Office of Social and Economic Data Analysis

Expansion Schools Report #1: eMINTS Expansion Schools: "Proficient" and "Emerging" Educational Communities

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The eMINTS expansion project was designed to identify successful strategies for extending the impact of eMINTS instructional resources beyond the third and fourth grades. This report summarizes the early experiences of the expansion schools as they developed the capability to expand and sustain the eMINTS innovation in their buildings. Analysis of these schools' experience revealed three common factors that are key to creating an educational environment that supports the eMINTS innovations: an instructional plan, efforts to involve students in the school community, and programs to bring community volunteers into the school. Expansion schools that used these three factors as resources to create learning environments where students can achieve, showed strong positive results on the 2002 MAP test and are identified as successful, proficient eMINTS schools.

The eMINTS Expansion Project: An experiment in whole-school change

Just as teachers enter the eMINTS program with widely varying levels of knowledge and skill in the areas of technology literacy and constructivist teaching strategies, so do individual schools that enter the program. The eMINTS program has developed a rubric that tracks teachers along their journey towards achieving program goals of integrating multimedia technology into inquiry-based, student-centered, interdisciplinary, collaborative teaching practices. The rubric identifies five categories of expertise in terms of the instructional strategies and technology used in the classroom. The initial level is designated as "Emerging" and is typified by the traditional patterns generally seen in teacher-centered classrooms where technology is not integrated into daily instructional activities. On the other end of the rubric are the levels designated as "Proficient" and "Advanced" that describe instructional practices that exemplify the full implementation of the eMINTS instructional model and achievement of program goals. Schools can also be differentiated according to the ways they support collaborative instruction and a positive learning community.

This report focuses on first year of the eMINTS expansion project and is an examination of the differences between schools as they respond to the presence of eMINTS classes in their buildings. Some schools embrace the change and find ways to extend the eMINTS instructional model across the school. Others seek ways to limit the effect of the eMINTS program in the school. This report provides illustrative examples of schools that are classified as "proficient" in their implementation of the eMINTS instructional model as a whole school. Other schools that are part of the eMINTS program may find the examples

and discussions in the report useful as they examine their own school settings and make decisions about the further implementation of eMINTS.

Background

In 2001 the eMINTS program began an experiment designed to understand the how eMINTS classrooms could be used to motivate whole-school change. This experiment, the eMINTS Expansion Project, chose 27 schools from the eMINTS FY00 and FY01 cohorts (see Table 1) as subjects for an investigation into the ways building principals and experienced eMINTS teachers could change the culture and climate of their school to encourage non-eMINTS teachers to adopt student-centered, inquiry-based teaching practices of the eMINTS instructional model. eMINTS expansion schools received additional resources: equipment for two additional eMINTS classrooms, professional development for two new eMINTS teachers, mentor training for two experienced eMINTS teachers in each building, and ten hours of professional development for the building principals. In exchange for these resources, building principals were asked to develop a specific plan for integrating the eMINTS instructional model into non-eMINTS classes and grades, the experienced eMINTS teachers were asked to mentor the new eMINTS teachers, and the entire school participated in a two-year program evaluation study.

The evaluation of the expansion program used a pre-test, post-test design. The "pre-test" was conducted in 2002. In winter 2002, evaluation team members visited each expansion school to collect baseline information about the school climate and teaching practices of the new and experienced eMINTS teachers. These visits were supplemented with interviews of the building principal, all of the eMINTS teachers, and two teachers in non-eMINTS grades. Additionally, student MAP records and data from each school's student information system were collected. These observations and interviews were used to understand the state of the individual schools before the principal implemented building-level plans to expand the eMINTS instructional model in the school.

The "post-test" was conducted in 2003. In winter 2003, evaluation team members returned to the expansion schools to assess how the plans developed by the building principals changed the climate, instructional practices, and student performance in these schools.

The information in this report is taken from the first round of visits in winter 2002 to the expansion schools. During the "pre-test" year, evaluators identified three sets of characteristics that appeared to support the integration of the instructional innovations emphasized by the eMINTS program throughout a building: a detailed instructional plan, the explicit cultivation of a positive student community, and the involvement of community members in the academic program of the school. These characteristics combined to create an "inquiry-based environment" that explicitly supported student performance gains.

