Evaluation of the CPS High School Two-Period Algebra Course, Fall 2005 [1] [2]

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

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Introduction

In the 2005-2006 school year, approximately 72 (of the total of 85) high schools in the Chicago Public Schools (CPS) district offered a new course: Two-Period Algebra (TPA). This course served over 10,000 students and was taught by over 300 teachers. Students scheduled for this course were those who scored below 45% on their grade 8 math portion of the Iowa Test of Basic Skills (ITBS).

In this data brief, we document the views and roles of key district and sub-district instructional leaders around TPA. Findings are based primarily on summer and fall 2005 interviews with 4 leaders of high school mathematics from the Office of Mathematics and Science (OMS) and with high school Math Coaches from each of the 6 high school sub districts (called Areas) in CPS. This data brief adds to a body of evaluation research work around TPA that has been and will continue to be conducted by both OMS and the PRAIRIE Group at UIC.[3]

History

Two-Period Algebra grew from a series of earlier attempts to create a high school algebra experience for 9th grade students in CPS that combined the teaching of pre-algebra skills with the teaching of algebraic concepts. The ideas behind this course fit within a context of efforts nationally in math education as well as in Chicago.

Some of the thinking behind TPA is similar to a model developed by Uri Treisman in his work at the University of California--Berkeley in the late 1970s and early 1980's. Treisman was working on the problem of high failure rates of minority students in undergraduate calculus courses. According to Treisman, educators should focus on helping minority students to excel rather than merely to avoid failure--focus on their strengths and emphasize collaborative learning and the use of small group teaching methods. Also critical in building more successful math education was faculty sponsorship and building community around the courses. Treisman did this by replacing regular math discussion sections with workshop style discussion sections. During these work sessions students begin working on non-routine problems individually, and when things get tough, move to working in collaboration with one another.

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[1] For further information, contact Stacy Wenzel, swenzel@uic.edu, 312-413-9221. 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.

[2] This report is based upon work supported by the National Science Foundation under grant No. 0085115.

[3] For example, see the OMS documents: 2005 Two-Period Algebra Classes Evaluation Plan Overview (April 12, 2005) and Two-Period Algebra Memo: Early Indicators of Implementation in 2005-2006 (November 1, 2005). An earlier PRAIRIE Group memo on a previous course related to TPA also gives background: Data Brief: Algebra Problem Solving Teachers Talk About Their Experiences, December 2004 (January 4, 2005). Additional reports from OMS and PRAIRIE Group are forthcoming in early and then late spring of 2006.

Also relevant to the issue of CMSI, particularly TPA, is the work of Bob Moses. For example, in his book following excerpt from a book, Radical Equations: Math Literacy and Civil Rights, Moses makes the case that learning mathematics and particularly algebra content is a powerful skill that students of color need to achieve in this society. As he writes regarding "mathematics as a tool for liberation":

> Why focus , as we do, on algebra, of all things? The computer, of course, is the symbol of the great technological shift that has occurred since World War II. Everybody knows that there's something going on with computers out there... everybody is willing to accept that what is powering these now indispensable computers is a mathematical symbolic language. So, while the visible manifestation of the technological shift is the computer, that hidden culture of computers is math. That sets the stage; you have something in there that you can organize around, if you're concerned about math literacy. Algebra was assigned a certain role, a certain place in the education system. Students learn how to manipulate abstract symbolic representations for underlying mathematical concepts. Now here comes history, which brings in technology that places abstract symbolic representations front and center. These representations are the tools that control the technology, and in order to use this technology to organize work you have to understand the symbolic representations and the place that society has assigned for young people to learn symbolism-- this is algebra. So now algebra becomes an enormous barrier. (http://www.pbs.org/now/society/moses.html retrieved February 13, 2006)

Office of Mathematics and Science leaders were influenced by earlier experiences that several of them had when they were high school teachers and participated in the College Preparatory Math Program (CPMP). CPMP included a summer math program and then a double period of algebra during the year. This was done across about 15 schools with "average" students. The goal of CPMP was student success in algebra and for these students to take more math and to eventually take AP Calculus. CPMP had no set curriculum but was characterized, by one OMS leader, as a place where

> teachers who probably were pretty secure in what they did . . . saw this . . . as an opportunity to really do more challenging, more hands-on type of mathematics.

In 2003-2004, OMS began working with district high schools and requiring a subset of students to enroll in a "double period" of algebra—90 minutes or two periods as compared to a regular 45 minute period. The targeted subset of students was entering 9th grade with 8th grade math ITBS scores between the 30th and 50th percentile. These students were believed likely to benefit from additional time spent in algebra. No specific curriculum was required for double period algebra but OMS intended that schools use two back-to-back periods taught by the same teacher and attended by the same students.

