

Instructional Leaders Supporting CMSI Elementary Schools, Fall 2005

A Report for the CPS Office of Mathematics and Science
Prepared by the PRAIRIE Group, UIC College of Education

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The conclusions drawn in this report reflect the viewpoints of the authors. While there are many potential viewpoints, these reflect a systematic analysis of data by external evaluators. The hope is that these findings can facilitate improvement of this and related programs through open discussion and consideration of data-driven understandings.

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This report is based on the UIC College of Education PRAIRIE Group's evaluation research focused on the implementation of CMSI policies, activities and supported curricular materials in elementary schools during the fall of 2005. We review key findings around the various instructional leader positions that have been created, funded, defined, and managed with the purpose of supporting these policies, activities, and use of materials. Specifically we look at the work carried out by instructional leaders assigned to the positions of OMS Facilitators, Area Math/Science Coaches, City-wide Specialists, school-based Specialists, and school Principals, though we mention other leaders. We raise discussion issues related to findings that may pertain to decisions that CPS will be making for the remainder of the 2005-2006 school year and the upcoming 2006-07 year. The primary audience is the OMS Lead Team. The secondary audience is Facilitators, Coaches, Specialists, and Principals. This reporting timeline will allow for findings to be used to make mid-year adjustments to CMSI plans and to consider findings in spring 2006 budget planning.

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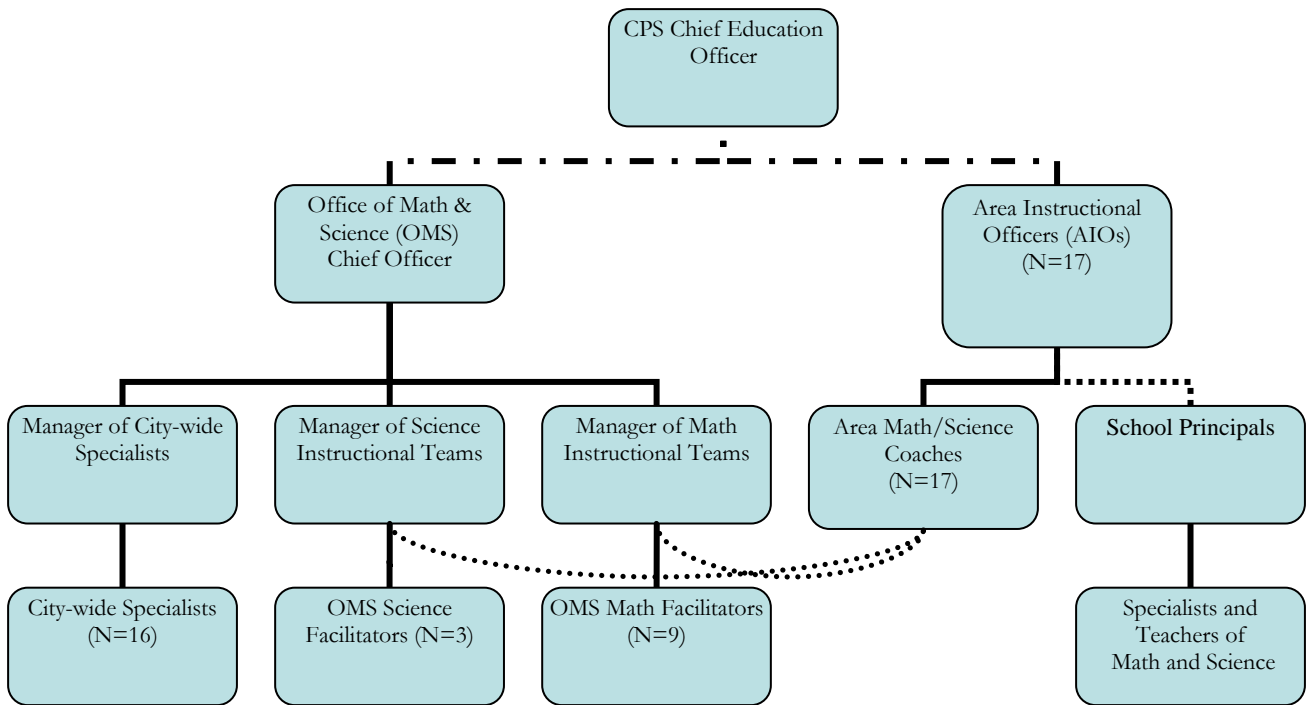
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Introduction

The Chicago Math and Science Initiative (CMSI) aims to promote improved teaching and learning in math and science in Chicago Public Schools (CPS). The CPS Office of Mathematics and Science (OMS) which coordinates the CMSI describes the mechanism for this Initiative as built on high quality professional development opportunities for teachers and on the building of infrastructure to support the work of these teachers as they use strong instructional practices. At the intersection of these mechanisms for change are the people who have been charged with roles of instructional leadership who provide in-school and group professional development and support to teachers. These key staff members fill positions as OMS Facilitators, Area Math/Science Coaches, City-wide Specialists, school principals, school Specialists, and OMS and Area Leaders. In the following sections, each of these positions will be defined and described in terms of how staff carried out these roles during fall 2005.

First though we offer a visual representation in Figure 1 of these positions and how they fit together within the organization of CPS.

Figure 1: Instructional Leaders Related to CMSI, Fall 2005



This report consists of four primary sections. First we offer descriptions of these instructional leader positions and the roles those staffing them were carrying out in fall of 2005. Second, we highlight the ways that these leaders interacted together and how they used various communication tools in their work. Third, we examine how these leaders worked together and how specifically these interactions played out in terms of supporting schools that were attempting to implement instruction using CMSI supported math and science curricula. Finally, we offer some conclusions and emphasize some of the “take home” ideas that close evaluation of the roles of these instructional leaders may offer to CPS leaders and others faced with decisions about how to allocate and utilize human resources so to best support high quality instruction in math and science classrooms. In addition to this final concluding section, interspersed throughout the report, we pose questions and highlight issues that this analysis of data raise and that may serve as productive foci for reflection and inquiry for the reader. An appendix on the evaluation research design chosen and methods used is also included.

Role Descriptions

This section provides descriptions of some of the roles that support CMSI Elementary Schools including: OMS Math and Science Facilitators, Area Math Science Coaches, City-wide Specialists, School-based Specialists, and Principals. We describe what kinds of roles these instructional leaders played during fall 2005.¹ We make note of a few of the other instructional leaders from outside of CPS who are working in schools in areas related to the CMSI. In addition, we briefly describe the roles of OMS Managers and mention the other roles played by OMS staff. We explore some of the ways that instructional leaders worked on key activities related to engaging schools in the CMSI—specifically related to how schools implement the CMSI supported math and science curricula.

What are the key activities and responsibilities that these instructional leaders planned and/or carried out during summer and fall of 2005? The roles they carried out are complex and varied. We first offer Table 1 as a summary of the key activities carried out by the instructional leaders. Then we describe in detail the work of these leaders. Table 1 notes if, within the data we collected summer and fall of 2005 for this report, we found adequate evidence that at least one of the instructional leaders in these roles carried out the key activity as a significant facet of their work responsibilities.

Table 1: Key Activities Carried Out by CMSI Instructional Leaders, Fall 2005

Key Activities Related to CMSI and math and/or science instruction	CMSI Instructional Leaders				
	OMS Facilitators	Area Coaches	City-wide Specialists (CWS)	School-based Specialists	Principals or Assistant Principals
Working in the schools; supporting instruction					
Classrooms	Yes	Yes	Yes	Yes	Yes
Grade level	Yes	Yes	Yes	Yes	Yes
Meet with Principals	Yes	Yes	Yes	Yes	--
Working in the schools around logistics of training and resources					
Sign teachers up for curricula workshops	Support those who do this	Support those who do this	Yes	Yes	Yes
Managing curricular materials: Ordering, distribution, inventory	Support those who do this	Support those who do this	Yes	Yes	Yes
Monitoring implementation					
Pacing	Yes	Yes		Yes	
Use of materials	Yes	Yes	Yes	Yes	Yes
Instructing professional development sessions					
School level	Yes	Yes			
District level	Yes	Yes	Yes		
Area level	Yes	Yes			
Mentoring Specialists	Yes	Yes	Yes		

¹ For detail about the historical development of the roles of OMS Facilitators and Coaches see *CMSI/CUSP Leadership: A Year after the Leadership Academy*, August 31, 2004; *Issues Raised by Instructional Area Math Science Elementary Coaches at a CPS Office of Mathematics and Science Meeting on April 23, 2004*, April 29, 2004 and *CMSI Elementary Instructional Area Math/Science Coaches*, December 15, 2003.

For information about the roles these leaders plus the Principals and Specialists have played historically in schools implementing CMSI supported curriculum, see Reports A through D on *CMSI/CUSP Elementary School Development, 2003-2004*, August 31, 2004; and *Case Study Schools Implementing CMSI Curriculum, 2004-05: School Characteristics Related to Implementation*, October 24, 2005.

OMS Facilitators

This section considers the work of both OMS Math and Science Facilitators. However, given the greater numbers of Math Facilitators than Science Facilitators in the district and less data collected on Science Facilitators, this section does not reflect any differences between the two types of Facilitators and is more heavily weighted with the stories of Math Facilitators.² Observation, interview and focus group data on math Facilitators reveal a multi-dimensional role that includes: mentoring Specialists (around getting teachers to professional development, management of materials and working with teachers in classrooms); working in the schools around instructional issues (in classrooms, grade level meetings, with Principals); and providing professional development sessions. In addition, Facilitators work is broader than the confines of the schools they work in. Many have meetings and responsibilities outside of schools.

Mentoring Specialists. Math Facilitators provided descriptions of and were observed in the mentoring of school-based Specialists. Facilitators were observed attending grade level meetings with Specialists, assisting in answering difficult questions. We witnessed Facilitators co-observing classrooms with Specialists and debriefing afterward. We observed a Facilitator assisting a Specialist in thinking through his role, as evidenced in this excerpt from an observation of a Facilitator/Specialist meeting at a school.

Specialist: Can't get teachers to professional development on week days in a school this size. Eight to nine teachers per grade level cannot be out at once. The primary teachers are more on board, will go to professional development on Saturday. Upper grade teachers refuse to give up Saturdays.

Facilitator: We need to keep working on the professional development problem. Ideally, somehow, need to get 100% of teachers to professional development. That is the goal. We need to problem solve around this issue.

[The two talked through various strategies then the Facilitator summed up the plan as follows.]

Facilitator: Your priorities, then, right now should be: 1. getting the missing materials delivered to the school and distributed to classrooms; 2. solving the professional development problem; and 3. your schedule. We need to get you into classrooms and a plan for how to do that in such a big school.

Working in the schools around instructional issues. Facilitators worked in multiple ways in schools across the district. They focused on schools that were implementing the CMSI supported curriculum that corresponded to the “team” they were assigned—either Science, Everyday Math, Math Trailblazers, Connected Math, or Math Thematics. Their work included directly working with teachers in classrooms and in grade level meetings and in working with the Principals.

Facilitators were observed engaging in *classroom visits with teachers*. Two of these observations reveal some of the variations in how they carried out this activity. For example, in one case, a Facilitator observed a lesson but did not contribute to it. The observation involved sitting in the back with the observation guide and having some limited conversation with students to ask them what they were learning. The Facilitator then gave feedback to the teacher after class. Another time, a different Facilitator was observed co-teaching and in some cases doing demonstration lessons for teachers.

² Not enough data was collected on Science Facilitators to include a section in this report at this time. Science Facilitators were included in focus groups that were undertaken with all Facilitators in June 2005; however, the data was not comprehensive enough or spread across enough staff members to provide role descriptions. Shadowing of Science Facilitators was not undertaken in the fall of 2005. Additional information on the science strand of the elementary CMSI will be forthcoming in a data brief specifically on science which will be delivered to OMS at the end of February 2006.

Facilitators stated that ideally, these observation and demonstration lessons should come with pre- or post-conferencing with the teacher. In some of our observations we found that both of these conferences happened; in others, one or none. For example, here is a description from researcher notes of a post-conference between a Facilitator and teacher that took place after the Facilitator observed Mrs. Now teaching 60 minutes of math.

The Facilitator started out by asking Mrs. Now her thoughts on the lesson she had taught. Mrs. Now stated that she was happy with how the children were coming along in learning the concept of percent and percent discount. She stated that she was still working on the group work.

The Facilitator listened and took notes. When she was finished talking, the Facilitator told the teacher that she was impressed with her rapport with the students. They were engaged and on task. The Facilitator then gave the teacher a copy of the pacing chart for [the CMSI curricula]. She showed the teacher that she was about 2 weeks behind the pace. The Facilitator said this was not “too serious” as long as she could now stay “just two weeks behind.” The Facilitator noted that Mrs. Now would have to move a little more quickly than she did today. She encouraged Mrs. Now--saying that the children “WERE getting it and would get it, just to keep moving.”