Aspects of these characteristics were observed in each expansion school. Each school had developed an instructional plan, taught an identifiable curriculum, assessed student

performance, and managed a student community. Ten of the 27 expansion schools performed each of these activities in a manner that supported the eMINTS instructional model and encouraged the application of student-centered instructional practices across all of the grades in the building. This report describes the characteristics of successful expansion schools and how the staff in those schools worked together to allow teachers and students to make the most of the eMINTS classroom resources.

This report does not identify by name the schools consider to be "proficient" eMINTS expansion schools nor does it identify those schools that are "emerging" eMINTS expansion schools. Rather, it points out the extent to which the schools in the eMINTS expansion project were able to use the eMINTS instructional model to begin to achieve whole-school change. The second report (Part 2) will document the results of the "post test" visits and observations in winter 2003 and will provide a Table that divides the Expansion schools into the two categories discussed in this report. Individual schools will be identified in a report summarizing the expansion project, to be released in the spring of 2005.

The Use of School Resources: the eMINTS program in context

The eMINTS program is designed to transform the instructional process by supporting elementary teachers as they develop student-centered, inquiry-based instructional practices using a wide range of multimedia and computer technology. Teachers and students explore interactive learning experiences that require them to use critical-thinking skills and group problem-solving techniques. Significant professional development sessions along with in-classroom coaching and mentoring are key change agents in this program.

Even as it focused on providing instructional support, computers, and Internet connectivity to individual classrooms, the eMINTS program has always had a broader purpose – the creation of schools that prepare students for the challenges of the 21st century. The eMINTS program provides schools with the basic resources to support inquiry-based instruction. These resources; the human resources (in the form of the eMINTS Professional Development program), the instructional resources (e.g., the eTHEMES database) and the technological resources (in the form of Internet-connected computers, SMART Boards, and the like); support the development of schools that encourage high student performance. The distinction between "proficient" and "emerging" expansion schools focuses on the context in which the eMINTS resources are used.

Table 1
eMINTS Expansion Schools

Cluster	District	Building
Bootheel	Bernie	Bernie Elementary
	East Prairie R-II	A. J. Martin Elementary
Central	Boone Co. R-IV	Boone County Elementary
	Moniteau R-I	California Elementary
	School of the Osage	Osage Upper Elementary
East	Jennings	Northview Elementary
	Parkway C-2	River Bend Elementary
	Valley Park	Valley Park Elementary
Northeast	Kirksville	Ray Miller Elementary
	Shelby Co. R-IV	Shelbina Elementary
Northwest	Maryville	Eugene Field Elementary
	Smithville	Upper Elementary
South	Eminence R-I	Eminence Elementary
	Van Buren	Van Buren Elementary
South Central	Lebanon R-III	Maplecrest Elementary
	Plato R-V	Plato Intermediate
Southeast	Farmington	Washington-Franklin Elementary
	Festus R-VI	Festus Elementary
		Festus Intermediate
Southwest	Carthage R-IX	Columbian Elementary
	Nixa	Century Elementary
		Espy Elementary
	Stockton R-I	Stockton Elementary
West	Independence 30	Glendale Elementary
	Lee's Summit	Richardson Elementary
	North Kansas City	West Englewood Elementary
	Warrensburg	Sterling Elementary

Considering the context of an intervention is important. As many educational researchers have noted, educational resources are not self-enacting, that is, the mere presence of resources has little bearing on how they will be used.[1] Consequently, this report focuses on school-level differences that impact the spread of the eMINTS resources and the eMINTS instructional model throughout a school building.

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[1] For example, see Cohen, D., S. Radenbush, and D. Ball, "Resources, Instruction and Research" in Mosteller, F. and R. Boruch (2002) *Evidence Matters*: Randomized Trails in Education Research. Washington D.C., Brookings Institution Press.

"Proficient" and "Emerging" School Communities

Although the most visible aspects of the eMINTS program is the installed technology, the key resource for school change lies in the school's instructional community, i.e., in the relationships among the principal and faculty, the students, and the outside community. These three broad domains interact to create environments that support high levels of student performance.

While all expansion schools are continually developing strategies for using the eMINTS resources throughout the elementary curriculum, ten schools had extensive plans for school renewal and development in place during the first round of visits. These schools, the "proficient" eMINTS expansion schools, differ qualitatively from the other 17 expansion schools classified as "emerging." The proficient schools used the eMINTS classes within the context of their existing school renewal plans and established school environments and used eMINTS resources to support the performance of all students. On the other hand, during the first set of observations the schools that were still in the emerging status were just beginning to explore ways of using eMINTS resources to support their school plans.

