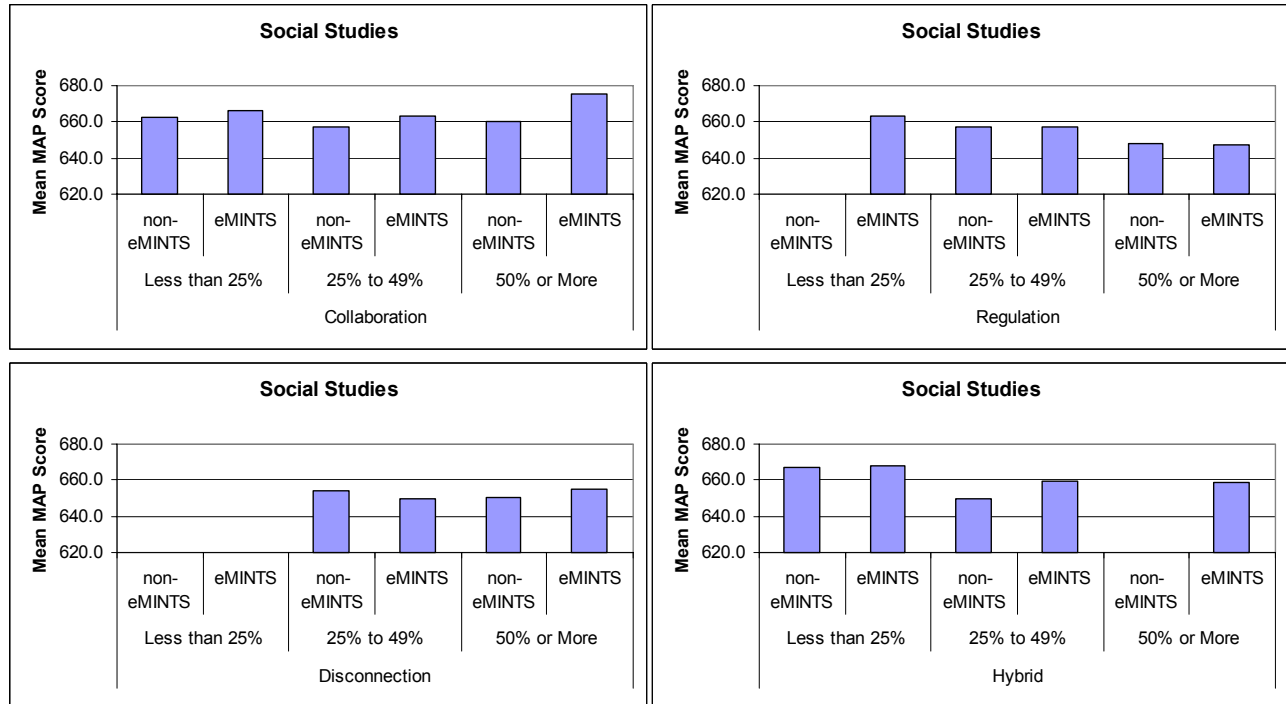
Figure 3
MAP Mathematics Scores, by eMINTS Classroom,
Building Free and Reduced Lunch Percentage and Principal
Leadership Orientation



Interpretation

One might speculate on the relative impact of the eMINTS classroom on student performance in high poverty schools. eMINTS classrooms are characterized by significant financial investment in multimedia equipment, air conditioning, wiring, etc. Given the fact that not every student in a school could be in an eMINTS classroom, one might conclude that these students are more motivated to perform well than other students. However, the fact that one sees large differences between eMINTS and non-eMINTS students only in schools with collaborative principals suggests that the constructive involvement of principals is a major factor in these performance differences.

Figure 4
MAP Social Studies Scores, by eMINTS Classroom,
Building Free and Reduced Lunch Percentage and Principal
Leadership Orientation



As seen in throughout this analysis, collaborative principals worked to build school-wide communities. In the case of the eMINTS schools, the focus of this work was to create environments where teachers were supported in their development of innovative instructional activities and students were encouraged to do their best work. The eMINTS program provided the raw materials for both innovative teaching practices and higher student performance. However, the school environment largely determined the ways these materials were used. The tone of the school environment was largely set by actions of the principal.

Conclusion

This analysis examined the leadership orientations of eMINTS principals from the first cohort of eMINTS classes (FY00). The analysis classified principals into four general categories, called “leadership orientations”. Some principals explicitly worked to foster a collaborative environment in their buildings by involving themselves in the overall school community. Others took a more traditionally hierarchal and administrative approach. Another group of principals were disconnected from their buildings, participating only when necessary. The largest group of principals exhibited a mix of characteristics and was classified as hybrid.

In considering the relationship between principals' leadership orientations and teacher instructional activities, teachers in schools with collaborative principals were more likely to use the student-centered, constructivist strategies encouraged by the eMINTS program than teachers with other types of principals. Further, teachers with collaborative principals were more likely to change and improve their teaching activities between the 1999-2000 and 2000-2001 school years when classroom observations were completed.

Reasons for this are clear; the adoption of new teaching activities is an inherently risky endeavor and collaborative principals created environments that tolerated, even encouraged risk taking. The impact of working in a collaborative environment was seen not only in the character of teaching activities, but also in the performance of the students.

Students in schools with collaborative principals scored higher than students in schools with other types of principals. This difference is statistically significant in three of the four MAP subject areas. The difference in performance due to the principal leadership orientation was seen across categories of building poverty status. On the 4th grade MAP tests the impact of collaborative principals essentially eliminated the performance deficit associated with being in a high poverty school.

In eliminating this deficit, the role of the eMINTS classroom is crucial. eMINTS students in moderate and high poverty schools who have collaborative principals not only scored higher on the MAP tests than non-eMINTS students, but frequently they scored higher than students in low poverty schools.

It is clear that eMINTS is instrumental in providing teachers and students with the resources they need to adopt and complete innovative instructional practices. This analysis showed that merely providing the resources was insufficient. For these resources to be effective they must be placed in a supportive and collaborative instructional environment.

References

- Fredkin, N. E. and M. R. Slater, 1994 "School Leadership and Performance: A Social Network Approach." *Sociology of Education* 67:139-157.
- Rosenholtz, S. J., 1985 "Effective Schools: Interpreting the Evidence." *American Journal of Education* 94: 352-388.

Appendix A

eMINTS PRINCIPAL PROFILES ORGANIZED BY FOUR DIMENSIONS

Orientation	Principal as Administrator	Principal/Staff Interrelations	Principal/Student Interaction	Community Involvement
Collaboration	Communication flow, 2-way	Strong partnerships, active teams, committees	Aware of individual student achievement	Planned involvement with community
	Information exchange, info. broker, varied	eMINTS innovation recognized and encouraged	Student control: rewarded for appropriate behavior	
	Decision making, transparent & participatory	Provisions for staff to work together: release time, extra subs	Student/Principal contact throughout day	
Regulation	Communication flow, top-down	Limited partnerships, infrequent staff meetings	Aware of students as data	Limited types of community involvement
	Information exchange, rules, directives, instructions	eMINTS seen as another computer lab	Student Control: primarily by negative consequences.	
	Decision making, authoritarian, little input.	Discrete classrooms	Student/Principal contact primarily in principal's office	
Disconnection	Communication flow, orders from others i.e. superintendent	Unequal Partnerships Preferential Treatment	Unaware of individual Student Achievement	Perceived risks of community involvement
	Information exchange, language proves principal unaware of info.	Vague generalized comments about eMINTS, rarely specific	Student controlled in same manner previous administration handled.	
	Decision making, minimal influence with decisions	Little support for teachers	Student/Principal contact minimal	