The Facilitator then moved on to comment about the group work. She told Mrs. Now that it was excellent that the children were working in groups. The next step was to turn over their questions to one another; to really push them to discuss, do work together and interact.

Mrs. Now asked some questions about how to make that happen. The Facilitator gave her some concrete ideas of how to make the groups function more smoothly, starting with not directly answering the question of an individual student but pushing the students to ask one another first.

Finally, the Facilitator brought up the subject of students presenting their work in class. She gently talked about the situation with a student, where Mrs. Now had stopped the student in the middle of his work and asked for an “easier” strategy. The Facilitator suggested that Mrs. Now allow students to finish presenting their strategy first, then allowing other students to present theirs. She talked about the importance of students being empowered in their presenting.

Mrs. Now listened carefully and asked a few questions about the Facilitator's points. She said that the Facilitator's thoughts were very helpful and that she would try some of these strategies the very next day. Mrs. Now thanked the Facilitator.

The Facilitator wrapped up saying there were three key areas, then, to focus on: groups working together, students presenting, and keeping the pace moving. Mrs. Now nodded and thanked her for her time.

Some Facilitators reported using *grade level meetings*, especially in larger schools, as a tool to support implementation. In some cases, these Facilitators spent an entire day going from one grade level meeting to the next to meet with teachers. These meetings were used for both open question and answer sessions between Facilitators and grade level teachers and for more structured presentations to teachers about a specific topic, for example, assessment.

A sample observation reveals a Facilitator who had each grade level meeting start by filling out a form about the successes and challenges they were experiencing in implementation. This was followed by a verbal reflection on what the teachers had written. The Facilitator then moved into a short presentation about assessment in the curriculum, a topic that the school-based Specialist told the Facilitator was of concern to multiple grade levels.

This form of interaction with groups of teachers provided Facilitators with the opportunity, according to one Facilitator, to “support Specialist work,” and, according to another Facilitator, to “promote collegial thinking about implementation problems.” This approach also provided a wider opportunity to impact more teachers than individual mentoring.

Some Facilitators, during these early months of the school year in fall 2005, reported that they *met with Principals in schools* with nearly every visit. Principals were seen by Facilitators as a critical support or barrier in the success of implementation.

After the first initial contact then I start scheduling things either with the principal's office or with the designated person. I try to work with [them] informally, more than formally. If I see the principal, and there are some schools where a principal...every time they see me in the building [will pull me in] or they call...There are people like that. There are principals who don't want to be in contact at all unfortunately. And I try to be with them. Then I always find another administrator. I try to do my job whether they're receptive to it or not. Many are.

Some Facilitators reported using the principal as the first and ongoing contact in the vast majority of the schools they visited.

Providing professional development sessions. Facilitators report being invited to do professional development or presentations in schools, both by principals as well as by Area Coaches. These presentations involved “question and answer,” “putting us on the hot seat about materials,” or “reinforcing the principal’s message,” according to Facilitators.

Meetings and roles outside of schools. Although Facilitators considered school support to be the primary part of their role, they suggested that they spent a lot of their time in meetings. One Facilitator estimated she spent about 3.5 days of the 5 day week in schools and 1.5 in meetings, on average. These meetings ranged from OMS Facilitator meetings, to checking in on curriculum professional development, to meetings with the Lead Team, or to meet together as curriculum teams. Meetings were seen as both a frustration and a necessity. “It has been much better since the Facilitator meeting was moved,” one Facilitator stated, suggesting that the move opened more time to be in schools. Facilitators reported that that the OMS Lead Team had been responsive to their requests to move meetings to make more time for in-school work.

Issues for Discussion:

Do all Facilitators have assigned roles outside of providing support around specific CMSI curricula to schools? What is the “ideal” schedule for Facilitators to be most effective in their work?

What is the average and range of days that Facilitators spend in schools and in activities outside of schools? What are the goals of the meetings that Facilitators attend and are there more effective ways to attain these goals?

How do instructional leaders decide how to engage with a teacher during the classroom visit? For example in the section above on Facilitators, there are examples of two very different types of classroom visits. Are there preferred times when one type of visit is more valuable than another? Is this a matter of preference that matches an individual instructional leader’s style and/or the needs of the teacher? Does the level of development in the relationship between observer and teacher matter? Does the period of a developing relationship between instructional leader and the teacher visited?

Area Coaches

This section considers the work of Area Math Science Coaches. Observation, interview and focus group data on Coaches reveal a multi-dimensional role that includes: providing professional development sessions (school level and Area level); working in the schools around issues of instruction (in classrooms, grade level meetings, with Principals, mentoring some Specialists); monitoring implementation (including Area

Walk Throughs) and working in the schools around logistics of resources and training. In addition, they have meetings and responsibilities outside of schools.

Providing professional development sessions. *School-level* professional development was offered by Area Coaches before, after and during school. Coaches reported that the focus of these sessions was largely on general mathematical or scientific thinking or teaching approaches, and usually linked to standardized tests. This was confirmed both by reports of Coaches in focus groups and by observations of Coaches providing professional development sessions.

School-level professional development sessions were coordinated either through a school contacting a Coach or building upon a Coach's work in a school. Observation data revealed a mix of foci for the school level sessions. For example, one observation of a Coach's presentation on the content of the ISAT revealed a focus on providing teachers with the nuts and bolts of expectations in standardized tests while at the same time working to promote a sense of community among faculty. After the Coach introduced a list of ISAT words in mathematics that students were required to know by third grade, the Coach and group of teachers engaged in the following dialogue:

Coach: Where are my third grade teachers? Now third grade teacher...Are you solely responsible for everything included in that column?

Third grade Teacher: Yes!

Coach: I heard her say no, didn't y'all? What are we talking about? Collegiality. Kindergarten teacher, over here, which of these words on this third grade list do your kids know?

Kindergarten Teacher: Dollar, cents...*[lists more words]*

Coach: There are some teachers over here *[pointing at the kindergarten teachers]*, oh third grade teachers, who want to share your load. They are already teaching some of these words at kindergarten. Let's give them a hand! *[Everyone claps and cheers]*.

Coach: Second grade teachers. Which of these words on this ISAT third grade list do your kids know?

Second grade Teacher: *[Lists some words on the third grade list already being taught in second grade]*.

Coach: So this does not fall on one person. Although it falls on the third grade teacher to get kids to know these words, there is a kindergarten teacher and a first grade teacher and a second grade teacher who are helping out. So this is collective responsibility. If a kindergartener knows the triangle, a third grader will know it.

The regularity with which Coach's lead school-level professional development in their Area varied by Coach, by time of year, by school, and by types of initiatives going on in particular areas. For example, two Areas were asked to pilot the Benchmark Assessments this year; in some instances, this caused schools to call on their Coach for professional development specific to this.

Focus groups with Area Coaches contained much conversation on the time spent planning and carrying out **Area level professional development** with Area teachers and/or Specialists, assistant principals, and principals--supporting all schools in the Area. The content of these sessions was described by Coaches as being focused on general topics in mathematics and science instruction, such as assessment, the content of standardized tests, the use of manipulatives, the integration of technology, etc. Coaches were very explicit in describing the content of the monthly professional development sessions with teachers to point out that the Areas went to this more generalized mode of instruction, rather than focusing on CMSI instructional materials, because their role was to serve all schools, not just those implementing CMSI materials.

One Coach stated:

We have to service all schools and you can't ignore that. For me, part of wanting to have [the monthly Area teacher meeting] is to address all the schools in the Area so they get the same information. We are communicating the same things and keeping them aware of all that is happening.

Another Coach said:

The...kind of professional development that we give to our schools is non-curriculum specific. We've looked at assessment and what embedded assessments look like and how performance assessments can be formative and how they have a link directly to the standards. That's not covered in CMSI curriculum professional development because they are looking at implementation issues; we are looking at best practice issues.

Working in Schools with Specialists. When working in schools with Specialists, Coaches tend to focus their support to these school-level leaders. "One of the things I try to do is to meet with all my Specialists on a one-to-one basis," one Coach stated. "I don't have time to meet with all the teachers in the Area regularly so I rely on Specialists to be the school-level leader," stated another.

Coaches described and were observed engaging in conversation with school-based Specialists around a range of topics: parent nights, teacher's implementation, materials management, principal support, grade level meetings, teacher attendance at CMSI professional development, new teachers, pacing, Specialist's role, test prep.

Some Coaches saw themselves as mentors to the school-based Specialists. One Coach described the ideal Specialist role in a meeting with a Specialist:

You're responsible to make sure that person knows everyday what is going on with the math program, but you're also there for the teachers. It is...a tricky thing, but if everybody understands the purpose of what we are trying to do then it usually goes well. You...do want to put most of your energy into the people that you make the greatest change, but you can't give up on the kids who are in those rooms [who have poor instruction] and just say "Ah you know, next year!" because it may not [be]. What if they get another teacher like that?

Monitoring implementation. Coaches were observed and reported spending time monitoring implementation in Area schools, both through individual visits and through Walk Throughs. Coaches, in interviews and focus groups, shared clear indications of what they were looking for in classrooms.

When math and science are being taught and taught well...you see it through what is up in the hallways and in the classrooms...Either there is the math corner or the math words are up there, and it's authentic and they are doing it. And the kids work in groups and they put up a chart that shows how they are solving that problem. That kind of thing—that stuff is there. And you don't just see standard word walls and purchased charts or whatever, or just an emphasis on literacy. You see the *content* that they are studying and the concepts...it's evident.

Area Walk Throughs were described in Coach interviews and focus groups and observed in shadowing of Area Coaches. Coaches described these as "continuing to take up a good amount of time," and "both a blessing and a curse." An observation of the Coach role on an Area Walk Through revealed the Coach working with the AIO to push the school principal on use of CMSI materials. Although this school had recently acquired the services of a City-wide Specialist, the AIO and Coach explained that they hadn't seen much evidence of use of the science materials and that there

needs to be someone keeping the project going. Lots of money invested in the kits. We want to see that being used. We see some things but not much. Need to engage [teachers/students with the materials]—get kits back out to teachers [The City-wide Specialist had taken these materials from

teachers to do an inventory but hadn't finished before leaving for the next school and happened to not be at the school during the time of this visit.]—just did professional development for second term already---teachers need to start [using materials]. Need new teachers to get signed up for professional development. Teachers have to go to get a comfort level with the materials. Go over vocabulary journals, assessments, hands-on exposure to the kits. For math: primary number lines needed—not basic number lines. Centers needed. Upper grades need science fair stuff.

Working in the schools. Coaches' reports varied as to the amount of time they spent visiting schools. Across four Coaches, for example, one reported being in schools "40% of the time, or about two days a week," one described visiting all schools in the Area at least once every month to six weeks. A third stated, "Most of the time I am working with teachers. One on one, grade level, staff meeting...it's working with teachers...that's what most of my time is." A fourth described herself as "spread all over the place, working with Principals, working with the magnet cluster plans, literally sitting down with them and us doing it together—from data analysis to walkthrough, to monthly meetings, to Principal meetings, and getting into the schools to work with teachers." Some Coaches reported being in regular contact with their schools via e-mail and two reported receiving reports from school-based Specialists on progress each month.

Issues for Discussion:

What are OMS's goals for the role of Area Math Science Coach? How is this being communicated to Coaches and Area Instructional Officers? How have Area Coach meetings with OMS supported these goals?

How have OMS meetings with AIOs been structured to support Area Coaches' work?

What are the average and range of days that Coaches spend in schools and in activities outside of schools? Do they all have the same duties within the Area? Are any of these "negotiable"? What structures or supports are needed by Coaches to balance or enhance their work for greater math and science instruction within the Areas they serve?

How have other CMSI instructional leaders communicated with or utilized the expertise and position of the Area Coaches as they work within the same schools or as they have developed further Initiative plans?

City-wide Specialists

This section considers the work of City-wide Specialists. The City-wide Specialist position was newly created with the staff filling these positions hired summer of 2005. These Office of Math and Science staff members reported to a Manager in OMS and have office space at the Medill Professional Center with other OMS staff. However, City-wide Specialists were charged with being in schools from Monday through Thursday and were only expected in their Medill offices on Fridays.

City-wide Specialists describe their role as focused on improving math instruction at the school-level. City-wide Specialist descriptions of their role were very teacher-focused. For example, one City-wide Specialist spoke of her role as coordinating the math program in each school, making sure supplies were ordered and distributed, co-teaching and modeling and giving feedback about lessons. Another Specialist stated that the City-wide Specialist role was to help change teacher practice by talking to teachers about general teaching practice—providing wait time between calling on students, class management things, etc.

The scheduling of time within the school day at each school varied by City-wide Specialist and by schools. One City-wide Specialist provided evaluators with her tentative schedule for the year. This schedule informed each principal at her schools of the weeks she would spend in their school. This City-wide Specialist thought the scheduling up front was very important:

I definitely think a schedule is important to both respect the people and get meaningful work done. Even if you were in the school everyday, not just one week out of the month, the expectation gets set. If you have a routine, I believe people get more comfortable with it, and you can then do it to get the most mileage out of the limited time that you have.