The ten proficient expansion schools are located in six of the ten eMINTS regional clusters. These ten schools are statistically similar to the schools that are still emerging in every aspect except the percentage of students eligible for free and reduced lunch. Generally, the proficient schools had a lower percentage of students eligible for the free and reduced lunch program than did emerging schools. However, the percentage of students eligible for the free and reduced lunch program was not used as a criterion for differentiating proficient and emerging schools. Rather schools were classified according to the characteristics discussed below.

Identifying the Key Characteristics of Proficient eMINTS Expansion Schools

The ten "proficient" expansion schools were identified using three empirical criteria: an assessment of the principal's leadership orientation[2], the number of student-centered facilitated lessons[3] observed by evaluation team members during their 2001-2002 school visit, and an assessment of the overall school climate and community. The use of each assessment is described below. The interaction of each area assessed, instructional practices, leadership orientation, and school climate, produced school environments that embodied many of the overall goals of the eMINTS program.

The majority of this report focuses on the ten "proficient" eMINTS expansion schools. While each of the 27 expansion schools showed some development in at least one of the areas discussed below, the proficient schools are unique in that they have well-established plans and procedures in all three areas. These schools provide educators with

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[2] See the eMINTS Evaluation report, *Leadership Orientations of eMINTS Principals* on the eMINTS website, http://emints.more.net/evaluation

[3] See the eMINTS Evaluation report, *A General Typology of eMINTS Lessons* on the eMINTS website, http://emints.more.net/evaluation

the opportunity to understand how positive teacher communities, positive student communities, and a positive relationship with the outside community, work together with the eMINTS instructional model to support student achievement. The focus on the proficient schools is not a criticism of the schools that are still emerging, rather the focus on the proficient schools allows for the analysis of how different aspects of school communities work together in the eMINTS instructional model to create a 21st century learning environment. Of course, this analysis only applies to the eMINTS expansion schools. Other schools participating in the larger eMINTS program may certainly exhibit similar characteristics.

Principal Leadership Orientation

In any school, the leadership role of the principal is crucial to its success. Under the best circumstances, principals actively create and support opportunities for teachers to innovate and for students to achieve. In proficient expansion schools this was frequently done by creating consensus among teachers, by building communities among students and by involving adult volunteers from the outside community in the operation of the school. All of these community-building efforts were characteristic of what the eMINTS evaluation team labeled as a "collaborative" leadership orientation.

Among the proficient expansion schools, principals actively supported the creation of a far-reaching school community. The principal purposely engaged teachers, students, and the outside community, to create a positive instructional environment.

The School Instructional Plan: Fostering Professional Community

While teachers in all schools have some sort of professional community, in the proficient expansion schools this community was embedded within an explicit instructional plan. These instructional plans differed from broader school improvement plans or building technology plans by focusing explicitly on the organization and delivery of instruction. While school improvement plans set goals for student performance, they typically do not specify the steps necessary to realize the performance gains. In contrast, the instructional plans described by principals in proficient expansion schools contained practical steps for improving student performance.

These instructional plans also differed from plans to increase the number of computer-intensive classrooms in a school. Establishing classrooms with the computer and projection equipment found in the eMINTS rooms is expensive. When asked about the future of eMINTS in their schools, many principals in schools that were classified as "emerging" described their difficulties in securing funds for additional computer-intensive classrooms. In contrast, when asked about the future of eMINTS in their schools, principals in proficient expansion schools talked about changing classroom instruction.

The centerpiece of this type of plan is the creation of a common vision for instruction. Principals in proficient expansion schools discussed formulating long-term plans for

implementing inquiry-based instruction in all grades, looking at the cross-grade articulation of subject-matter curricula, and making staffing decisions that support the spread of inquiry-based instruction throughout their school. In developing their plans, these principals consistently mentioned working with grade-level teacher committees, with university education programs, and with their districts to develop a common understanding of instruction.

Beyond developing a common vision for the school, principals in proficient expansion schools organized their school schedules to provide teachers with common planning time. While the common planning time did not always occur daily, it was built into the school schedule. The common planning time was used to provide opportunities for discussion between the principal and grade-level teachers, as well as providing opportunities for discussion of grade-level curriculum issues.