In 2004-2005, OMS more clearly specified the content of the double period algebra course. OMS staff designated 2 sets of curricular materials as required for the 45 minute Algebra Problem Solving (APS) course. This was to accompany the regular 45 minute Algebra courses. MathScape and IMP (Integrated Mathematics Program) were the chosen curricula. Summer workshops for teachers were offered by OMS as were professional development sessions during the school year—including a full-day session for all APS teachers in IMP or MathScape in early December 2004.

TPA and its earlier 2003-2005 CMSI variations have been different from CPMP in that those teaching TPA, Double Period Algebra, and Algebra Problem Solving were not volunteers with vast experiences teaching math. Instead, they were often new teachers who were often worried about things like classroom management. Some of the teachers teaching TPA "didn't believe in this" strategy for teaching algebra. In addition, the student population differed with the CPMP course targeted to average students and the newer CMSI courses aimed at those students who were achieving less than the average student in math.

The 90-minute extended algebra courses that took place in CPS during 2003-2005 offered some positive experiences but were also criticized by OMS and Area leaders for various shortcomings in addition to the above challenges of inexperienced teachers and students "struggling with basic skills." Foremost among the critiques was that too often there was no coherence at a school between what was being taught in the two courses that made up the "double" algebra course. To quote one OMS official: "There was a lot of

concern from everyone from students to administrators about not seeing the connection between these two courses."

Vision of TPA

The Two-Period Algebra class specified for use by all CPS high schools for 2005-2006 builds on the experiences in these previous courses. The new component was that the full 90 minute course would have a specified curriculum that was based on a TPA Curriculum Guide and supported by professional development. As one Area Coach explained,

> Even though this is the third year that they have had a ninety minute block, this is the first year that it is consistent across the whole CPS that they are trying to get everyone on the same page with [specific curricular] materials, and the extra professional development.

On the CMSI website (http://www.cmsi.cps.k12.il.us/viewProgramDetails.aspx?pid.1757 retrieved February 13, 2006), TPA was described as follows.

> The Two-Period Algebra (TPA) course provides an additional period of instruction for 9th graders who demonstrate a need for extra support in algebra. The course is designed to help students bridge gaps in their understanding of the mathematical concepts required to succeed in algebra, while at the same time providing extra time to develop a conceptual understanding of algebraic concepts.

In this report, we look at the TPA courses through the lenses of the key OMS and Area instructional leaders whose roles were pivotal to the success of TPA. How did they express their visions of the TPA courses and how did their visions compare and contrast? We leave the detailed description of how the TPA courses took place in fall 2005 to OMS internal evaluators who are documenting these processes.[4]

Three main themes emerged when we examined the visions expressed by OMS leaders and Area Coaches during interviews in summer and fall 2005. First, the TPA course offered students a particular type of mathematics content. This view was most clearly articulated by OMS leaders working with TPA. Second, the TPA was built around particular instructional methods. This view was most clearly articulated by Area Coaches. Third, the TPA course rested on the belief that despite critics who said otherwise, the students slated for TPA—those who had not experienced much success in math—should and could successfully learn algebra in this course. Both OMS and Area instructional leaders expressed this third theme clearly.

For example as shown in the following quotes, in interviews OMS officials shared their vision of TPA and expressed more thoughts about the math content than the pedagogical strategies used in the course. In addition, they were adamant about their high expectations for student success.

> This was a vision of what math content needed to be taught AND a vision that these students, who were below average in terms of math achievement, should be learning Algebra. These were kids who were struggling with lots of basic skills, real kind of conceptual knowledge for some things. And then it was trying to get teachers and administrators to have the same beliefs about what kids needed that we did. And so in our vision it wasn't that they just needed more arithmetic skills or they just needed to know how to do long division and fractions better. . . The idea was to try to give the kids more time, not to create a pre-algebra where the kids would be behind, and to have this kind of engaging enrichment experience for kids that have not been successful in math. So I think that was the original vision, and we envisioned it as back-to-back taught by the same teacher. And that was sort of just what you assumed it was going to be.

[4] See Two-Period Algebra Memo: Early Indicators of Implementation in 2005-2006 (November 1, 2005) and an OMS forthcoming February 2006 follow-up report.

> The vision is the pedagogical philosophy of building a course that does remediation of pre-algebra and algebra readiness at the same time as it does address that it's an algebra course.
>
> TPA teachers should understand the algebraic thinking and use the curriculum guide that is a tool for assessment. The goal is that the students understand algebra. A major important goal of TPA is to wrap these pre-algebra skills into algebra, but teachers must realize that students do not have to have mastered everything before they can learn the algebra concepts. It is important to show the connections between arithmetic and algebra. It's all math. Skills are important, but we must teach concepts and give examples of how things are interrelated.

As Area Coaches expressed their vision of TPA, they were equally clear that students could succeed. However, they talked more often than their OMS colleagues about the types of instructional methods needed for this course.