This schedule included a tentative classroom visitation schedule in most schools. In contrast, another City-wide Specialist stated that although the weeks in schools were set, there was no formal schedule given to schools, just informal negotiations from week to week. And, the work within the school was established day-by-day:

I have a schedule for me but don't hand it out in case one change throws the whole thing off. And work in schools, I just don't know what is most important to focus on until I am there so I schedule what I will do day-by-day...

All City-wide Specialists interviewed seemed to agree that the approach had to be tailored to the needs of each school. Factors like size of the school, numbers of gifted and special education classes, buy-in of the principal, and level of implementation of teachers were listed as determining the approach in a particular school. For example, one City-wide Specialist stated

It's like doing the best you can with what you have... Maybe regular education and the special education inclusion teachers could be in there at the same time so it's like working with two teachers at the same time. At larger schools, I want to focus on grade-level teams...

Each of the sampled City-wide Specialists talked about their entry process into schools. They recognized how critical it was to carefully negotiate the school culture, presenting themselves in a way that respected the school faculties and did not threaten school leaders. For instance, one City-wide Specialist described his entry into a new school as the following:

- A. He met with all his principals and met with all his teachers (in all his schools)
- B. He told teachers who he was and what he hoped to do for them
- C. He told teachers that they were welcome to his notes, etc...
- D. He talked about setting up meetings and double booking with literacy specialists in some schools and how this level time needs to be shared between them—talked about having more contact with literacy specialists than Principals but that he would still keep Principals in the loop of what he was doing in their schools.
- E. He described his understanding of the need to be flexible because already schedules he had taken great care in planning had been quickly changed at a number of schools and to do his work well he would need to be able to accept the reality of changing plans.

Observation, interview, focus group data and written reflections with City-wide Specialists reveal a role that included working in the schools around issues of instruction (in classrooms, grade level meetings, with Principals) and working in the schools around logistics of getting teachers to professional development and managing materials.

Working in the schools around training and resource issues. The majority of our shadowing of City-wide Specialists took place late-September to mid-October. During this time we found City-wide Specialists learning the terrain of their schools. Some of our visits coincided with their first days in a school. We found these new CMSI instructional leaders meeting school staff, learning about teachers' schedules (both for teaching math/science and for grade level meetings), taking inventory of the materials on site and those still needed, finding out who was signed up for professional development and making sure others were also enrolled.

City-wide Specialists described encouraging teachers to attend *professional development*, relating it to teachers as “an essential aspect of improving instructional practice in math and science.” This often involved some dialogue and “gentle pushing” on the part of the City-wide Specialist.

City-wide Specialist: Have you signed up for Experienced User Professional Development this year?

Teacher: No

City-wide Specialist: [Goes over schedule for both levels of experienced users professional development].

Teacher: What would we be doing? The original professional development was too much teacher moaning and groaning and a waste of my time.

City-wide Specialist: [These are] only 2 days. Assessment will be a major theme. For experienced level 2 there should be a choice of various topics: like Assessment, Games, Setting up Explorations, etc.

City-wide Specialist s reported, both in written reflections and in interviews and observations, that a significant amount of their time through mid-October was spent in assisting with *materials management* in the schools in which they worked. The extent to which this was a major time commitment varied from school to school. Some City-wide Specialists, knowing that their role was primarily designated as being an instructional support, were frustrated with the amount of time they spent in materials management. “It’s all leg-work. There is no one here. There used to be a Specialist here. He [the principal] has gotten rid of [the Specialist position], now it’s just me four days a week [for once a month].” Another City-wide Specialist accepted materials management as a part of instructional support. “I guess I see [materials management] as being as important as any mentoring. If they don’t have the materials, we have no where to begin.”

Working in the schools around instructional issues. Some City-wide Specialists were beginning to observe math/science instruction or at least set up times to do so during September and October. City-wide Specialists worked with teachers individually or in groups to provide implementation and instructional advice. Researchers observed City-wide Specialist in dialogue with teachers around issues of how they would or had carried out a lesson and the mathematical content students were to learn.

Meetings and roles outside of schools. City-wide Specialists were scheduled to be at Medill on Fridays. Some found the meetings scheduled for this time as helpful—especially in early fall conversations with City-wide Specialists as this was a time to share strategies around various scenarios common to many. Others, perhaps more experienced professional developers, preferred to have this time to work in schools. Some City-wide Specialists, like Coaches, noted that Fridays tended to be restructured days at schools which made them good days to work with school staff all at one time instead of in one-to-one or in separate grade level interactions. Others found the one day a week at the office ideal for catching up on other work.

Early perception of their role. City-wide Specialists generally felt very comfortable with their role definition and could clearly describe their role and the tasks within it.

There are some clear definitions of our roles from OMS and the initial work we did together—being brought on as a team this year to talk about what our roles are, what they look like. For my comfort level, there is the right amount of ambiguity. If I know I am at a school for four days, and I know the over arching role, I’m feel very comfortable. I do not need micro-management, nor would I want x amount of minutes per teacher. Each school you have to have the flexibility to take in the big picture of what is happening. How could you service them well?

While well-defined by OMS, another City-wide Specialist felt that some of her schools did not necessarily understand the role of the City-wide Specialist.

I think my role as a specialist is defined in general. I have a good sense of what I need to be doing I think it is very ambiguous here because I think I am perceived as a person that can do things

that's more administrative that I really can't do. And also by the administration I am seen as a person that just comes in and fixes everything. I can't do that either.

City-wide Specialists also perceived their role to be different from those of Facilitators and Coaches because they were specifically focused on probation schools. City-wide Specialist's talked a lot about the unique needs of probation schools and the ways in which this defined their role.

My role [at schools on probation] looks a little different. Though the same kind of things, working with teachers, going to grade level meetings and seeing where they are at and what they want supported. When it is newer and it has been told by the Area "You are on probation. Stop doing that program and go to professional development." It gets a little trickier when people are forced. You see more uneven implementation levels with teachers across the school. You then have to get support. You actually have to have conversations with the administration about if they are teaching [the curricula]. I'm seeing another math program. Even though I would never tell a teacher to take them out, I would ask them about it. I would suggest that there is so much in this program that there is not enough time to teach another program.

Issues for Discussion:

How have the roles of the City-wide Specialists developed across the 2005-2006 school year? Though they were not seen doing a great deal of classroom level support for teachers in early September and October, how often did they manage to play this type of role by the end of 2005 and into 2006?

What are the pros and cons for City-wide Specialists meeting on Fridays? What pros/cons are related to having joint meetings with other CMSI leaders?

What has been the experience of City-wide Specialists around the Classroom Observation Guide and Survey Monkey? Are these tools structuring their work in effective/efficient ways?

School-based Specialists

This section considers the work of school based Specialists. The role descriptions of school-based Specialists come from interviews and/or shadowing with six fall 2005 school-based Specialists, three new and three who are continuing from last year. In addition, two former school-based Specialists were also interviewed in schools in which the Specialist position had been discontinued in 2005-06 and these teachers returned to classrooms.

Most Specialists revealed that they had multiple duties in their schools. In just two cases were the Specialists we interviewed or shadowed focused mostly on instruction using CMSI supported materials. Four other Specialists noted that their role included various other duties. When able to focus their work on CMSI, Specialists were working in the schools around issues of instruction (in classrooms, grade level meetings, with Principals); working in the schools around logistics of getting teachers to professional development and managing materials; and monitoring implementation. The other roles Specialists played in their schools included regularly teaching math and reading classes, lunch supervisor, field trip chaperon, and covering classrooms when teachers were absent or late.

For example, when not teaching her regularly scheduled reading or math classes, one Specialist spent her time

making sure all the teachers have all the materials that they need and doing co-teaching with teachers as needed. I've gone into classrooms to just observe and see what the needs of the teachers and the students might be. The teachers, some have already asked me to come in, you know, when they're doing a lab or when they're doing something where they might just need an

extra set of hands, so I'll be available to do that, as well. Basically, just whatever teachers need from me, I will be.”

Another Specialist described her role as being much more administrative, attending to professional development sign-ups, overseeing sub coverage for professional development attendance, distributing books, “correlating the lessons to the standards,” and covering classrooms when teachers were absent or late. She estimated that the organization and distribution of materials took 40% of her time while visiting classrooms took approximately 15%.

Issues for Discussion:

Without OMS financial support for Specialists position, what influence/leverage do CMSI leaders have on keeping the role of Specialists focused on improving classroom instruction in math and science? What is the “ideal” role of these school leaders? Is the role the same for all types and sizes of schools?

What are the topics of OMS Specialist professional development? How do these coherently support the work of Specialists and how do they push Specialists closer toward the “ideal” role? How does OMS work to deal with variation in Specialists’ experience levels? Who best should lead these meetings?

What supports are needed to help Specialists be more effective in their work? How can Specialists best draw on the support of other instructional leaders? Is a framework/structure needed for this?

Principals

Principals in our case study schools varied in their role in support of the CMSI. For example, some exhibited little understanding of their role in the implementation of CMSI in their school. Some leveraged no direct accountability for the implementation of CMSI materials; while others exhibited great understanding of CMSI being sure to encourage teachers to attend training, either during the school day or Saturdays, providing opportunities for collaborative planning time at grade levels with time to discuss math implementation, and/or insuring at least a part-time school-based Specialist to work with teachers in their classrooms. A few Principals were “true believers,” explaining that they hired teachers based on their willingness or experience teaching with CMSI materials or agreement to attend CMSI professional development. One principal in particular did regular (3-4) observations formal/informal observations of teachers per year making a point to include at least one math observation.

Issues for Discussion:

How is OMS working with the differences in Principals’ interests, experiences, and beliefs in CMSI? How are CMSI leaders utilizing their different roles to push/nudge Principals towards greater commitment to CMSI goals?

Instructional Leaders from Outside Projects

The Office of Math and Science actively collaborated with university based or other projects that offered to assist in the CMSI goals in ways that OMS deemed promising. These projects often involved efforts to get project instructional leaders assisting teachers in their instructional practices.

One such project was the *Supporting CMSI Implementation in Probation Schools: A CMSI-TAMS Partnership*. This project funded in part by Chicago Community Trust aimed to utilize professional developers from the Teachers Academy for Math and Science (TAMS) to carry out in-school support of the

CMSI in probation schools within the Chicago Public Schools as these schools began new approaches to teaching mathematics and/or science. In total, TAMS Professional Developers (TAMS PDs) were charged with providing in-school support services to 100 teachers in 10 schools during their first year of implementation of research-based curricula. The services included in-classroom coaching of individual teachers, facilitation of grade level teams, and consultation with the principal and the school leadership team.

In our focus group conversation with TAMS PDs in summer 2005 we heard stories of classroom implementation and in-school support that resembles the stories of success and challenges that appear throughout this report.

Other projects include the UIC based project on benchmark assessments and a UIC based project on math content coaching. We are unclear whether there are other projects besides these two that also tie into the CMSI. By noting these here, we recognize the human resources these projects bring to bear on the CMSI effort but also the human resources OMS must use to monitor and support these external programs in order to keep them in line with OMS goals for CMSI.

Issues for Discussion:

How have external projects and their goals in support of CMSI been communicated to all CMSI leaders? How do OMS Staff and Lead Team utilize the expertise and organizational positions of all CMSI leaders as they organize, develop, and monitor these partnerships?

OMS Managers

The OMS organization chart and dialogue with instructional leaders confirms that a new reporting and management structure for the 2005-2006 was instituted for elementary math and science support. Three OMS senior staff members were designated as “Managers”-- managing the math or science instructional teams and overseeing the City-wide Specialists. The Elementary Math and Science Managers described their role as consisting of organizing professional development workshops and showcases, managing their team through developing and distributing leadership, coordinating external resources, attending meetings with a long list of district offices and leaders, and providing school support.

The Elementary Math and Science Managers described their role as being partially taken up with the *organization of a wide range of professional development* including supervision of the curriculum materials sessions, meetings for Area Coaches, Citywide and school-based Specialists and Facilitators. “The planning of these sessions and actually enacting them is a huge chunk of our time and responsibilities,” one manager stated.

The Elementary Math and Science Managers are also charged with *managing and supervising* the Facilitators and City-wide Specialists. “There's the management piece of the team, you know. We each have sets of Facilitators that we are managing,” one Manager stated in summer 2005. According to the Organizational Chart, each manager is responsible for managing, supervising and planning professional development for a particular group of Facilitators or the group of City-wide Specialists or the Area Coaches. This includes providing professional development and support, observing professional development sessions, troubleshooting and assisting with particularly difficult schools or problems. In addition, Managers act as the liaison between the Facilitator and City-wide Specialist positions and the Lead Team, providing documentation on their work, creating forms for their work, etc.