Principals in proficient expansion schools used eMINTS teachers as resources to develop the capabilities of non-eMINTS teachers. All eMINTS teachers in expansion schools were expected to maintain a mentoring relationship, with the experienced eMINTS teachers coaching the new eMINTS teachers that were added to the school through the expansion program. eMINTS teachers in proficient schools also contributed to the school's overall professional development program. In many instances, eMINTS teachers provided peer coaching to interested teachers. In a few schools eMINTS teachers were asked to develop a specific professional development curriculum and courses to introduce inquiry-based instructional practices to non-eMINTS teachers.

The goal of these plans and arrangements was to encourage non-eMINTS teachers to use inquiry-based teaching activities. To do this, principals encouraged teachers to use the school computer lab to mount projects. In at least one school, the school technology coordinator arranged to attend the eMINTS professional development sessions by using district funds to offset the cost of the program. This technology coordinator now works as an instructional liaison to facilitate the development of inquiry-based lessons by non-eMINTS teachers.

In the proficient expansion schools, the instructional plan provided a framework for programmatic choices, as illustrated by one principal's comments:

> Q: So how does eMINTS fit within this building?
>
> A: It fits beautifully, I think this summer was the realization for me that things we've been doing the last six years have really finally [come] together. Our staff has been very involved with researching and differentiation, looking at how we can teach differently, how kids learn differently and how we can look at different kinds of assessments, how we can reach the needs of our learners.

…[W]e've been part [the Missouri Mathematics Academy]. [In] the first year we did a lot of [curriculum articulation], making sure what everyone was teaching [what they were supposed to] at [their] grade level, eliminating the overlap, and making sure we're meeting our [building's] instructional goals. The second year we worked with our partnership with the University of Missouri, St. Louis. [W]e had two math professors work with our staff [for a year]. We would talk about instructional practice and what can we do and how can we make our [mathematics instruction] more inquiry-based. This year we're looking at the performance assessments in mathematics. Then you add [the] eMINTS classrooms. [Our teachers have] worked with through out the year to build inquiry-based teaching strategies [throughout] their curriculum. eMINTS is taking it beyond science, beyond math and making [inquiry-based instruction] the way that we teach other things.

Q: You described this as the end of a six-year plan, could you describe how things worked six years ago?

A: I'd say we were much more traditional in terms of our teaching. … Six years ago we were still pretty traditional in the teaching of social studies, science and math and we were not doing a lot to tap into the higher level thinking skills.

Examples of this type of instructional planning, alignment and articulation were mentioned by most of the principals in proficient eMINTS expansion schools.

Building Community Among Students

Just as the principals of proficient expansion schools explicitly located the eMINTS classrooms within the context of an instructional plan, they also took explicit steps to build community among students. This community building took several forms, from providing incentives for good citizenship to organizing a corps of school helpers. For example, one principal described the "student ambassador" program in their school:

Q: Your teachers were talking about a red vest program or something. Could you tell me about that?

A: Yes it's the "All-Stars Program". [In] the morning they greet parents and students and teachers, they come about 10 or 15 minutes earlier than everyone else and get their vests and they go to all the doors. [If] we get new students come in I have my All-Stars show them around the school and get them to their classrooms and introduce them to the teacher. It gives [the new student] a chance to make a friend right away….

Many schools provide positive incentives for good behavior and high achievement, but the programs in the proficient schools were remarkable because of their contribution to the school climate. In the case of the program described above, student participation helped to integrate new students into the school community and gave students an explicit role in maintaining that community.

In the proficient expansion schools the existence of student incentives systems were purposeful and well thought out. They were also aligned with the incentive programs in individual classrooms. For example, in another school that was proficient students worked to be designated as "citizens of the month." The reward for being named a citizen of the month was lunch with the principal. In this school the program extended to the classroom, with individual teachers naming "citizens of the week."

The use of student community programs in the proficient eMINTS schools, whether they were focused on citizenship, achievement or discipline, are noteworthy because they were not left to chance. These programs had specific structures and were used to support the learning environment. Their existence supported a positive school climate and helped give teachers opportunities to teach and to implement the school's instructional plan.

Building Community Outside the School: A Place for Adult Volunteers

A third area where proficient expansion schools stand out is in the area of adult volunteers. Evaluators observed adult volunteers in each of the proficient schools. These volunteers filled a variety of roles such as working as classroom assistants, working in the central office, or hosting events like a monthly teacher appreciation breakfast. In addition to having parent volunteers, most of the principals in proficient schools mentioned having corporate partners. For example:

> Q: I noticed a gentleman at lunch and a gentleman out in the hall reading with students so obviously you have community volunteers.