> I think that since you have more time you can give the kids projects. You can have them develop the presentations. You even have 90 minutes where the kids have enough time to sum up, do the presentation, have other kids using the scoring rubric to help assess what the other kids were doing. And so that should come--a lot of cooperative learning, working with the graphing calculators, doing projects. I think that extra period lends itself to that.
>
> I believe the goal was to make TPA better than it was the previous two years. Giving the teachers a curriculum guide as something to follow, to help them deal with the students for two periods, something more structured, incorporate[ing] the instructional practices. Although there are still flaws in the program, it is much better than it was the previous two years.
>
> My understanding of the goals for TPA are to, number one, increase time on task for kids who are underperforming coming out of the elementary school. And it's also to give enough time to fully implement the resource materials that are put out by the OMS which would include the TPA curriculum guide. . . and IMP materials to supplement traditional instruction.
>
> The message we give teachers is [that the goal of TPA is to] give them more time on task, but not taking away from the traditional Algebra I content. The second period [of] algebra will give students an opportunity to work on areas where they may have some gaps, give them extra practice, or hands-on experiences. Give the students this kind of environment so that at the end of the year they will finish Algebra I with the same success as a regular Algebra I student.
>
> We know that students who are in the extra period algebra class are doing well. It is because of the diverse learning strategies that the curriculum uses and the more time on task.

Discussion Questions:

To what extent does it impact the TPA initiative if the articulation of the TPA vision by OMS is skewed toward the mathematical content and the articulated vision of Area Coaches is skewed toward the pedagogical practices? How might this be an advantage? How might this pose challenges?

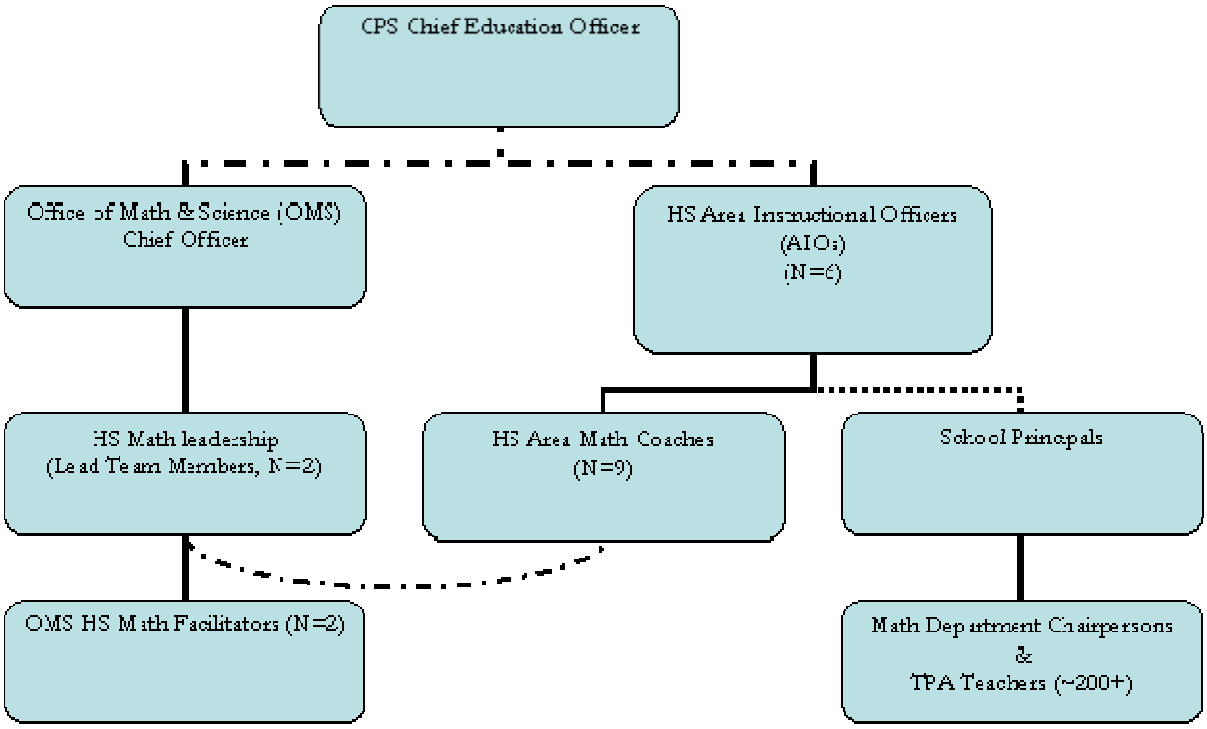
What strategies are in place to push CPS stakeholders to understand that students in TPA can succeed? What strategies are there for sharing the internal evaluation findings related to how students do succeed?