In their summer focus group, Managers saw their role as developing and distributing leadership throughout the Facilitator teams. For example, in math, the Managers stated that Facilitators were acting as the lead on each of the four CMSI supported curricula. This process of distributing leadership was described as a work

in progress, with some successes and some ongoing challenges, including the Managers learning to collaborate as well as trust their teams to have leadership distributed to them.

Elementary Math and Science Managers also spend time *interacting with organizations that wish to provide external supports* to the CMSI, finding ways to coordinate programs and funding. Small grants and external partnerships made Managers feel fortunate but this also led to the need for “planning for the utilization of those funds, how are we going to use it? What is the plan? Who is going to lead it?” Managers described the large number of contacts and requests they received. “It is nice to have so many interested parties, all who want to get involved with CMSI,” one Manager stated. “But figuring out what is coherent and what isn’t, and coordinating it all takes time.”

Elementary Math and Science Managers described a long list of *regular meetings* they run and attend including but not limited to:

- | | |
|--|---|
| • Meetings of the math and science managers | Once to twice per week |
| • Facilitator team meetings | Once per week |
| • Professional development leader meetings for science | Once per month |
| • Meetings with math PD providers | Five times per year
(and individually as needed) |
| • Meetings with Vendors | Three times per year |
| • Meetings with Department of Specialized Services to develop Health Curriculum | Once per week |
| • Meetings with other curriculum offices and special education | |
| • PD team meetings with elementary math and science managers, leaders on the logistics of PD | |
| • Central Office Committee meetings | |
| • Principal Program of Study Committee meetings | |
| • TAMS meetings | |
| • Subcommittee of AIOs meetings | |

Elementary Math and Science Managers described how one portion of their work was to be *in-school support*, “either observing, teaching, working with Specialists, working with principals--that’s...supposed to be on my list of things to do...[because] it’s important for us to have a presence out there.” The school support aspect of their work, while seen by Managers as essential, was one that they could not find time for. “I think it’s a really critical piece of what we are doing,” one Manager stated, “and I don’t know how we build it into our time because we need to be out there so that we see what is happening”

More often, this school support piece came in the form of troubleshooting, answering questions, and providing information on procedures to those with questions and complaints. “We get these phone calls because you know X principal doesn’t understand about what materials to use or this teacher didn’t get paid for that workshop or you know all kinds of things,” one Manager explained. Finding time for in-school presence and support in their roles was a concern of Elementary Math and Science Managers.

Other OMS Staff

In addition to the OMS staff members described above, we also want to note that there are more than 15 additional OMS staff members (not counting interns, not counting positions specific to high school efforts) whose work does or might intersect with the Facilitators, Area Coaches, City-wide Specialists, and OMS Managers who share their department. Some of these positions involve work that takes place with elementary schools while other roles are more focused on support of department operations. These positions include: Associate Director of CUSP, Office Manager, Senior Research Analyst, Director of Mathematics, Director of Science, Assessment Specialist, Evaluation Specialist, Program Data Analyst, Budget Coordinator, Payroll Clerk, CMSI Supplemental Programs Coordinator, CMSI External Programs Coordinator, Professional Development Coordinator, and several Administrative Assistants.

Issues for Discussion:

What are the “ideal” key priorities for the role of OMS Managers? What organizational/structural supports are needed to allow them to focus on these key areas? What parts of their job can be delegated to other OMS staff? Are there sufficient &/or appropriate people to do these tasks well? If not, what structures can be used to provide training, etc. to build this?

What are the key priorities of each of these OMS staff positions? How are these communicated to other CMSI leaders so they can access this expertise? Where are the intersections of their roles with the CMSI leaders we have focused on in this report? How do CMSI leaders utilize the skills and expertise of those other OMS staff members? What structures support communication across all of these roles?

How do Managers evaluate the performance of the employees that report to them?

Instructional Leaders Working Together

In this section of the report, we look closer at how instructional leaders worked together to support CMSI. We begin with the vision the Chief Officer for Math and Science set forth for his staff in August 2005. We follow this with a description of the tools OMS provided CMSI leaders to do their work. We discuss how the organizational location of these positions be they district level, Area level, or school level, relate to people’s sense of purpose for prioritizing and choosing the work they do. Finally, we turn to two prevalent tasks where leaders in the same or different roles were working together. One of the key responsibilities of Facilitators and Coaches was to provide professional development related to math and science, to the implementation of curricula at the school, Area, or classroom level or to the development of CMSI leaders. The second key task shared by Coaches, Facilitators, City-wide Specialists, and school level Specialists alike was co-teaching, lesson modeling and/or observation of instruction including pre- and post-conferencing. Throughout this discussion we note how groups of leaders within a given position worked with each other and with leaders in other positions. We raise questions about where we expected but did not see intersection in CMSI leaders’ work. We include commentary on how different roles utilized the leverage and support inherent in their positions as leaders within the Area or OMS or school structure.

Working Together Within the Context of 2005-2006 OMS Vision of Tools and Policies

The Office of Math and Science “kicked off” the beginning of 2005-2006 with a staff development meeting attended by City-Wide Specialists, OMS Math and Science Facilitators, and OMS Managers and Staff. The Chief Officer of OMS shared a message that he hoped would set the stage for instructional leaders to more effectively work together to support the Initiative. The use of new communication tools, management structures and professional development were the key supports that the Chief Officer highlighted. In this section we describe these and other tools used by CMSI leaders.

At the August 31, 2005 Staff Development “Kick Off” Meeting, the OMS Chief Officer focused on the “Big Ideas” to be addressed in the new school year. The goal would be to “strengthen implementation by investing everything in communicating and getting people to stay the course and do better.” The mantra for the year would be “support the program well, you’ll get results. The data show if you stay the course and strengthen the program, the scores go up.” Beyond getting schools to support the program as envisioned, the Chief Officer directed his staff to

strengthen communication with AIOs, Coaches, Principals, the District, teachers. Our role is to support the vision and implementation. We really have to ratchet up our communication all over the place. Bombard them with information. Every time you go to a school, you’re going to communicate this back to others—Coaches, etc.—increased communication is our key to

helping AIO offices with information. [We have a] new dimension with City-wide Specialists. Information we have does not become proprietary—that doesn't help anybody—service to schools, that's what we are about.

Last spring Principals were given surveys about the district offices to them. We fell in the middle. Better than some, worse than others. One group of comments [noted that principals] don't like the direction we've taken. Another group [noted] "sometimes I call and don't get a response—I haven't seen anyone from that office." We can't be satisfied with being in the middle! We do more service to schools than any other department.

After making clear the need to communicate the message of CMSI to all stakeholders and to fellow colleagues working for the same goals, the Chief Officer made clear that this year new tools would guide this work. The majority of this staff development day was devoted to learning about these tools. Three breakout sessions were planned for 45 minutes each to address the *Classroom Observation Guide*, *Online School Visit Log (Survey Monkey)*, and *Deep Dive on Data* (questions/commentary on summer teacher professional development data). In addition, about 30 minutes were scheduled for explaining *Using ePD* and over an hour was spent on the *Policies and Procedures Handbook for OMS* to ensure that all staff understood their work schedules and compliance procedures. The last hour or so of the day was scheduled for *Support Team Meetings* for the following teams: Science, K-8 Math, HS Math, Evaluation, Support All Schools, and Office Support.

OMS/District Tools

The Classroom Observation Guide (COG). For a year, OMS Managers, Facilitators, Coaches, and even the Evaluation Team (both internal and external) worked to develop the Classroom Observation Guide (COG). After numerous meetings and discussions on this Guide, it was officially shared at the August 31st Staff Development Meeting as a "work in progress" tool that would be used by all CMSI leaders to "give us a common vision of what we are doing in schools."

The Guide is comprehensive in design and not intended to be used in its entirety at any given time. Rather, the tool was developed to promote conversation between the observer and teacher about the qualities of high quality instruction in math or science as it focuses discussion on improving student learning. The intended use of the tool is not for evaluating teachers but for creating the opportunity and disposition to focus on student learning and the changes needed in instruction to incur greater student learning.

Guide to Implementation Success.

School Visitation Log (Survey Monkey). The School Visitation Log or Survey Monkey was unveiled also at the August 31st Staff Development Day. In the 30-45 minutes given to present this tool at each of the three breakout sessions, the presenters described the purpose of Survey Monkey and provided hands-on training in how to access, complete, and save these logs on-line. It was said more than once that the new instrument was to track school visits, was not to be used as an evaluative tool, and was designed for purely programmatic reasons. The following purposes, procedures for its use, and warnings were also noted:

The purpose of the logs is to document the support that schools receive from OMS. It will also be used to communicate to stakeholders this support. Each time you visit a school, it is to be completed. They are due on Fridays. The information is also sent to Area Coaches and AIOs; they have access to it on line. It takes about 10 minutes to complete.

Facilitators and Curriculum Contractors will also use the report to see how implementation is going.

This report replaces the Specialist Report. It does not connect with the Classroom Observation Guide, which is used for teaching and learning.

Be careful what you write about a teacher. The report is not secure and accessible to all. We will have a more in depth workshop for all Specialists. The purpose of the log is to increase communication and organize visits. It does not take the place of a Facilitator's time teaching.

The log is available at any internet point.

At times, CPS Chief Executive Officer Duncan and Chief Education Officer Watkins may want specific information on the level of support the teachers are receiving and that is the purpose of the log.

The log included a place to note the following data: school, Area, date of visit, duration of visit, name of person filling out form, instructional materials used at the school, person documenter met with, type of support provided, significant changes and challenges.

OMS Policies and Procedures Handbook and Organization Chart. At the August 31st, 2005 "Kick Off" meeting, all OMS personnel (but not Area Math Science Coaches who were not present) were given a copy of the Organization Chart and the Policies and Procedures Handbook. Besides talking about reporting procedures, OMS personnel heard about NSF compliance issues, sexual harassment policies, and non-compliance issues. We have no data on how these tools for working together were being followed in fall of 2005, but note that these, too, are tools for CMSI leaders since they help OMS leaders to legally set norms for working together with all OMS personnel. In addition, we note that in late November/early December we received word that some OMS personnel were given notice of changes to the hours they were to work. We do not know how this reconciles with the Policies and Procedures Handbook.

Professional Development/Support Team Meetings as a Tool. We include professional development/support team meetings here to remind the reader that these gatherings for Area Coaches, Facilitators, City-wide Specialists, and Specialists were used as an ongoing tool to bring these leaders together by groups or in mixed groups. We heard varying comments on the "usefulness" of these gatherings to various people and will speak to this in our forthcoming report on Professional Development.

Reports of Teacher Attendance at OMS Curriculum Workshops. Approximately 30 minutes at the August 31, 2005 staff meeting were dedicated to explaining this tool to OMS personnel. This tool tracks teacher attendance at curricula workshops.

eNewsletter(s). We observed OMS staff in early stages of planning and devising a communication newsletter for teachers. The process for bringing to fruition this sort of tool included various steps by which the process and contents needed to be approved by different parties within OMS. We do not have evidence of if tools of this sort were approved or used in fall 2005 or if they may be launched at a later time.

Benchmark Assessments. OMS in collaboration with the Center for the Study of Learning, Instruction and Teacher Development at the University of Illinois at Chicago (UIC) implemented a field test of a formative benchmark assessment program during the 2005-06 academic year. The program was piloted in two Areas of the district. The purpose of the benchmark assessment was to provide regular, instructionally relevant information about student performance in mathematics to teachers in a timely way. The ultimate goal is to promote discussion among teachers, students, principals and other staff about student work in mathematics. The benchmark assessment was a formative, low-stakes assessment; that is, it was to be used solely for helping teachers get a better understanding of how their students perform on key mathematical concepts to inform their planning. The benchmark assessment could serve as a link between the mathematics curriculum implemented in schools and the state and district-wide goals for mathematics learning. The development and use of this tool will be explained more fully in a forthcoming data brief.

Office Space. Office space for different roles has been furnished by their "home" office. For example, Coaches were housed in the Area offices; Facilitators and OMS staff in the OMS offices. City-wide Specialists shared office space together when they were at Medill, but each had a different situation in the school buildings they worked in. Some buildings were over-crowded and City-wide Specialists worked out

of the teachers lounge or an auditorium; other buildings had ample space and had given City-wide Specialists a place from which to do their work. School-level Specialists also varied in the space given for them to do their work.

Other Tools/Materials. In this section we note briefly technological tools used that may enhance the ability of CMSI leaders as they do their work. We also note access to materials in CPS buildings that have closed and in the former TAMS building.

All OMS Facilitators, Managers, and City-wide Specialists received *cell phones* as tools for their job. For some City-wide Specialists this took a longer amount of time and at a crucial time for them as they were just getting into schools and had little access within the schools for a place to call their own and much less access to technology (phones, internet, etc.) at the schools. In addition, we note here that unlike these leaders, Coaches have never received cell phones as a tool for their work. All OMS Facilitators, Managers, Area Coaches, City-wide Specialists received *laptops* as a central tool for their work. We note that Facilitators and Coaches received *projectors* for use in their work presenting professional development sessions.