> A: Yes. …[O]ur volunteers are a consistent, critical part of the learning of that child. [The volunteers] love what they do, they love being here and they're part of some specific instructional reading plans of our students. We try to make them feel part of this school community and I think we've done a good job of that.

> We have a large contingency of parent volunteers, but we also have a core group of volunteers who are retired. [They] help with instruction and tutoring, but they're not really connected with anyone in the classroom. Their [children are not enrolled in our school], they're really just a school volunteer.

These volunteers served several important functions. They provided basic support for the school's operation and in a few cases provided material support to the school. Like all

aspects of the operation of the school, these arrangements require coordination. All principals in proficient expansion schools described having to manage these groups by working extensively with parent organizations (such at the school PTA or PTO) and businesses.

The Role of the Principal in Proficient Expansion Schools: Three types of outcomes

The role of the principals in the proficient expansion schools is very straightforward: they create the context for instruction. In these schools, principals have made choices that explicitly support the instructional mission of the school. This is seen in the selection of instructional programs, the organization of the school day, the selection and organization of student incentives, and in the engagement of adult volunteers. In the proficient schools all of the principal's choices were directed towards the goal of inquiry-based instruction across all grades. The impact of the principal's leadership choices is seen in three areas: instruction, school climate, and student performance.

Instruction

The impact of the principal's engagement in the school was seen in the lessons the eMINTS teachers were teaching. When given the support and opportunity to use inquiry-based instructional techniques, the majority of teachers in the proficient expansion schools conducted these sorts of lessons. The lessons observed by the evaluation team showed remarkable use of the eMINTS technology to create opportunities for collaborative learning and student inquiry. Some examples:

While typical drill and memorization teaching strategies do not often contain elements of inquiry-based instruction, the lesson described below achieved some of the necessary components of inquiry since students had to use thought processes that required them to devise, choose, and implement strategies to achieve their goals:

> The lesson began with a game of "Beat the Teacher." This game is a drill of single-digit multiplication facts and a variation of the game "Connect 4". The teacher divided the class into two teams. In the first round, one team chose a factor, and the other team chose another factor that would produce a product on a grid of numbers. In the second round, the first team had to choose a factor that produced a second number on the grid, and so on. The point was to combine factors to create a row of four grid squares. This game combined strategy with basic multiplication skills. The teacher acted as an impartial coach, encouraging the teams to strategize in their selection of factors, to work together in their selections and to act as teams.

The following is an example of building a student-centered learning community where children's feelings are respected and children and teacher use mutually agreed-upon cues to monitor and change behavior. This example also shows how teachers make choices about the effective and appropriate uses of technology. The SMART Board was used to effectively engage the entire learning community while individual writing was done using conventional paper and pencil:

> At the beginning of the lesson, students were writing a paragraph based on prompts provided by the teacher. As the teacher checked on student progress, she announced that some students had started graphic organizers while others were writing their topic sentences. [The teacher] announced that this choice was the student's. After about 20 minutes of writing, the teacher brought the class together for an exercise in peer editing. Individual paragraphs from the day before were displayed on the SMART board, and individual students read their paragraphs. After the paragraphs were read, the teacher led a discussion about each paragraph. Some of the students used slang or made grammatical errors as they contributed to the discussion. In correcting the students, instead of highlighting their error the teacher used the verbal clue, "You're an intelligent boy/girl, how might this be changed…", Students responded to the cues by correcting their grammar or using more conventional vocabulary.

> Once the students started writing, everyone worked diligently. In 20 minutes most of the students had written between ½ and ¾ of a page. During this part of the lesson, the special education teacher was in the class. The special education teacher circulated within the class and helped out all of the students. This writing was all done in long hand, and several students were writing their paragraphs in ink.

The following illustration shows how eMINTS teachers collaborated with their grade level colleagues who did not have eMINTS equipment to produce a learning experience that contained elements of inquiry-based instruction for all students.

> In this particular lesson, all four 4th grade classes in the school were observed collaborating on an Olympic theme. Two 4th grade classes were present for a 45-minute segment. The classes were divided into Olympic villages. The villages were a mix of students in the 4th grade classes. When students were in a room without the eMINTS equipment, they made gold medals. The students use a local newspaper and read about the Olympics. They students are also built web pages about the Olympics. On each web page were the results of 2 sports they chose to follow, biographies of five athletes, a biography of themselves as if they were an Olympic athlete, and a creed to live by. The students were encouraged to help others when they finished their work.