Roles of Instructional Leaders and Key Support Activities

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. These are people who provide in-school and group professional development and support to teachers. Related to the CMSI High School Two-Period Algebra course, these key staff members fill positions as OMS High School math leaders (Director and Manager), OMS Math Facilitators, Area Math Coaches, as well as school-level teachers, principals and department chairpersons. In this interim report, the school-level leaders will be mentioned but the district and Area-level instructional leaders will be the focus of attention. A later report in spring of 2006 will discuss school-level leadership in more detail.

Figure 1 (below) provides a visual representation of these positions and how they fit together within the organization of CPS.

Figure 1: Instructional Leaders Related to CMSI High School Two-Period Algebra (TPA), Fall 2005



In brief, this shows that while OMS has set the criteria for how to teach TPA, the direct accountability for high school operations resided with Area Instructional Offices. The high school Area Math Coaches reported to their Area Instructional Officers (AIOs), but the funding for their positions came from OMS.

Table 1 offers a summary of some of the key activities needed to facilitate the success of the Two-Period Algebra courses. Table 1 identifies whether 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.

We note that the key activities and identification of who played what roles in Table 1 were generated through analysis of the responses that the TPA instructional leaders (OMS Lead Team, OMS Facilitators, Area Coaches) gave when asked during summer and fall of 2005 about their roles in supporting TPA.

Table 1: Key Activities Carried Out by Selected Instructional Leaders Related to Two-Period Algebra, Fall 2005

	OMS-level		Area-level
Key Activities Related to TPA	Chief Officer OMS, Director of Math & HS Math Manager	HS Math Facilitators	Area Math Coaches
Creating TPA course			
Broad course design / Input thru taskforce	Yes	Yes	Yes
Writing / editing TPA Curriculum Guide	Yes	Yes	
Assessment design	Yes	Yes	
Professional development			
Design	Yes	Yes	
Instruction		Yes	Yes
Recruitment of teachers			Yes
Working in/with schools			
Co-teaching in TPA classrooms	Yes	Yes	Yes
Planning with chairpersons & teachers			Yes
Materials management		Yes	Yes
Monitoring implementation			
Collecting data on how schools are carrying out TPA	Yes	Yes	Yes

A consideration of how leaders carried out these activities shows some similarities but also differences when compared to how CMSI instructional leadership supported the implementation of CMSI math curricula in elementary schools during the period of summer and fall 2005. During this time period, the CMSI elementary materials were in their third year of implementation using well developed curricular materials and the TPA course curricula were being designed and written for the first time, despite the two prior versions of courses leading to TPA. Accordingly, the leaders working on TPA were heavily engaged with the course planning and the promotion of a shared vision around TPA. Still the leaders working with TPA were also discussing some of the key activities that their elementary CMSI counterparts were concerned with: professional development, materials management, monitoring implementation and in-school support.[5]

In the next sections we describe how those working on TPA carried out their work around these different key activities. In particular we examine how leaders in different types of positions played different role and how they collaborated together.

Creating the TPA Course

As noted above, the Two-Period Algebra course in the Chicago Public Schools has evolved over time and involved many groups of people. From College Preparatory Math Program to Double-Period Algebra to

[5] See Fendt, C.R., Wenzel, S., and Stoelinga S.R. (January 13, 2006). 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.

Algebra Problem Solving to the current Two-Period Algebra there have been many variations on the theme of teaching and learning algebra while simultaneously learning the pre-algebra/ algebraic thinking skills needed to succeed. Here we continue the story by considering the more recent development from winter through fall 2005.

The creation of the TPA course involved a district wide taskforce that collected and analyzed data around the earlier versions of the course, consulted experts and considered alternative designs for the course. The findings of the taskforce were the foundation for the new TPA course launched 2005-2006. A few of the leaders interviewed for this report served on the taskforce and shared their views on the work of that body. For example, one person noted a key outcome of the taskforce was the focus on the problem that too often the separate Algebra and Algebra Problem Solving courses were disconnected in time, teacher and content taught. The taskforce pushed to create a single integrated course. Another found the taskforce to facilitate better communication and buy-in for TPA across the district. This leader explained:

> Yes, I think [the taskforce] was really important. It was a forum for people to share what they thought the program was about and talk about misconceptions. I think, also, [as we were] going through the process we convinced everyone we could to get with the course and even the principals to go with it.. . . I think it came out to be very helpful. Because it gave a forum for people to discuss what this was about. And then it allowed people to create it. . . So now people know what it is all about, because they were there--giving their input.

One leader, not on the taskforce, noted that there may have been missed opportunities to engage enough of the key stakeholders, particularly Coaches, in the design process for TPA.

> [The Coaches] are the ones who are out there dealing with the teachers and I don't think all the time [their] opinion is appreciated. . . I know they have the taskforce but the taskforce is not out there working with the teachers. . . The bureaucrats making the decisions are not out there.