In conversations with Coaches and former TAMS PDs, we heard of *curricular materials sitting in abandoned buildings*. One Coach explained how she had gone to a number of closed school buildings in her area to round up all useable materials for math and science and then set up times for teachers to come to “shop for free” for what they could use in their building. Literally, the researcher shadowing the Coach saw multiple rooms on multiple floors filled with useful materials. Likewise, we heard that the former TAMS building still contains records on work done in a number of CPS and CMSI-implementing schools. In addition to this data, we were lead to believe that this building still contains materials that could be used by CMSI teachers or leaders.

Issues for Discussion:

Are all CMSI leaders utilizing the Classroom Observation Guide? In what ways? Do CMSI leaders find this tool an effective means for pushing the goals of CMSI?

Who has access to Survey Monkey? Who actively uses it? How? Are all who have access to add data doing so? How effective is this as a communication tool? Is the time and effort put into it worth the results of its use?

Our point in noting professional development/support team meetings here, in light of the above discussion on intersection of roles and use of tools, is to push OMS to think about the opportunity these gatherings pose. How often do these professional development sessions/meetings include opportunities for CMSI leaders to discuss together the use of these tools or the intersections of their work? How much “in advance” notice is given about these agendas? If much of the work of the CMSI leaders is similar, how can professional development/meeting time be used to deepen each person’s understanding of these similar roles? What benefit is there in doing this together or by position/role? What is the attendance rate of members at these? Is the content of these vastly different? Is it necessary to have them separate from each other? How are these meetings building infrastructure to support communication and consistent/appropriate use of tools?

How was attendance data on teacher curriculum professional development being utilized? For what purpose? With whom was this information shared?

Do all CMSI leaders need the same technological tools? What is the reasoning behind who receives these tools? How has this been communicated to all CMSI leaders?

What is the CPS policy for gathering and distributing supplies from closed institutions?

Above we have mentioned those tools which we have seen or heard CMSI leaders speak about. Are there other tools that are not listed here that are important for OMS leaders to consider as they work to communicate more clearly with each other and with constituents in their attempt to improve math and science instruction?

Purpose and place of work in schools related to the organizational structure

Math Facilitators, when describing what they do, often emphasized their role as “external support,” meaning they “do not get embroiled in school internal politics.” The shift to materials-based support, according to Facilitators, has helped in making their role more neutral, “focusing closely on materials and answering questions about and providing support for the materials.”

Facilitators also stressed their role as “support” rather than accountability, both in their descriptions of their jobs and to the schools they worked with.

I think I am a support person. I come to assist teachers. Mentor them if necessary for the children too, but mostly for the teachers so I can help them with the program. I hope I make it clear that I am not an administrator. "I'm not here to observe you for the purpose of evaluation. I'm here to help you and assist you. To be another pair of eyes." I'm very conscientious about it. I don't see anybody who is threatened. In fact, I take notes, but I tell them it is confidential and nobody sees it. I just have to keep track of what I see where because I have so many schools. They don't have an issue with that. I think some principals see me as a central office person, but for the most part I have very good rapport.

Coaches saw their role differently. They saw themselves as promoting better teaching practice and improved academic achievement in math and science in all schools in their Area.

My position is not to sell CMSI materials. My job is to support instruction. Period. In math and science. Using best practices. Using the standards. Using everything I have to get the message to the teachers and build capacity.

City-wide Specialist's perceived their role to be different from those of Facilitators and Coaches because they were specifically focused on probation schools. City-wide Specialist's talked a lot about the unique needs of probation schools and the ways in which this defined their role.

My role [at schools on probation] looks a little different. Though the same kind of things, working with teachers, going to grade level meetings and seeing where they are at and what they want supported. When it is newer and it has been told by the Area "You are on probation. Stop doing that program and go to professional development." It gets a little trickier when people are forced. You see more uneven implementation levels with teachers across the school. You then have to get support. You actually have to have conversations with the administration about if they are teaching EM. I'm seeing another math program. Even though I would never tell a teacher to take them out, I would ask them about it. I would suggest that there is so much in this program that there is not enough time to teach another program.

The Specialists thought of themselves as providing support (instructional, material, and emotional) to make teaching with new CMSI supported curricula easier and even possible.

Well, I think if I have a chance to go into their classrooms and co-teach with them, or model a lesson, or something, hopefully, that'll make them see, "Oh, this really isn't so bad, after all." You know, "I can do this," or if they see that their kids really like the activities, maybe they'll be more apt to do it. I've also tried to make their lives a little bit easier, because I know that there's a lot of copying and things like that that are involved in these programs, so I tried to help them out in that fashion by copying most of the things that they would need, at least to get started, giving that to them and offering up any manipulatives they might need, just talking to the teachers and saying, you know, "Is there anything I can do for you, let me know if I can come into your classroom and help."

This difference in purpose across these mentoring roles can be seen in the way each of these positions was enacted. For example, in-classroom mentoring of teachers and support at grade level meetings was an activity reported across Facilitators, Coaches, City-wide Specialists and school-based Specialists; however, because of their perception of the purpose of their role, they espoused a different purpose for the activities. As curricular experts, Facilitators saw their purpose as assisting schools with implementation issues while Coaches, City-wide Specialists and school-based Specialists saw themselves providing generalized support, supporting material implementation, but also paid attention to the wider needs of the teacher. Grade level meetings, while an opportunity for school-based Specialists to catch up with teachers and to establish ongoing strategies, were seen as a place to mentor Specialists and to instill leadership in teachers by Facilitators and Coaches, a place to provide accountability to AIOs for Coaches, and a forum to respond to criticisms of CMSI materials by Facilitators

Another important difference was *where* these activities took place. While Facilitators largely relied on Coaches to prioritize the schools they should visit or on principal contact from a school, the Coach role spanned all schools in their Area, City-wide Specialists worked intensively in four assigned schools and school-based Specialists worked in a single school.

In this approach, some Facilitators reported having very little control over their schedule and an unpredictable school-visit schedule. Other Facilitators reported that they took pains to schedule their work and reported regular contact with all schools in their Area, through a combination of in-school support, cluster professional development and Area Walk Throughs. Coaches also reported ongoing relationships with schools by using these various forums for interacting.

City-wide Specialists and school-based Specialists were more set in terms of which schools they worked with. City-wide Specialists reported visiting each of their four schools for a four-day span per month, making their schedule relatively clear in terms of what schools they were at. Similarly, school-based Specialists were assigned to a single school. However, within the school, there was more complexity as far as who these Specialists and City-wide Specialists worked with on a given day. These instructional leaders spoke about having to go to all the teachers to get a schedule of their classes. They worried about how they would get to all the classrooms in the school with any sort of regularity --- particularly when they worked with large schools. For example, one City-wide Specialist figured she had about 32 days per year in each of her four schools. Setting up a regular routine for classroom visits was a desire of some of these leaders, but it was also then a potential conflict with how some Specialists explained they wanted to do whatever teachers needed and wanted to do pop in visits and sometimes had to do things at the last minute like subbing for the absent or late teacher.

Facilitators described working with Area Coaches to determine which schools they should work with and visit. For example, one Facilitator talked about working with the Area to list a few schools with the highest need for her help in [the specific math curriculum] in each Area she served. She then worked with those schools. Narrowing down the list of which schools to focus on was not always comfortable for Area Coaches as some felt there were many in need of assistance.

Some Facilitators reported that they often responded to phone calls from principals who asked for assistance in the support of materials. These calls were a major determinant in what schools they visited. . Facilitators spoke of being troubled by how thin their resources are spread and wondered aloud if their role was making enough of a difference.

My personal feeling is that perhaps we are too broad in our support in that it wasn't deep enough...Each person on my team had over 50 schools and just realistically in some of the schools we could do something pretty powerful in that we were actually working with classrooms or with teachers or with grade level teams and in other schools it was just going in and troubleshooting and even on the schools where you were making good progress just getting back there in a reasonable amount of time was a big challenge for me. And so it just felt like we were trying to cover too much and not giving enough in every one of those places.

Issues for Discussion:

How does the OMS Lead Team and other CPS leaders understand the strategic value of having instructional leaders from different positions within CPS (and outside of CPS) working with schools?

What incentives and sanctions does each organizational structure provide? How does the work between these roles build on this?

Around Providing Professional Development. There were many occasions when the different instructional leaders worked together on professional development workshops and meetings with teachers, teacher leaders, or school Specialists. In summer 2005 we observed some of the Coaches, Facilitators, university-based Professional Development Providers, Specialists and teachers pitching in as instructors in the professional development workshops on the CMSI curricula or as logistical support to those who were providing the professional development. In fall 2005 we observed one Coach working with two other Coaches in their Area Cluster to provide an instructional workshop to teachers, teacher leaders, or Specialists related to both math and science. We heard occasions where these professional development sessions provided by the Area were in conflict with the timing of professional development sessions being provided by the Office of Math and Science for a similar clientele. In another situation, we observed another Coach working diligently within the Area structure to provide professional development to specific grade level teachers within the Area in relation to changes in the ISAT and rubrics for scoring written

responses; likewise, we heard from a City-wide Specialist how a Coach had done a similar thing in another Area.

Some CMSI leaders worked together to provide professional development to Principals. We heard of a Coach who invited Facilitators and OMS Managers to an Area Principal Meeting to help introduce these key leaders to each other. We observed one Coach as she spent a portion of her day at a similar Principal meeting interacting with Principals as they signed in and picked up information packets. Another time we observed two Facilitators and a Coach providing Professional Development together at a school. Meanwhile, we heard from one City-wide Specialist about the confusion caused by a Coach’s double booking of grade level meetings on the same day as the City-wide Specialist was intending to work with these teachers. This City-wide Specialist saw this as a waste of resources that could be spread out over the weeks that the City-wide Specialist was not at the school.

In past reports we have noted the struggle of Coaches and Facilitators, in particular the Coaches, to devise a coherent plan within their own group and across these two roles to provide coherent professional development in math and science to all CPS schools across the district. (See *Issues Raised by Instructional Area Math Science Elementary Coaches at a CPS Office of Mathematics and Science Meeting on April 23, 2004*, April 29, 2004 and *CMSI Elementary Instructional Area Math/Science Coaches*, December 15, 2003). In addition, during 2004-2005 we witnessed Coaches and Facilitators strategizing and working together to develop a joint task timeline of what areas to cover at particular times of the year. We heard from some instructional leaders that a draft of this timeline was never approved as an official OMS document or at least not in a form that they recognized as their own.

However, as instructional leaders began their late summer and fall 2005 work together, the Office of Math and Science shared with Facilitators and Coaches a document “Professional Development Calendar-- Monthly Focus for Elementary Mathematics and Science: Looking at Learning and Assessing Student Understanding, 2005 – 2006” (no date). For each month, a “theme” and corresponding activities for instructional leaders were listed. Monthly meetings at Medill were planned and 6 meetings in the Area clusters. These themes were as follows:

Month	Theme
August	Looking at Learning and Assessing Student Understanding in Mathematics and Science - Beginning the Process
September	Looking at Learning use the Classroom Observation Guide - Mathematics
	Cluster visit - Focus observations on evidence of student understanding of mathematics content with an emphasis on oral and written communication.
October	Looking at Learning use the Classroom Observation Guide - Science
	Cluster visit - Focus on evidence of student learning in inquiry based science classrooms..
November	Assessment -How do we know what our students know through observations and in-class assessment?
	Cluster visit - Focus on assessment of student understanding through assessments built into instructional materials
December	Looking at Learning in middle grade classrooms - Preparation for Algebra.
January	Focus on preparation for algebra and the Algebra Initiative
	Cluster visit - Focus observations on algebraic thinking in the middle grades. Look for evidence of understanding of algebra content.
February	Looking at Learning - Focus on justification of ideas through written explanations and use of a variety of representations.

	Cluster visit - Focus on evidence of justification and representations in student work.
March	Looking at Learning - Focus on building positive classroom environments with an emphasis on "risk-taking" and respect for mathematics and science ideas.
April	Looking at learning - Focus on connections to other content areas and real life
	Cluster visit - Focus on listening to student communication and "risk-taking" in mathematics and science classrooms.
May	Focus on reflection and planning
June	TBD

The document listed for each theme and month a column for each of the following positions: Facilitator, Coach, Principal, Specialist/Coordinators, and Teachers. The columns for Facilitator and Coach were merged into one—these positions were charged with the same responsibilities related to professional development.

One Facilitator shared this document with evaluators and explained that at that time, in early fall, she was referring to the document to guide her work. Similarly, in many of our observations and interviews with CMSI leaders in early fall 2005 we heard or saw first hand the use of the Classroom Observation Log as seemingly recommended by this document among other sources.

Quarterly Principal Meetings for implementing schools were outlined in this same document with the first quarter topic of “Sharing, pacing, looking into classrooms”; the second as “The development of children’s mathematical thinking”; the third as “What are we asking teachers to do?” and the fourth as “Implications for our work.” The first of these meetings for principals was held in December rather than in the first quarter of the school year.