The following example shows how an eMINTS teacher successfully combined multiple instructional activities and integrated technology to enhance students' understanding of complex concepts.

> A science lesson on light was observed. The class discussed definitions of the terms "transparent", "translucent", and "opaque". The next activity was a 25-minute experiment where the students made predictions about light and shadow by manipulating a set of common objects. The experiment took place in a darkened room and students used a flashlight and a troll doll to illustrate shadow patterns. Students had to explain what they observed. This experiment was followed with students reading an interactive website on light that was linked from the teacher's home page. Using the website, pairs of student placed a player on a field based on the shadow. This activity was followed by a discussion; some of the questions were: "Why were some shadows darker?, . . longer? What if you turned off the lights?" The lesson ended with the students devising their own experiments based on the lesson activities.

The following example reveals how the school community can be extended through technology to include opportunities for students to form differing perspectives and points of view.

> In this lesson, a group of students were seated in semi-circle in front of the SMART Board. The teacher used video conferencing equipment to contact the University of Missouri-Columbia. Two university students, an athlete and an international student from Turkey, discussed a book with the students. After the book discussion, the students asked the university students questions. One of the questions posed to the international student resulted in an answer that his sister was a teacher in Ankara and an offer for the students to become pen pals by email with his sister's students.

These examples of lessons showed students working together on a variety of tasks: basic mathematics skills, writing and language arts, character education, science, and social studies. The activities were of varying length and complexity, but all of these lessons encouraged students to inquire, to collaborate, and to produce unique intellectual products.

These lessons occurred in contexts where students and teachers felt empowered to take risks. Within these classrooms the risk taking activities were bound by an instructional plan that provided teachers with support to develop innovative lessons. The lessons used inquiry and discovery to motivate students to learn the subjects specified by their districts' curriculum.

Table 2
School Climate Rubric Scores, by Expansion School Status

Expansion School Status	Mean	Standard Deviation	P-Value
Physical Environment Score (3 items)			
Proficient	2.9	0.1	0.0010
Emerging	2.5	0.5	
All Schools	2.6	0.5	
Social World Score (4 items)			
Proficient	2.6	0.3	<0.0001
Emerging	1.6	0.5	
All Schools	2.0	0.6	
Front Office Score (3 items)			
Proficient	2.7	0.5	0.0012
Emerging	1.8	0.7	
All Schools	2.1	0.8	
Total School Climate Score (10 items)			
Proficient	2.7	0.2	<0.0001
Emerging	1.9	0.4	
All Schools	2.2	0.5	

School Climate

The second distinctive domain of the proficient expansion schools is the school climate. "School climate" is a broad term used to describe a combination of physical and social features of a school building. As part of their school visits, evaluators attempted to assess the overall climate of the school through the *eMINTS School Climate* rubric. This rubric categorized the physical environment of the school, the activities of students and teachers in the school's public areas, and the interaction between front office staff, school visitors, and students.

One aspect of a positive school climate was discussed above, namely the involvement of students in the operation of the school through incentive systems for good citizenship and high performance. The school climate rubric attempted to assess a set of observable differences among schools. The rubric itself consists of three dimensions, one addressing the physical environment of the school building, one addressing the activities of students and teachers in the schools public areas (hallways and lunchrooms), and one addressing the observed interactions between front office staff, the principal, students and school visitors. The complete rubric is presented in Appendix A.

Table 2 presents the mean values for each dimension on the school climate rubric. These means show that the proficient schools scored higher than the remaining schools in each of the three dimensions. These scores suggest that the *physical environment* of proficient schools was more likely to be well lit, well maintained, and decorated with child-created displays installed at an appropriate height, than the other schools in the expansion program. The scores on *social world* dimension suggested that students and teachers in the proficient schools were more likely to be observed showing each other respect and acting appropriately in the school's public areas.

The number of schools participating in the expansion program limits the range of interpretation of the school climate rubric, so these mean values cannot provide anything beyond the most general description of a school's climate. However, these results are suggestive given the activities of the principals in proficient schools. As described above, principals in proficient expansion schools implemented plans to support instruction, developed a school-wide community, and integrated the school within the larger community through the use of adult volunteers. These results suggest that principals' efforts work together not only to create instructional environments that are conducive to student-centered, inquiry-based lessons, but also contribute to a more student-centered and supportive school community. This community is one where students, teachers and staff work together to create a place where everyone can achieve.