Design of the TPA course was shaped by others beyond the taskforce. Spring and summer 2005 working meetings were used to shape the new course. While officially still part of the professional development workshops serving teachers of the 2004-2005 Algebra Problem Solving course, a May 2005 workshop focused on TPA. In this session, teachers reflected on what worked or did not in 2004-2005 and what they would like to see for 2005-2006. There was also a summer working meeting around TPA which engaged key persons who provided a foundation to how TPA would take shape. The facilitators of this summer professional development included the Math Facilitators, a special education teacher, professional development experts from MathScape and Glencoe. One of the OMS math leaders who was experienced using IMP represented that perspective for the curricula planning meetings.

As one of the OMS high school leaders noted, the TPA Curriculum Guides were products of "quite a few people's efforts." Three teachers who were experienced in using the IMP curriculum were hired to design the IMP Curriculum Guide. OMS Math Facilitators did the bulk of the writing of the MathScape Curriculum Guide. Another OMS math leader edited the guides and contributed to the assessment plans for the course. The Guides were created in the summer of 2005 and shared with teachers for use in the 2005-2006 school year. We have no evidence of any of the Area Coaches writing parts of the Guides.

Teachers had different options as to what curricular materials they utilized in their TPA course. OMS choose to create the TPA Curriculum Guide based on the most popular (and CMSI-recommended) text for algebra by Glencoe. Two variations of lesson topic plan were then created—one based on using the Glencoe algebra text with MathScape curriculum materials and another based on pairing Glencoe with IMP curriculum materials. MathScape and IMP where the two curricula CMSI recommended and supported as the core materials for the 2004-2005 Algebra Problem Solving course. If schools were not using Glencoe for their algebra text, the TPA Curriculum Guide also offered a correlation guide to show how other popular text mapped onto how topics were presented by the Glencoe text.

OMS leaders and Area Coaches all regarded the Curriculum Guide as useful and an important support for the teachers of the TPA courses. TPA leaders noted that the Guides described the philosophy of this course

that offers pre-algebra and algebra in the same course. They also highlight key topics and set a pace for how to cover these topics during the school year. They then suggest how to use these multiple curricula materials to teach the key topics and to assess student learning.

Discussion Questions:

In what ways is evidence being collected during 2005-2006 for use in the revision of the Curriculum Guide for future years? Who will be involved in any revision work and when will it take place? How will Area leaders be involved? What is the plan for how to use the Curriculum Guide and TPA next year?

In what ways do the MathScape and the IMP TPA Curriculum Guides differ? How will differences across experiences in these two versions of TPA be documented and used?

In what ways will the 2005-2006 experiences with TPA inform future CPS high school instructional design systems?

Professional Development

The design and instruction of the OMS sponsored TPA teachers professional development workshops were the responsibility of the Math Facilitators who relied on other OMS math leaders to advise on how to put together the workshop agendas. Coaches reported that they were asked to present and facilitate at breakout sessions for the teachers. Two Coaches described this involvement in positive terms and while two others described it in negative terms. One Coach described a positive experience helping instruct at the professional development session:

> I participated in some of the TPA trainings as an instructor. The last time we had TPA training, instead of it just being offered by the OMS-- whereas the coaches are just participants like everybody else-- OMS asked us to help . . . so that we could offer break out sessions. . . . We each broke off into what we felt most comfortable with . . . So one session was unpacking the curriculum guide, another one was managing the TPA classroom, [another] differentiating instruction in the TPA classroom. . . So we offered 6 or 7 sections at the last TPA training.

Another Coach described a more negative experience with the OMS sponsored TPA workshops for teachers. This Coach wondered why the Coaches were not included in the summer 2005 planning of the TPA course. The Coach then criticized the TPA workshop for not modeling the kind of interaction that they wanted teachers to facilitate in their classrooms.

> [The workshop did not include] a lot of interaction. The kind of stuff you want [the teachers] to do at their TPA [classroom] is not what we did. It was a lot of reading, watching videos, read this article and discuss it. No hands on.

Further, a couple of Coaches felt insulted by the manner in which Coaches were asked to be involved with the OMS sponsored TPA professional development for teachers. They reported that they were given a 5-page script to follow for the workshop and that outside experts were contracted to present.

> We are intelligent; we did not need a script. It was insulting. The facilitators [of the workshops] came from the outside and they paid them a lot of money. They then cut our money. There was resentment from the Coaches that they brought someone in to teach our teachers. They did not see us as the experts.