CMSI instructional leaders also worked together to provide leadership training to each other and to plan common activities together. We observed OMS Staff, Facilitators, and Managers providing professional development in a number of contexts: Managers leading the training and planning of Facilitators and Coaches; Managers and at times Facilitators working to instruct City-wide Specialists during their meetings and workshops; and OMS staff and various partners (typically university-based partners) are presenting information to Facilitators, Coaches, City-wide Specialists, Specialists, principals and teachers.

Yet, we also observed and heard about occasions when professional development was offered to one set of instructional leaders and other types of leaders were not invited or invited at a very late moment—making their attendance less likely. Unfortunately, some of these occasions were also organized to provide planning time for instructional leaders—so those working in the same school could coordinate efforts.

Around Working with Teachers in Classrooms. The second major area of intersection in work between roles was in the area of working with teachers in their classrooms through observation, lesson modeling, and co-teaching. In our shadowing and interviews with TAMS PDs, OMS Facilitators, Coaches, City-wide Specialists, and school level Specialists we saw many of these CMSI instructional leaders making it their business to push teachers to reflect on their practice and, at least with these leaders, engage in conversation about improving their instruction. While we only observed this once when shadowing Coaches, we witnessed this engagement with school staff in nearly all of our shadowing of Facilitators and City-wide Specialists and we heard multiple stories of this from TAMS PDs in regards to their work with CMSI schools in spring 2005. The variation and depth of these conversations were dependent upon both the interpersonal skills and curricular and pedagogical knowledge of the leader observing and the openness of the teacher being observed to engage in this type of reflection and dialog.

In the first half of the 2005-06 school year, we observed or heard from individuals about their use of the *Classroom Observation Guide* (COG). One Specialist described how he had gone to a Cluster meeting where the Area Coaches shared the COG and the COG directions with teachers and Specialists. During this meeting, they watched and discussed a short video. This Specialist immediately scheduled a time to meet with teachers in his building during common prep times to talk about the COG. By the second week of

school, the Specialist and a teacher who was keen on participating in such an observation had already practiced using it. The following is his story:

We both liked it. I told her that I wasn't going to go in—obviously, they know it's not an evaluation. It's a teacher I get along with really well. So I said, "Really what I want to do is practice for me, too." And she said, "That's great." So I went in; I observed and, then, the next day we got together, and we went through the checklist of things. And I said, "If we're going to set one up with notes and typing the whole thing up and having minutes or whatever, we won't have to go through the whole thing. We're supposed to pick just one section and say let's look at this today, and we talk about the question." "So we understand how to use it. But also part of that is that our Reading Specialists have the reading part and they do a really good job of it so the teachers they're like "It's just like the reading one; only it's math."

When shadowing a Coach in another Area during October 2005, the Coach informed our researcher that recently the Principals and Assistant Principals in this Area participated in professional development on the use of the Classroom Observation Guide (COG). The Area Principals were trained by the Coach and an OMS Manager during the Area Principal meeting while the Assistant Principals trained with the Coach at Assistant Principal meeting. During this shadowing, teachers were given a copy of the COG among other tools (IL Science Assessment Framework Grades 4 and 7, 4 Step Extended Response, 3rd-4th grade Student friendly rubric, ISAT PowerPoint Presentation—which was the main presentation of the day, IL Mathematics Assessment Framework 3rd-8th, and ISAT rulers). As these handouts were distributed, the Coach explained,

We will be in to observe your math lessons for 60 minutes. Don't get scared...we aren't going to look at all of the things on there, and we will decide with your principal if we will be looking at what students are doing or what you are doing. But remember this is not evaluative.

Prior to the presentation to grade level teachers, the Coach described to our researcher how the Math Classroom Observation Guide was being utilized by a Principal and the Coach in one particular school within the Area in a subset of classrooms. The school (not clear if this was the Principal or the Teacher) chose the questions on which to focus. The Coach met with the subset of teachers to discuss the observation guides and met also with the Principal to make sure he understood how to use the guide appropriately. Then the Principal, Teacher, and Coach had a shared conversation to discuss general comments about their lessons. The Principal was left to do the post conferences individually with the teachers.

While shadowing a Facilitator in late-September, we learned of the possibility of another tool being developed that could be used to showcase tools to teachers through electronic media. The Facilitator described the development of an e-newsletter and suggested that this newsletter could present a monthly focus on math and science following the July 2005 document of Professional Development themes. If this were to happen, the Facilitator explained that the Classroom Observation Guide could be highlighted for September.

In another shadowing at the end of September, another Facilitator confided to our researcher that the occasion of our shadowing would be the first time he used the Classroom Observation Guide (COG); although, he typically engaged in classroom visits 2-3 days a week. He confided that he did not really understand how to use the COG. He found it unwieldy, regardless of what the Lead Team said. He had tried to use it in the first classroom we visited, but finally discarded it because he felt it was distracting him from being able to pay attention to what was going on in the rooms. He was concerned about this aspect of his role, using these types of tools that do not seem to "click with how I think about mentoring and observations." Although teachers at this school did not have a chance to pre-plan the lesson ahead of time with the Facilitator nor suggest areas to observe, they seemed to welcome the opportunity afforded by their principal, who had hired a sub, to debrief the lesson with the Facilitator immediately after the lesson. During this debriefing, our researcher noted that the Facilitator, whether knowingly or not, engaged the teachers in conversation addressing some of the issues focused on in the COG. This debriefing with Mrs. Now is detailed above in the earlier section about Facilitator roles.

Another Facilitator in mid-October explained how she planned to use the COG:

Today, for example, I told the assistant principal I wanted to meet with one grade level a day. I did not want to meet with more than one grade level. The big idea was to meet this morning and plan a lesson together. Then I would go into the classrooms and depending on the teacher, I would either observe them or model for them, then have a debriefing based on the classroom observation guide. But when I came this morning they (teachers) had a lot of concerns so the conversation went in a different direction. We didn't pre-plan together.

Later, when speaking with a teacher about the use of the COG the Facilitator noted the purpose of the tool, not as evaluative, but as a means for reflecting on one's teaching:

What I would like to do with you, if you are interested—I have this tool called Classroom Observation Guide. I want you to look at it. The purpose of this tool is to focus your reflection on thinking deeper about teaching. As you see there are two boxes. One is the student's part the other is the teacher's moves. I won't focus on your moves unless you want me to. We can go at it from different angles. You can either tell me, "I would like for you to look at this question today, see evidence of that and we'll discuss it later." Or if you want to talk about your moves, that is okay, too. My first focus is always on children, on their understanding and their misconceptions. I would like to talk to you before the lesson and then focus on one of these questions. You can choose one or I can; it's up to you. Then we will talk after the lesson.

In this case the Teacher was enthusiastic about this possibility and the Facilitator and Teacher made a date for doing the Classroom Observation Guide (COG) and held a pre-conference session as they talked through what the lesson would be, how the teacher anticipated teaching the lesson—here the Facilitator added constructive comments of what the teacher might do/say and how the students might be grouped. The Facilitator pushed the teacher to think beyond the typical "what if x goes wrong?" to "how do I ensure conceptual understanding?"

We shadowed five City-wide Specialists from the end of September through the end of November. Two of these City-wide Specialist we shadowed multiple times (1-2x, 1-3x) at monthly intervals. In none of these cases did we actually observe City-wide Specialist using or referring to the COG. All of our initial shadowing excursions with City-wide Specialist occurred within the first few days of their first visit to their schools. Much of what we observed was their coming to understand the situation at the school, meeting school staff, assessing the status of classroom math/science curricular materials, learning about teachers' schedules, and observing classes to get a sense of teachers' implementation. In some instances we found City-wide Specialist to have pre-conferences with teachers but these were more related to when can I come to your room, not how can I help you implement a lesson. In our later observations with at least one of the City-wide Specialist, we note his natural ability to address issues of the COG in a non-confrontational manner and without using this tool specifically.

Issues for Discussion:

While these snapshots of the use of the Classroom Observation Guide (COG) are not generalizable to the work of other Coaches, Facilitators, City-wide Specialists, or school-level Specialists, they show the COG used across roles. Given that the Coaches and Facilitators were engaged in developing and/or discussing these classroom issues during 2004-2005, in what ways does the COG mirror their standard perspectives on looking at classrooms? Given that City-wide Specialists were not privy to the year long discussion during the development of the COG, how do their perceptions of the tool differ from other instructional leaders? How are the OMS Lead Team and Managers monitoring the use of Survey Monkey (and other tools) and providing opportunities for CMSI leaders to express their use of, concern about, and successes with these tools?

We recommend a mid-course review and prolonged discussion of the use and benefit of this tool as a means for promoting a coherent and consistent message across roles.

In our shadowing of the various roles, we observed and heard relatively little about the *Survey Monkey* tool. In early October, one City-wide Specialist noted how some Coaches encouraged her to be in contact with them. This City-wide Specialist wanted to learn how to utilize the Survey Monkey so that Coaches knew what she accomplished. When asked whether Coaches and Facilitators would be keeping City-wide Specialists in the loop, she noted that while she was just beginning to learn to do the Survey Monkey, she had not yet seen anyone else's information on her schools. In addition, this particular City-wide Specialist noted that she had not seen any Facilitators at her schools, had not heard of any Facilitators having been to her schools, nor had she talked to any of them about her schools.

Another City-wide Specialist in mid-October, noted a number of ways he tried to communicate with other CMSI leaders including utilizing the Survey Monkey:

I work with a few different Area Coaches. I've done my "Over the Year" Schedule. I have given that to all of them through email for communication purposes. They know where I am. I have a weekly schedule, and they can see which classrooms I have visited, or the teachers I have met. . . . In addition, we do a time track, well I mean, Survey Monkey. And that, when you fill it out, is available to the Coaches and the AIOs. It reflects my schedule. It asks how many hours of classroom visits did you have today? How many hours of team or grade level meetings did you have? And how many individuals meetings by time? They have access to know that. Quite frankly, when you are at the school Monday through Thursday, there is not really time to talk with or think about Coaches, and on Friday, the same thing. I do have [other] interactions with Coaches and talk about the school that I am at right now. When it is Fridays at Medill, if Coaches are there, then there are face-to-face interactions in terms of keeping up with them. I haven't had more request from them because of something lacking so I am thinking they are okay with this kind of input.

This City-wide Specialist went on to note a few moments of missed communication—once when he was expecting a Coach to set up an initial meeting at a school (City-wide Specialist ended up just doing this) and another time when a Coach emailed him but he was "too busy" to respond.

On another occasion, our researcher happened to be with a Coach who was accessing the Survey Monkey. The Coach showed our researcher multiple entries from one school and noted the information was inadequate. It seemed to our researcher that the data entered on the log was nearly the same for each log of this school. The lack of substantial data from this City-wide Specialist made this Coach question what the City-wide Specialist was accomplishing at this school as a number of weeks had gone by and the work of the City-wide Specialist seemed to be rather preliminary—checking whether all teachers had necessary materials. When our researcher pushed this Coach on the information he was communicating back to the City-wide Specialists, we learned that Coaches did not have access to enter data into this data sharing instrument. When we asked our OMS colleagues about this, we learned that AIOs as a group had not agreed to the use of this instrument by Coaches.

Issues for Discussion:

Likewise, if City-wide Specialists are taking the time to fill out the Survey Monkey, what data is being collected on its usefulness by those it is intended to share data with? In other words, is this an effective use of City-wide Specialists' time? Is there a more efficient way to report information to colleagues?

How are the OMS Lead Team and Managers monitoring the use of Survey Monkey (and other tools) and providing opportunities for CMSI leaders to express their use of, concern about, and successes with these tools?

We recommend a mid-course conversation among all CMSI leaders on the use of and effectiveness of the Survey Monkey.

Impact of Interacting Roles on School Supports

How do these various instructional leaders interact and carry out their roles in ways that successfully support schools and teachers implementing CMSI math and science curriculum? In what ways do these actors interact in less successful ways that miss opportunities to better support schools' and teachers' implementation? How do the instructional leaders working with these schools adapt and change how they carry out their roles in collaboration to improve the implementation experiences at these schools? How do these roles play out differently or the same depending on the characteristics of the different schools?

Focus on Schools

This section of the report focuses on the experiences around implementation at ten elementary schools. Included are five former Intensive Support Math or Readiness schools, and five probation schools which were mandated to use CMSI supported math curricula. Data collected during summer and fall of 2005 includes interviews with and observation of principals, teachers, school-based Specialists, City-wide Specialists, Coaches, and Facilitators working with these schools. In addition, we analyze these schools in the context of continued longitudinal case study work. Data collection years range from one in two schools, two in three schools, and three in five schools.