Student Performance in the Proficient Expansion Schools

As discussed above, the proficient expansion schools were distinguished by a clear instructional plan, by an explicit engagement of students in the operation of the school and by extensive interaction between the school and the larger community. This report has argued that the planned combination of these three sets of human resources creates an environment that supports and encourages student achievement. A first look at 2002 MAP score differences suggest that this combination of resources does result in higher aggregate achievement among third and fourth grade students.

Tables 3 through 6 present mean MAP scores for students in the eMINTS expansion program, controlling for student free and reduced lunch program eligibility and whether or not students were enrolled in a proficient expansion school. These tables do not account for the influence of any classroom variables (e.g., whether a student was enrolled in an eMINTS classroom). Free and reduced lunch program eligibility is included in the analysis because the percentage of free and reduced eligible students was the only statistically significant demographic difference between the proficient and emerging expansion schools.

These tables consistently show that students in the proficient schools score higher than students in the other schools. This difference ranges between an average of 6.9 points on the Communication Arts test (Table 3) to 8.9 points on the Social Studies test (Table 6).

Table 3
2002 MAP Communication Arts Scores by Student Free/Reduced
Lunch Eligibility and School Type, Grade 3

		Number of Students	Mean	Standard Deviation	Difference	P-Value
All Students in Expansion Schools		2251	646.3	30.5		
		Number of Students	Mean	Standard Deviation	Difference	P-Value
Free/Reduced Lunch Eligibility						
Not FRL Eligible		1493	652.4	30.1	18.2	<0.0001
FRL Eligible		758	634.2	27.6		
School Type						
Proficient		846	650.6	30.1	6.9	<0.0001
Emerging		1405	643.7	30.5		
Free/Reduced Lunch Eligibility	*School Type*					
Not FRL Eligible	Proficient	509	659.4	29.5	10.7	
	Emerging	984	648.8	29.8		
FRL Eligible	Proficient	337	637.3	25.9	5.6	
	Emerging	421	631.7	28.7		

The tables also show a differential benefit for free and reduced lunch eligible students enrolled in the proficient schools. Compared to students enrolled in a school that was still emerging, the performance gap between free and reduced lunch eligible students and other students essentially disappeared in the proficient schools. On the science test, the difference attributable to enrollment in a school that was proficient among free and reduced lunch eligible students is 0.8 points lower than the difference among students not eligible for the free and reduced lunch program. On the two fourth grade tests (mathematics and social studies) the differences among free and reduced lunch eligible students (8.7 points and 6.9 points, respectively) are larger than the difference among other students (5.5 points and 6.0 points, respectively). These data suggests that enrollment in a proficient expansion school substantially addressed the performance gap associated with student poverty (as indicated by eligibility for the free and reduced lunch program).

Table 4
2002 MAP Science Scores by Student Free/Reduced Lunch Eligibility
and School Type, Grade 3

		Number of Students	Mean	Standard Deviation		
All Students in Expansion Schools		2251	641.1	33.2		

Free/Reduced Lunch Eligibility		Number of Students	Mean	Standard Deviation	Difference	P-Value
Not FRL Eligible		1475	648.1	31.8	20.2	<0.0001
FRL Eligible		776	627.9	31.8		
School Type						
Proficient		847	645.7	32.5	7.4	<0.0001
Emerging		1404	638.3	33.3		
Free/Reduced Lunch Eligibility	*School Type*					
Not FRL Eligible	Proficient	506	654.4	30.0	9.7	
	Emerging	969	644.7	32.2		
FRL Eligible	Proficient	341	632.8	31.8	8.9	
	Emerging	435	624.0	31.3		

One aspect of the proficient schools that is expected to remain significant across all expansion schools is the purposeful nature of the school renewal effort. It is clear that the programs found in each school were planned innovations, undertaken as part of a deliberate process of investigation and planning for student improvement. Even when principals in proficient expansion schools claimed to "be making it up as [they] go along", their actions were framed by a plan and characterized by collaborative process for implementing these plans.

In the end, the observed characteristics of the proficient schools suggest the place of the eMINTS classrooms in a well-run school community. Such classrooms are relatively expensive to set up and they require a multi-year investment in both equipment and personnel. Past research has shown that the presence of these classrooms does have a positive impact on the performance of third and fourth grade students. Nevertheless, these classrooms need not be the centerpieces of a school renewal effort. Instead, some basic aspects of schools leadership; e.g., principals and faculties developing and implementing an instructional plan, providing students with opportunities to contribute to the school community, and providing opportunities for the outside community to support the school; appeared to be key to creating an environment where students are able to achieve.