Promoting stronger teacher attendance at the OMS sponsored TPA meetings was a concern across all of the roles. Despite a great deal of effort to communicate with these teachers, during the early fall of 2005 when we collected data for this report, only about a quarter of the TPA teachers were attending professional development. Efforts to get teachers to professional development for TPA included:

- OMS sent professional development attendance records to AIOs
- AIOS reviewed professional development attendance records and asked Coaches to recruit teachers
- Coaches emailed TPA teachers to encourage them to sign up for professional development
- Coaches visited teachers in person to encourage them to sign up for professional development
- OMS sent announcements about TPA to principals
- OMS sent direct mail to teachers in schools
- OMS leaders spoke at principal meetings
- OMS took out an ad in the Chicago Teachers Union newspaper

TPA leaders within OMS and with the Areas mentioned that the funding for the teachers to attend professional development (either funds for substitute teachers or for stipends for Saturday workshop attendance) was a factor impacting attendance. In 2004-2005, OMS paid these expenses. In 2005-2006, they did not. One OMS leader noted that while a great deal of effort was made to inform principals to budget for these expenses related to TPA, many principals did not set aside this money. This leader thought that OMS would perhaps have some "rebate" funds to offer schools to cover some of these expenses and that eligibility for the rebates would be based on professional development attendance by their teachers. One Coach described why some principals were unhappy about having to fund TPA related expenses. The Coach explained,

> Many principals did not buy in because they were forced to take money and put it aside for certain requirements mandated by OMS. I do not want to say they resent it, but they feel strapped. They do not like being told what to do with the money.

Discussion Questions:

For schools which were successful in getting teachers to attend and engage in TPA professional development: What were the key factors in this success? How did various instructional leaders work together in the schools finding the most success?

What does data suggest are the relationships between teacher attendance at professional development and the success of their teaching and their students' learning in TPA?

How are professional development offerings monitored, evaluated, reflected upon, and planned so that instructors can improve upon how these sessions respond to teacher needs?

How is the expertise of all OMS staff used to support TPA? For example, what meaningful ways have Coaches been utilized?

Working in and with Schools

Managing the curricular materials for TPA was significant work for Area Coaches and OMS Facilitators. In October 2005, while most materials were distributed to all TPA teachers, there were still some materials from one text that was just being distributed. There was a delay related to what the publishing company would give OMS permission to copy. Coaches were asked to distribute materials directly to the schools in their Areas. These included the TPA Curriculum Guide (in paper and on CD) and textbooks.

Coaches reported that they did indeed deliver materials to their TPA teachers. As one Coach explained, the work involved

> play[ing] delivery man with huge boxes of books. I had to make 4 or 5 trips to different schools and carrying [boxes] up 4 flights of stairs just to get the materials to the students and the teachers. . . .

In addition, Coaches worked with schools when last minute changes in student populations at schools caused shortages of TPA texts and manipulatives. One Coach told of the many hours spent photocopying materials so that teachers at one school had what they needed to start their TPA classes in the fall.

All of the OMS-based TPA leaders were planning to work with a teacher in their TPA classroom during fall of 2005. Making this goal a reality was difficult given the staff members tight schedules. (We do not know the extent to which they were successful in finding time to do this.) As one OMS leader explained

> My goal was to get out. And I'm still going to try to work with the school. Try to find the school. Team teach or co-teach maybe a couple of days a week. That's what we said we all wanted to do that. I guess unless you just do it at the very beginning and put it on your schedule, it's just not going to happen. So we still want to. So once we can get things settled, that's what we sort of trying to urge everybody to do two to three days a week be out at the schools.

Area Coaches reported that they were working with TPA teachers in their classrooms. They noted that they supported more than just the TPA courses but that the TPA teachers were often amiable to talking with them because often these teachers were new teachers who looked for any additional support they could find. Still, the amount of time Coaches spent with TPA teachers in particular was unclear based on interviews. It appears that it varied across Areas. One Coach told of working in the classroom with every Algebra Problem Solving teacher in their Area during 2004-2005. Another Coach made it clear that the message from the AIO was that he/she did not have to "force myself on the TPA teachers."

The type of work the Coaches did with TPA teachers in classrooms included modeling and observing. One Coach made it clear that the modeling he/she did in classrooms was focused on how to use teaching methods to engage students in active learning-- rather than focused on how to use the specific TPA or other curricular materials. Other Coaches described their in-classroom work as:

> Observ[ed] classes and [gave] feedback.

> We observ[ed], plan[ned] and co-[taught] together. We ask[ed] them what their needs [were].

> Modeled 90-minute classes … We showed teachers how to use the time. We did a lot of hands-on, cooperative grouping, and reporting out. There was not any down time.

One Coach spoke at length about how he/she wanted to spend more time in classrooms. There was too much OMS and Area "bureaucratic time" that Coaches had to spend which took away from "instructional time."

> For example on a typical month, we may have 2 meetings at the OMS. We might have two different TPA trainings we attend to support our teachers who are there or to provide instruction. We have other initiatives like School Improvement Planning that has to be done. And so a lot of times what ends up happening is out of 20 or 22 instructional days in a month, you might end up having 10 instructional days to be in classrooms. . . I am working with [many] schools, all of which tend to be underperforming. You need time with teachers. One of the things that I find is that I will make headway with a teacher over a couple day period. And then I come back 2 or 3 weeks later and they have regressed a little bit. So I think coming down on some of the bureaucratic time that Coaches are expected to deal with and allowing us more time in the classroom would help.