The ten schools provide us with a variety of settings in which to examine the work of the CMSI instructional leaders. They are located in eight of the 17 Areas in the district. In five of the schools, ISAT scores in reading fall below the probationary level of 40% of students meeting or exceeding standards. The other five schools have stronger ISAT scores averaging 78% for grade 3, 61% for grade 5, and 50% for grade 8 meeting or exceeding standards. The socioeconomic status of the families with children in these schools vary with the schools' mean of 90% low income and a range from 66% to 98% of children in low income families. The ethnic backgrounds of the student body varies at the sites with four schools at least 90% Latino, three at least 90% African American, and three of a mixed ethnic population comprised primarily of African American and Latino students.

Our ability to evaluate the level of implementation will be much more robust at the end of the 2005-2006 school year. However, offered is the assessment of certain indicators of school conditions that "support implementation" and make successful classroom use of CMSI curricula more likely. This report defines whether a school is more versus less successfully supporting implementation during the fall of 2005. Then, leadership roles and how they relate to the successful implementation of the CMSI program are examined.

Previous evaluation studies of CMSI implementation (see *Report D: Exploring Implementation-Intensive Support & Readiness Schools, CMSI/CUSP Elementary School Development, 2003-2004*, August 31, 2004 and *Case Study Schools Implementing CMSI Curriculum, 2004-05: School Characteristics Related to Implementation*, October 24, 2005) have found that successful implementation is more likely if schools

- allow teachers opportunities to attend professional development workshops,
- find ways to have teachers interact with instructional leaders who come to their classrooms,
- assure teachers have the curricular materials they need,
- schedule enough time for math instruction, and
- assess how teachers are implementing.

The indicators we use for these factors are:

- The Principal communicates to teachers the availability of funds for substitute teachers or teacher stipends to attend professional development workshops.
- The teachers interact with Specialists, City-wide Specialists, Coaches or Facilitators in their classrooms through modeling, co-teaching, observation and feedback.
- Curriculum materials are in the school with a person assigned to distribute them.
- There are 60 contiguous minutes scheduled for math in both primary and middle grades.
- The principal or assistant principal is observing math instruction at least once a year.

The evaluation team assessed the case study schools based on the above indicators using observations and interviews of instructional leaders. Only those schools in which data was collected from multiple instructional leaders were included in this analysis. It is important to note, however, that professional development attendance records and Survey Monkey, data available to OMS staff, are potentially rich sources in which to find data on these supports in the future.

Below is an analysis of the characteristics of the case study schools using the above indicators:

Table 2: Selected Case Study CPS Elementary School Characteristics Related to Supports for Implementing CMSI Math Curricula, Fall 2005

Former IS /RD Schools	Funds for teachers to attend professional development workshops	Classroom interaction with instructional leader	Materials in school and someone responsible	60 contiguous minutes for math	Principal or Assistant Principal observing math instruction
A	Yes	Yes with Specialist	Yes with Specialist responsible	Yes	Yes with Principal
B	No	Yes with Specialist	Yes with Specialist responsible	No	Unclear but Principal asks Specialist to do this
C	Yes	Yes with Specialist	Yes with Coach and Specialist responsible	No	No
D	No	Not really, but sometimes former Specialist is given a substitute teacher so she can observe other teachers' classrooms and give them feedback	Yes but person responsible is former Specialist which is inadequate given she is full-time teacher	Yes	No
E	No	No	Yes with Specialist responsible	No evidence to show that they do. All teachers complained about a lack of time for math	Yes with Asst. Principal who also notes that Specialist reports on implementation to her as does Coach.

Table 2 CONTINUED: Selected Case Study CPS Elementary School Characteristics Related to Supports for Implementing CMSI Math Curricula, Fall 2005

Schools on Probation	Funds for teachers to attend professional development workshops	Classroom interaction with instructional leader	Materials in school and someone responsible	60 contiguous minutes for math	Principal or Assistant Principal observing math instruction
F	Yes	Some with Coach (but neither Specialist nor City-wide Specialist at the school)	Yes with Assistant Principal responsible	Yes	Yes with Assistant Principal
G	Yes	No	Yes with Specialist responsible	No	Yes with Principal
H	Yes	Yes with Specialist	Unclear Late delivery and not clear who responsible	Yes with additional time for basic skills	Unlikely Principal observes, but not around CMSI and asks Specialist to monitor implementation
I	Yes	Yes with City-wide Specialist	Yes but unclear who responsible	No but tries to integrate with other content areas	Yes with Principal
J	Yes	Yes with City-wide Specialist	Yes with City-wide Specialist responsible	No	Yes with Principal

Former Intensive Support or Readiness schools in this study continue to support implementation in varied ways and have instructional leaders interacting and carrying out their roles in differing fashions. Four schools have part-time school-based Specialists while the fifth school has neither a Specialist nor a City-wide Specialist. One school also has a new principal.

In all five of the probation schools which we report on here, decisions were made to provide funding for teachers to attend professional development workshops and to purchase curricular materials. Of these five schools, two schools had school-based Specialists, two had City-wide Specialists, and one had no specialist position assigned to it. These were key decisions related to the supports referenced in the first three columns of Table 2). Yet even with these resources in place, the schools varied in their overall level of support for implementation and in the manner in which instructional leaders worked together to strengthen these supports.

Part of the status of school supports relates to the district and Area policies impacting the school. For example, all of the probation schools in this sample were given the clear message by their Area Instructional offices that they must set aside funds for their teachers to attend professional development workshops. These schools did provide this support in fall of 2005. In addition, those schools which were provided with OMS funded City-wide Specialists were required to have funds set aside for their teachers to attend professional development workshops, have appropriate curriculum materials for their teachers, engage in 60 minutes of math instruction and have regular grade level meetings. In actuality, we found that these schools did not always have the 60 minutes set aside for math instruction, regularly scheduled grade level meetings, all necessary materials for all teachers (including Specialist Education teachers), nor all teachers signed up for professional development--usually the challenge was in their departmentalized middle grades.

We also note that the above table reflects a snapshot in time for fall of 2005. The supports at these schools differed in 2004-2005 and will likely change in 2006. For example, all of the former Intensive Support schools had for 2003-2004 (and in some schools in 2004-2005) full-time Specialists charged with classroom work with teachers and funds to support teachers attending professional development workshops. These supports were initially provided by the Office of Mathematics and Science as incentives for early participation in the Initiative.

The differences in supports available at schools across time and across types of schools is particularly critical to examine given the goal that the Chicago Math and Science Initiative aims to make *sustainable* improvements in math and science education at all schools. The typical school in the district has the local building-level authority to make budgetary and curricular choices without Area oversight. The district is also not able to provide from OMS budget the level of funding to all schools to cover the cost of school-based Specialists and stipend and substitute teacher costs for all teachers to attend curriculum workshops. The CMSI rests on the assumption that either the schools will pick up the cost of supports that are needed longitudinally and/or that the types of supports needed for excellent math and science instruction will change and become more sustainable in terms of cost as time progresses.

In this next section, we share descriptions of *how* these instructional leaders work together successfully and sometimes not successfully to build various supports related to these issues. The manner in which instructional leaders help schools develop and maintain key supports for implementation varies both within and across the above two groups of schools (former Intensive Support or Readiness schools and schools on probation). We look at examples of how these leaders change and adapt their roles to help schools with these supports. As we examine these successes and missed opportunities we also note how these roles played out differently or the same depending on the characteristics of the different schools.

Instructional Leaders' Successes and Missed Opportunities at Schools

How do instructional leaders help schools to:

- allow teachers opportunities to attend professional development workshops,
- find ways to have teachers interact with instructional leaders who come to their classrooms,

- assure teachers have the curricular materials they need,
- schedule enough time for math instruction, and
- assess how teachers are implementing.

We highlight key themes and offer some illuminative examples of the work of instructional leaders to aid these school supports.

At schools around teacher professional development attendance. In the five schools on probation and just two of the five former Intensive Support or Readiness schools that we followed closely, funds were set aside for teachers to attend the Office of Math and Science sponsored CMSI math and science curricula professional development workshops. These funds covered the cost of substitute teachers for teachers who attended workshops during the school day and/or covered teacher stipends (\$26/hour) if teachers attended Saturday workshops. In all of the former Intensive Support or Readiness schools, in 2003-2004 and/or in 2004-2005, either the schools or OMS provided funds for these stipends and substitute teachers.

How was the decision for allotting these funds made? Six of the seven principals at the schools with funding to support teacher attendance at professional development workshops were encouraged or required by their Area Offices and in some cases OMS (if they got a City-wide Specialist) to set this money aside. The seventh principal appears to have made the decision for professional development funding on her own beliefs. None of these principals talked with evaluators to date about how they received and made sense of messages from OMS or their Areas. However, some of the principals who chose to not fund this professional development spoke about their decisions on this support.

Three schools did not have funds available for teacher stipends or subs. At one school, the Principal did not fund professional development for her teachers but proceeded to comment that

the integral part of [the CMSI] is staff development. Without that, I think it would be a failure. Well, I doubt very much whether it would be--the impact wouldn't be as great or wouldn't be as significant.

Although this Principal hadn't set money aside to pay teacher stipends, she encouraged new teachers to go to Saturday professional development sessions.

At this school and in another case school without professional development funds, the principals did not explain the specifics of their budget processes, but one commented that "Our school budget is a lot less than OMS's budget"; the other principal, new to the school, dealt with a budget set up by the previous principal and explained that the "money is gone."

In the third school without funds set aside for teacher professional development attendance, the Principal spoke about how he and the Specialist used the Professional Development charts from OMS to the teachers as a means of encouraging their attendance at these sessions.

We did show them. And each teacher got in their packet the correlation between attending the professional development and then the success rate of the kids. So they could see the correlation between the professional development and the kids doing well. So pretty much, if you don't go to the training your kids aren't going to do as well.

Yet at this school, the teachers did not believe they had funds to use for attending workshops. In fact, they were under the impression that the Office of Math and Science was no longer offering these sessions.

Even with the funds allotted, it took the efforts of multiple instructional leaders—from the school, from the Area, and from OMS—to make sure teachers were taking advantage of these workshops. For example, at one school during 2004-2005 the Specialist faxed in teachers registration forms for the workshops to OMS but did not receive confirmation back. He had to phone OMS and talk to the math Facilitators to make sure the teachers could attend. For the 2005-2006 year, the Principal reports that she had all teachers sign up the first day of school. "It's mandatory," she told them. Her policy was that because it was difficult to get

substitute teachers to the school, that one teacher per grade could attend professional development during the week and the remainder needed to attend on Saturdays. She was then able to confirm that the teachers were actually attending because she received a report on professional development attendance at the Area's principal meeting. If teachers did not go to professional development, the principal was ready to "write them up."

At another school with funds for professional development but difficulty getting teachers to attend, the OMS Facilitator described the situation where in 2004-2005, they did not attend workshops but in 2005-2006 all were attending. She attributed the improvement to the Principal who last year believed the teachers attended because as the Principal said, "they told me they attended." The Facilitator had to tell the Principal, "I'm afraid not, because that is not reflected in my data. We have the sign-in and out sheets. Somehow many of your teachers 'forgot to sign it.'" In discussion with the Principal, the Facilitator showed her data (another tool given out at the OMS Kick Off Meeting on August 31, 2005) that helped convince her to make CMSI professional development attendance more of a priority. While this included the teacher professional development attendance data, it also included other OMS research findings like the "famous graph," as the Facilitator referred to it,—the bar chart which suggests that schools with higher attendance at OMS professional development workshops have higher ISAT test results.

At schools around providing in-classroom support. From earlier evaluation research, we saw that particularly in the first and second years of implementing CMSI curricula, it was critical to provide teachers with in-classroom support (in addition to professional development workshops) from an expert in the content, pedagogy and curriculum. A positive finding in fall of 2005 was that all but one of the case study schools on probation did have someone working with teachers in classrooms to some extent.

School Principals had to make some important decisions around whether they could find school funds for a school-based Specialist. Out of necessity the Principals made creative solutions and stretched their dollars. For example, at one school, when a university research grant paid part of the cost of their literacy Specialist salary, the Principal used the available funds to pay for a half-time math support Specialist. At another school, a retired math Specialist was hired as a consultant, at a fraction of the cost of her salary when she was a regular Board employee. At a third school, the Principal recruited a first year teacher to work as the math Specialist—a new teacher is much less expensive to free up than an experienced CPS teacher.

At schools around material management. All but one of the ten case study schools showed fairly successful management of materials. We offer several examples below.

At most schools, both the City-wide and school-based Specialists carried out the management and distribution of CMSI curricular materials. During fall 2005, this took large proportions of their time. Some estimated they spent over 50% of their time on distributing, photocopying and managing classroom curricular materials.

Schools that lacked freed school-based math and science support positions had challenges in materials management. At one school a former school-based Specialist who no longer was freed to support math noted

There are things that are not getting done...Right now there is a box in the hallway... It has fourth grade student reference books in [the specific CMSI math curriculum]. Last week I saw a box of third grade books sitting in the hallway and I just grabbed them. And put them in my room because these books shouldn't be sitting around. And teachers are coming to me and all I am saying is you have to wait until [the instructional leaders from the district/Area] come. I don't have the time. There is no time in my day to do that.