Table 5
2002 MAP Mathematics Scores by Student Free/Reduced Lunch
Eligibility and School Type, Grade 4

		Number of Students	Mean	Standard Deviation		
All Students in Expansion Schools		2299	644.6	36.9		

		Number of Students	Mean	Standard Deviation	Difference	P-Value
Free/Reduced Lunch Eligibility						
Not FRL Eligible		1605	649.1	38.1	14.8	<0.0001
FRL Eligible		694	634.3	31.6		
School Type						
Proficient		1167	648.8	38.2	8.6	<0.0001
Emerging		1132	640.2	35.0		
Free/Reduced Lunch Eligibility	*School Type*					
Not FRL Eligible	Proficient	908	651.4	39.7	5.5	
	Emerging	697	646.0	35.8		
FRL Eligible	Proficient	259	639.7	30.8	8.7	
	Emerging	435	631.0	31.7		

Table 6
2002 MAP Social Studies Scores by Student Free/Reduced Lunch
Eligibility and School Type, Grade 4

		Number of Students	Mean	Standard Deviation		
All Students in Expansion Schools		2298	657.2	23.4		
		Number of Students	Mean	Standard Deviation	Difference	P-Value
Free/Reduced Lunch Eligibility						
Not FRL Eligible		1613	661.0	22.9	12.7	<0.0001
FRL Eligible		685	648.3	22.1		
School Type						
Proficient		1165	661.6	23.2	8.9	<0.0001
Emerging		1133	652.7	22.6		
Free/Reduced Lunch Eligibility	*School Type*					
Not FRL Eligible	Proficient	913	663.6	23.5	6.0	
	Emerging	700	657.6	21.6		
FRL Eligible	Proficient	252	654.4	20.9	9.6	
	Emerging	433	644.8	22.1		

eMINTS Schools at the Midpoint of the Expansion Project

The eMINTS expansion project is a two-year effort to identify and understand the ways that schools use the eMINTS classes as a catalyst for school renewal and development. This report was written at the halfway point of the program and focuses on a set of ten schools that have created a learning environment that appears to support the eMINTS instructional model to the benefit of the children attending the school.

While the unique features of these schools, especially the coordination of an instructional plan, the student community and the larger community, have a positive impact on the school and on student performance, there are certainly other ways to achieve the same integration of human and technological resources. We fully expect to identify some of these ways as research into the expansion project is completed.

eMINTS School Climate Rubric

Domain		Scale			
		0	1	2	3
Physical Environment	Child-related Displays	No schoolwork or artwork displayed *in public areas.*	Items *in public areas* displayed are not child produced but adult produced	Some child-produced items displayed in *public areas*	One exhibit per room displayed in hall. Items displayed on child's eye level.
	Comfort	Lacks good light ventilation and temperature	Has one of the three	Has two of the three	Good light, ventilation, and temperature
	Building Maintenance	Public areas unclean, lack of maintenance (plumbing. fixtures, lights)	Public Areas clean but not maintained	Public areas unclean but well maintained	Public areas clean and maintained
Social World	Hall Environment	Students disruptive, belittlement apparent	Custodial but not cordial	Praise and attention for good behavior.	Teachers think ahead to avoid problems. Rules posted. Handles minor problems before they become serious.
	Lunchroom	Room out of control	Room quiet and rigid. Children seem tense.	Room noisy but respectful. Children encouraged to communicate with each other	Noise level conducive to communication. Respectful, casual atmosphere.
	Global Awareness in School Displays	All pictorial materials show no ethnic variety	At least 2 ethnic groups are represented in materials.	More than 2 ethnic groups are represented.	Many examples of racial variety

		Scale			
Domain		0	1	2	3
Front Office	Initial Impression	Cold welcome, ignored, unsure of visit, no sign-in.	Cool welcome, aware of visit.	Warm welcome with only 2 of 3.	Warm welcome; sign in book, lunch options, escorted to room.
	Administration	Principal does not interact with children during school day observed.	*Observe* principal encouraging children, speaking in a respectful voice.	*Observe* principal convey high expectations to students, authentic praise, speaking in a respectful voice.	Principal presence in classroom or lunchroom. Interacts with children throughout day. Evidence that principal knows achievement or progress of student(s)
	Office Secretarial Staff	Treats students in a negative manner.	Cordial or custodial to students.	Handles students in a positive manner.	Evidence that secretary knows achievement or progress of student(s)