For the Course Planning Process with high school departments, for 2005-2006 the designated math course was Two-Period Algebra. According to OMS leaders this was a process that could help Area Coaches have "ownership" and "embrace" the TPA course. One part of this process was to focus on the TPA "anchor problems" and discuss student work done in response to these problems. Coaches spoke about their work with teachers and department chairpersons around anchor problems and also around the use of a self-evaluation rubric. Coaches noted that they had different experiences in these planning sessions. For example, one Coach remarked that teacher thought the session working with student work for the anchor

problems "was awesome!" Another Coach recalled how this same session was not important to teachers who noted "We don't want to do this." This Coach then followed the teachers' lead and the session covered other topics that they felt were important.

Coaches also spoke about general problem solving help and support that they provided to assist the schools in their Area implementing TPA. Some Coaches provided workshops for individual school and across their Area on special topics---like classroom management, student learning styles, lesson study. One outcome of Area level workshops was that teachers could share ideas across schools---and in doing so, the teachers are creating some self-imposed pressure to innovate and succeed. One Coach reported working so that all of the algebra teachers in a school cover the same content at the same pace with some common assessments. A Coach also reported working with the high school programmers to make sure a TPA teacher had a room large enough for the number of students in the course.

Discussion Questions:

To what extent are teachers across the district reached with in-classroom coaching? Is there a School Visitation Log for those working with TPA teachers (similar to the Survey Monkey-based log that elementary school instructional leaders use)?

How effective are these in-class and in-school interventions? Which instructional leaders find what kinds of success in the various facets of this work with schools?

What data is being collected to document support provided to TPA teachers? How is the effectiveness of the support documented?

Monitoring Implementation

TPA leaders were involved in monitoring the implementation of the new course during fall 2005. This involved visiting TPA classrooms, talking with teachers of TPA, talking with students in TPA classrooms and looking at student work. When visiting TPA classes, Coaches spoke of examining how the course was progressing related to the pacing guidelines, how teachers and students were using materials, and how well the teacher utilized the full 90 minutes of the course. It is unclear as to how often Coaches and OMS leaders visited high schools and monitored the progress of TPA. Just one TPA leader, a Coach, mentioned using a specific rubric to understand the level of TPA implementation. What is clear is that the level of monitoring likely varies across Areas and that it is not as prevalent as ideal. One Coach noted that it would be very helpful if OMS staff were able to visit more schools and see TPA classes because "we can't get into every class."

Discussion Questions:

What is the OMS preference for how to best monitor the implementation of TPA in a fashion to promote formative feedback for improved experiences with this course?

OMS – Area Relationships

Throughout the interviews with OMS and Area instructional leaders, we found evidence of a tension where OMS leaders saw weaknesses in how Coaches envisioned the TPA course and Coaches felt that OMS staff did not value their opinions and expertise related to TPA. We discuss this relationship between OMS and Area leaders around TPA.

OMS math leaders felt that one challenge that hindered efforts to foster coherent focused efforts around TPA was related to how the roles of Area Math Coaches were defined. These Coaches reported to the Area Instructional Officers (AIOs) and many were employed by their AIO prior to the creation of the CMSI. OMS leaders felt that the High School AIOs and thus the Coaches were not "embracing" the CMSI or TPA.

The Coaches salaries were funded by OMS. One OMS leader described that Coaches did not "really feel part of our [OMS] staff." This OMS leader did not think Coaches had opportunities to work with TPA teachers in their classrooms. Further, when Coaches spoke about their goals at meetings with OMS leaders, one OMS leader remarked "none of their goals were. . . in line with CMSI goals. They really weren't." OMS leaders hoped for increased Coach involvement in the support of TPA.

In the interviews with Coaches, they were clear that TPA was not their only course of concern in schools. Yet Coaches in all of the Areas spoke of the TPA course in a positive light. While their descriptions of the course, as noted above, were not as focused on the specifics of the mathematical content as were the comments of the OMS staff, the Area Coaches' vision of TPA did not seem "out of line" with OMS goals. The Coaches were working with TPA teachers in their classrooms and through department planning work. Some of the Coaches had worked on the planning taskforce and helped with professional development. Coaches spoke positively about the TPA Curriculum Guide and some expressed that they would have liked to work more on planning TPA and its professional development.

How Coaches saw the OMS appears to be mixed. Two Coaches spoke of the work of OMS around TPA and the specific help they received from OMS in glowing terms.

- ❖The importance of TPA is high on [the schools'] radar screen. I think OMS succeeded in doing that.

- ❖I deal with [names many of the OMS high school math leaders]. . . and everybody here. . . has been bending over backwards to accommodate me for any questions that I have. Any resources that I might need. I wish I had written down all of my questions. . . because they really ran the gamut of anything that someone would need to know to support TPA. . . [The OMS leaders] are always available by phone, by email and they always help you out with a smile on your face.