Fortunately for this school, district and Area staff picked up some of the undone work. Yet a district leader and school teachers concurred that the current support was inadequate. The district leader explained "part of me thinks this school just really needs someone here full time."

At another school, a City-wide Specialist noted that the school had no point person for this implementation in the past and materials were spread throughout the building. No one on staff had a clue of what materials were in the school, who had them, or whether they needed to be replenished. The principal gave the City-wide Specialist a room to work out of and the charge to inventory the materials. This was a challenge given the City-wide Specialist had four days in this building before going to the next school and would not return for another three weeks.

At another school, conflicts among the math Specialist and other school leaders lead to supply orders for math curricular to be delayed. Despite repeated conversations with the Principal, the Math Specialist could not resolve the issue. The Specialist asked the Facilitator to step in and help. The Facilitator saw that this intervention was better suited for the Coach to deal with and asked her to talk to the Principal.

At schools around scheduling 60 minutes for math. The district required elementary school math in 2003-2004 to be 60 minutes daily. Still, at least 4 of our 9 case study schools were not able to schedule contiguous blocks of 60 minutes for CMSI math instruction in their departmentalized middle grades. A typical situation at these schools was to have just 45 or 50 minutes for a math period (sometimes this even included the hall passing and bathroom break time) or perhaps a 40-minute math period with teachers being told to teach 20 minutes of math during the homeroom period. In one school, teachers were attempting to integrate additional math content into reading and other subjects. This was noted as problematic at other schools outside of our case study sample as well. We report how instructional leaders worked for improvement of this situation.

At some schools in fall 2005, we have yet to see evidence of instructional leaders working to remedy the shortened instructional period. Teachers and others complained about how they were not able to keep up with the pacing schedules of the curricula but did not share any potential strategies to find more time.

Yet, we did see instructional leaders working with schools to assure 60-minute periods for math for all students. In one case, middle grade departmental math teachers did not have a school-based Specialist so they called on district staff who tried to work with them to solve their problem around scheduling problems. The Principal told these teachers it was their responsibility to figure out the schedule for math. They could figure out no way to create a period of 60 minutes a day for math. An instructional leader from OMS worked with the teachers and together they figured out a potential solution, but this solution would require the Principal to approve some changes in the overall school scheduling. Though the Principal assured the OMS leader she would make this schedule change, a month went by with no action. The OMS leader then conferred with the Area Math Science Coach, who in turn brought the issue to the attention of the AIO. The Area staff members were able to work with the Principal and soon there were 60 minutes for math for all grade levels at the school.

At schools around monitoring implementation. In a bit more than half of our ten case study schools for fall of 2005 do we have clear evidence that the Principal or Assistant Principal had or would officially be observing teachers during math instruction. We share some examples that provide insights into how instructional leaders played different roles at different schools.

At one school there were positive supports in place with time allocated for math instruction, a half-time school based Specialist, and good management of curricular materials. However, teachers were not being sent to professional development nor were teachers being observed during their math instruction by the principal. The Principal, when asked directly about what she looked for in terms of teachers implementing the CMSI curricula, was clear that she relied on the Specialist to monitor their teaching of math. Still later in the same interview she told the researcher that she did observe teachers in math. Yet, she did not talk about the curricula with any detail to suggest a great deal of familiarity with it. Instead, she noted in simple terms

I want the teachers to follow the curriculum, because the curriculum is successful.
...So, my expectation is that the teachers do that.

The school-based Specialist was new to the school. She taught math half of the day and was freed for the Specialist work the rest of the day. Unlike most of the other teachers at this school, the Specialist has very few years of teaching experience. She had not taught using the CMSI curricula prior to coming to this school. However, she was math certified. Much of the fall of 2005, the Specialist was busy going to as much professional development for herself as she could. She did not appear to see her role as one of holding teachers accountable for how they taught using CMSI curricula.

Another school, this one on probation, had a school-based Specialist who spent considerable time observing in order to assess implementation. The Specialist explained that he filled out a form for each classroom observation he made that included the teacher's name, the lesson covered and the date. These forms were then shared with the Principal. He noted evidence he saw in the classroom about whether math vocabulary words were on the board for the students to reference and whether manipulatives were used. In addition he wrote about how the lesson was taught.

Then I make comments on the math: Did they provide the lesson just as the text said? How did they use non-lecture learning activities? What about the use of visualization and manipulatives? Teacher-student interactions, student input, cooperative learning techniques, demonstrated awareness of individual student learning needs?

At another school, a part time Specialist, who has not taught using CMSI math curricula before and who has had little Professional Development on the curricula, has been asked by the Principal to monitor preparation for teaching and pacing of the lessons. The Principal explained that the Specialist was charged with the duty of going into classrooms to "check." The Specialist was the "point person for Math" and the Principal supported her. The Specialist had created

a check list of what you need to have in your room. And then she's going to follow it up with teachers to make sure that they have it.

The Principal also noted that at the beginning of the year, the Area Coach had visited the school with the pacing guide and had visited teachers' classrooms to "see how far they've gotten." The Principal contrasted this year's approach with last year's experience.

And I have to be honest, when we did a couple of the Walk Throughs last year, we had people who hadn't opened their game kits.

Still, at this school, when asked if anyone comes into their rooms to observe math instruction, the teachers were very clear in fall of 2005 that no one was doing this. However, they did confirm that they are being told to "be on this unit" and that the Specialist "goes nuts about units by this day and I say its impossible. There is so much pressure and it's like they are not being flexible here." The teachers noted "[the Coach] is putting pressure on the Specialist--saying 'this unit by this date.' And the Specialist passes it on to us."

At another school, the Principal who does not observe math classrooms did monitor student learning outcomes in math by looking at test scores. She explained how her Area Coach helped with this.

[The math and science staff at the Area and District] have been supportive... I asked [our Area Coach] to do me an analysis of my scores and she did that for me, as a direct response and support. So, she's been very supportive.

At a school with overall strong supports. Here we offer an example of a school where instructional leaders have together put in place strong supports for implementation. Only one of the former Intensive Support schools in our sample has continued to support implementation fully through the five factors noted above. At this school the instructional leaders playing roles interacted in some of the following ways.

The Principal felt positively about the CMSI and made specific policies supporting it as well as creatively using funds to provide resources needed. She made sure there were 60 minutes for math instruction at all grade levels, and she made sure she officially observed teachers during math instruction. She stretched the

school funds creatively in a couple ways. First, she hired the school's Specialist from last year at a half-time position. Second, she committed budgetary funds to pay teacher who attend professional development workshops on Saturdays. She believed that the Chief Officer of Math and Science would allocate money to schools late in the 2005-2006 school year to cover these expenses. She convinced teachers that while their pay was not coming immediately that they would get it down the road.

The Specialist had a long career at this school and interacts easily and often with the teachers and the Principal. Further, she was very comfortable with the Office of Math Science and Area based instructional leaders and feels well supported. She noted,

I think most Specialists really feel a connection to [OMS]. We are not just a part of this in-theory. They have adopted us and they make us feel that we are an offshoot of what they do. And that I think is real important because they built a sense of community amongst us. I had a question about something and I emailed [the OMS Chief Officer] and got an answer the next day—on point and it was terrific....

The OMS Facilitators spent significant time at the school in previous years (once a month) and the Area Coach continued to inform the Specialist regularly on upcoming events and evaluated how teachers were keeping pace with the curricula guidelines. However, the Specialist noted that these district and Area instructional leaders had so many other schools with greater needs that while “they would come if I called” she rarely contacted these folks in fall 2005.

Many teachers tended to stay at the school and in the same grades. This increased their proficiency and comfort with the CMSI curricula as they worked in their third year with these materials. A number of these teachers have become instructors of the OMS supported curricula workshops. The new teachers who did come to the school were sent to professional development or were hired with experience in the curriculum used at the school.

Issues for Discussion:

How can the district assure that all elementary students receive 60 contiguous minutes of math instruction a day?

How do Principals and Local School Councils make the decisions about providing funds to support CMSI efforts? What factors do they weigh into this decision? In what ways do the instructional leaders on which we focus on this report influence these decisions? In what ways do other district, Area and OMS staff work to influence these decisions in support of CMSI efforts?

While some schools found creative ways to fund a part time school-based Specialist, do these kinds of creative processes (retired teachers, first-year teachers, etc.) lead to hiring an effective Specialist?

How can CMSI instructional leaders assess the status of school curricular material inventory before the start of the school year? If materials are not purchased and distributed by the end of the previous school year, are there ways to utilize the summer months (creatively considering the periods during the summer when leaders are not paid to work) to make sure that all classrooms have the necessary curricular materials on day one of classes?

Conclusion

The above findings and discussion issues bring us back to where we began this report: to the core vision and message that the Chief Officer of OMS highlighted at the start of the 2005-2006 school year. There remains a great need to and great challenge in communicating among the various instructional leaders working with schools on the CMSI effort. Tools have been created and are being used to support this communication. At this juncture, the Office of Math and Science needs to take the lead in looking critically at expectations for the roles of various instructional leaders, on communication between these leaders, and on the tools available to support their work. Given the importance of the CMSI work to improve students experiences in math and science and the precious nature of the time and resources available to do this work, it is critical to strategically address the issues raised in this report to optimize the use of human resources to effectively impact schools.

Appendix: Evaluation Research Design

The UIC College of Education PRAIRIE Group was contracted to serve as external evaluators for the CPS Office of Math and Science (OMS) around their work with elementary schools engaged in the Chicago Math and Science Initiative (CMSI). The following are the proposed evaluation questions around CMSI infrastructure and human resources laid out in the evaluation work scope and addressed in this report.

<i>Goal 1: Infrastructure</i>
A. Around human resources supporting CMSI:
1. What is the role of school Specialists in terms of successful support of CMSI implementation?
2. What is the role of the OMS Facilitators, OMS Specialists and Area Coaches in terms of successful support of CMSI?
3. What factors contribute to and hinder the successful teaming of the OMS Facilitators, OMS Specialists, Area Coaches, school Specialists and Principals in terms of successful support of CMSI? How do the various actors adapt/modify their support/collaborate with each other to overcome obstacles to implementation? Does this improve over time?
4. In what ways are teachers, Specialists and administrators engaged as leaders in terms of successful support of CMSI?
5. What is the role of AIOs in the support of CMSI—particularly in terms of the selection of schools to use CMSI curriculum and/or selection of probation schools to receive OMS Specialists and in their support of the Area Coaches, OMS Specialists, OMS Facilitators, and OMS Staff/Lead Team?
6. How do these roles differ as related to work with various types of schools?

Data for this report comes from interviews, observations, and documents collected during summer and fall 2005. In addition, this data was analyzed in the context of the previous evaluation research the PRAIRIE group has done from fall 2002 to the present. Data used in this report includes:

- Interviews and shadowing of five OMS Math Facilitators
- Interviews and shadowing of four Area Math Science Coaches (from 4 different Clusters)
- Interviews and shadowing of five City-wide Specialists
- Written reflections by 11 City-wide Specialists (around work in 32 schools)
- Interviews and/or a focus group with half of the TAMS PDs during spring / summer 2005
- Focus group interviews with nearly all OMS Facilitators, Area Coaches and OMS Managers
- Observation of seven staff meetings and six professional development workshops.
- Case studies of ten elementary schools – which included interviews with principals, interviews and shadowing of Specialists (when a school has one), focus groups with teachers, and document analysis.

We also found that though the above were the “sampled” subjects of our data collection, when we shadowed these people we were also able to observe other instructional leaders from other Areas or with other curriculum expertise who happened to be working with the “sampled” instructional leader for the day. In a number of cases, we were able to observe these leaders on multiple days. In addition to this we heard about interactions with these and other CMSI leaders in multiple places and times.

This section of the report focuses on the experiences around implementation at ten elementary schools. Included are five former Intensive Support Math or Readiness schools, and five probation schools which were mandated to use CMSI supported math curricula. Data collected during summer and fall of 2005 includes interviews with and observation of principals, teachers, school-based Specialists, City-wide Specialists, Coaches, and Facilitators working with these schools. In addition, we analyze these schools in the context of continued longitudinal case study work. Data collection years range from one in two schools, two in three schools, and three in five schools.

The ten schools provide us with a variety of settings in which to examine the work of the CMSI instructional leaders. They are located in eight of the 17 Areas in the district. In five of the schools, ISAT

scores in reading fall below the probationary level of 40% of students meeting or exceeding standards. The other five schools have stronger ISAT scores averaging 78% for grade 3, 61% for grade 5, and 50% for grade 8 meeting or exceeding standards. The socioeconomic status of the families with children in these schools vary with the schools' mean of 90% low income and a range from 66% to 98% of children in low income families. The ethnic backgrounds of the student body varies at the sites with four schools at least 90% Latino, three at least 90% African American, and three of a mixed ethnic population comprised primarily of African American and Latino students.