Coaches from five of the Areas spoke of how their AIOs support OMS efforts and TPA. They made comments like the following:[6]

- ❖So I know my AIO has always been supportive of everything that OMS is doing. Basically my AIO expects me to have extreme knowledge and detailed knowledge of the Initiative itself and basically, which I really appreciate, stays out of my way while I implement those policies. . . Unless I ask specifically for help and in which case my AIO is always there to support me.

- ❖One thing, it helps having an AIO who is a math person. . . it's just a math person understands math and so they tend to support [rather than] oppose things.

- ❖My AIO is very supportive and she gives me a lot of free reign to do what I want to do and she will support what I want to do.

- ❖Our AIO values our expertise. We talk to her about what we are doing and see. When we go on our walkthroughs, the AIO is on the team right along with us.

- ❖My AIO will provide any kind of support that comes from the OMS. They need some data or information—[the AIO] gets it.

However, some Coaches candidly voiced disappointment they had in their relationship with OMS around the Two-Period Algebra course. Two Coaches were concerned with a lack of "organization" evidenced when they see OMS sponsored professional development on TPA and when they come together for Coaches' meetings. They voiced the importance of

[6] Evaluators repeatedly attempted to interview AIOs for this report and contacting each AIO from 8 to 11 times. Most AIOs did not return calls and cancelled meetings. One AIO was interviewed. Given this low response rate, we were not able to detail AIO views of TPA from their perspective.

> having accurate data from each school about what their needs are. It is important to collect this before meetings or workshops to truly address what is going on. . . They need to know what the teachers' needs are. They need to collaborate more among themselves. The right hand does not know what the left hand or the brain is doing.

They did not feel respected for their expertise and noted that OMS scheduled meetings at times they could not attend because they were being pulled into other required events and OMS was not attending correctly to "this whole calendar thing."

Another two Coaches spoke of the lack of funds for them to go to national professional development conferences. Two others noted that OMS funds went to outside consultants for working on professional development while the Coaches were given scripted parts to play at the workshops. Coaches noted they did not get TPA curricular materials to use as references as they worked with teachers. They felt they were seen by OMS as "stepchildren" and "work horses."

Discussion Questions:

What steps could be taken to foster a stronger collaboration among OMS and Area leaders related to TPA? How do/can the leaders in the different roles leverage different kinds of support for TPA? What can leaders in OMS bring to TPA that differs from support from the Area? What can leaders in the Area bring to TPA that differs from support from OMS?

Issues for Continued Inquiry through Evaluation of School-Level Experiences

This data brief offers a slice of perspective around the 2005-2006 offering of Two-Period Algebra. It helps to set up the next steps not only in terms of discussion amongst TPA leaders but also points to the next directions to pursue in terms of further evaluation work. As the PRAIRIE Group moves into its next phase of data collection with teachers and department chairpersons involved with TPA, we note some of the evaluation questions to consider pursuing.

The views from the OMS and Area staff leaders' interviews highlight ways that they designed the TPA course and curriculum materials, provided professional development, supported teachers at their schools, and monitored the implementation of TPA. Now the evaluation will move to better understand how their efforts were perceived by the teachers and school-level administrators.

Discussion Questions:

How do teachers and other school staff understand the vision of TPA?
How do teachers experience the tools and curriculum? How do they use the TPA Curriculum Guide?
How do teachers experience the professional development?
How do teachers and other school staff experience support coming to their school?
How do teachers and other school staff see the monitoring and measures of success?
How do the teachers use the two periods?

OMS and Area leaders commented numerous times on how schools staff the TPA class—often with teachers with limited experience teaching. One Coach summed up concerns around the staffing of TPA.

> The area that still needs to be driven by the powers-that-be, the AIOs and the OMS, is the selection of teachers for these classes. We have seen some new teachers who are very creative and are doing a great job, but they need a lot of support. It is support that cannot be given. Veteran teachers are usually given the higher functioning students with less behavior problems. Selection of who is going to teach is important because it is a foundation class. I do not know if the principals have internalized that. There is politics around this. They defend the veteran teachers

> because they are friends. Teachers who are just getting their feet wet are getting the TPA. But you do not want to put a teacher who really resents being put in there to teach the class.

Another leader reflected on the same situation in the context of earlier challenges found when doing the CPMP program years ago. As that program grew and more teachers got involved, those teaching CPMP changed from the "starry-eyed" teachers who attended professional development on Saturday without being paid to teachers who were not experienced with the materials or with keeping students engaged.

Discussion Questions:

How are teachers assigned to teach TPA? What roles do principals, department chairpersons and the teachers themselves play in these staffing decisions? What impact do OMS and Area leaders have (or could they have) in these staffing decisions?