



**District C Public Schools  
Redacted Feedback/Recommendation Report  
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## I. INTRODUCTION

The following report is based on the fourth and final round of data collection of the Vanderbilt University study of Middle School Mathematics and the Institutional Setting of Teaching (MIST). MIST is a five-year National Science Foundation funded project designed to support four large, urban districts, including District C, as they work to improve the teaching and learning of mathematics in the middle grades. Similar to the first three years of the study, our first step was to document any changes in District C's Theory of Action or plan for improving the quality of middle school mathematics instruction, with the ultimate goal of improving student learning and achievement. We documented District C's current Theory of Action by conducting interviews with District Leaders in the fall of 2010. A report describing our interpretation of District C's Theory of Action for improving middle school mathematics instruction was submitted to the district in December of 2010. This report builds on the Theory of Action report by providing feedback about how District C's improvement plan is actually playing out in schools and classrooms.

We have recently completed the fourth of four annual rounds of data collection to document 1) the instructional practices and mathematics content knowledge of 27 mathematics teachers in six middle-grades schools in District C and 2) the extent to which structures have been established in the six schools to support the ongoing improvement of mathematics teaching. We share our findings with District C in May of each year of the project in order to assist District C in refining its plans for supporting the improvement of mathematics instruction. We will know that our work is successful if our findings and recommendations can help District C develop more effective plans.

The data we collected included:

- 1) Interviews with 14 District Leaders, including representatives from the Leadership Department, Teaching and Learning Department, Department of Special Education, Department of Evaluation, and Department of English Language Learners; five principals, three assistant principals, five math instructional coaches, and 29 teachers<sup>1</sup> from the six participating schools. These interviews focused on issues such as the interviewees' description of the district's policies for improving mathematics instruction, their vision of high-quality mathematics instruction and of high-quality instructional leadership, their informal professional networks, the professional development (PD) activities in which they have participated, the people to whom they are accountable, the sources of assistance on which they draw, and the curriculum materials they use in the classroom.
- 2) Surveys of the 27 focal teachers that focused on issues similar to those covered in the interviews.

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<sup>1</sup> Twenty-seven teachers are participating in the full study. We interviewed two additional teachers. The six participating schools are the same as last year, allowing comparisons over time. The teachers who participated in the study last year were retained when possible and teachers who have left the school were replaced by randomly selecting from the other math teachers in the school.

- 3) Surveys of the 8 participating principals and assistant principals to document their instructional leadership in mathematics.
- 4) Video-recordings of two consecutive lessons for each of the 27 focal teachers.
- 5) Video/audio-recordings of select professional development sessions in which the interviewed teachers participated.
- 6) Assessment of the teachers' and coaches' mathematical knowledge for teaching (using instruments developed by the Learning Math for Teaching (LMT) project at the University of Michigan).

The findings presented below are based on the interview data we collected in January 2011. Surveys, video-recordings of instruction, and the LMT took place during February and March 2011, and at the time of this report have yet to be analyzed thoroughly.

In this report, we first give a brief overview of District C's Theory of Action for middle-school mathematics for the 2010-2011 school year. We then consider each of District C's improvement strategies in turn and 1) summarize its intent, 2) report our findings, and 3) recommend possible revisions to these strategies based on those findings.

## **II. DISTRICT C THEORY OF ACTION OVERVIEW**

### *Instructional goals*

In order to ensure that District C students are "college and workforce ready," the district aims to increase the mathematics achievement of all students by promoting instructional practices that are consistent with those recommended by the Intermediary Organization<sup>2</sup> (IO) contracted by work with the district.

### *Strategies*

District C believes that its goal of improving mathematics instruction in middle schools can be accomplished by building school leadership capacity and teacher capacity to implement a rigorous curriculum. The strategies that District C is undertaking to improve mathematics instruction in middle schools focus on several types of supports designed to build school leadership capacity and teacher capacity. These supports include: (a) a rigorous, standards-based, district-wide mathematics curriculum, (b) access to mathematics content expertise in struggling schools, (c) teacher collaboration around mathematics instruction, (d) school-based instructional leadership, and (e) additional supports specific to struggling students.

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<sup>2</sup> The name of the Intermediary Organization (IO) has been removed to help maintain district confidentiality. The IO is a nationally recognized organization with expertise in supporting districts to implement inquiry-oriented instruction.

### **III. STRATEGIES FOR ACHIEVING IMPROVEMENT GOALS**

#### **A. A rigorous, standards-based, district-wide mathematics curriculum**

##### *Description*

District C strives to offer all students a rigorous curriculum that provides opportunities to think and communicate in ways that are closer to what mathematicians do. The mathematics department has restructured the curriculum to ensure that there is support in the form of planning guides and professional development for rigorous instruction of this type across the district. Its goal in doing so has been to provide clear, rigorous academic objectives for each grade and the resources necessary to implement high-level instructional tasks. As a part of this effort, district-level mathematics coaches and specialists began re-writing the middle-grades mathematics curriculum beginning with Algebra in 2008-2009, moving to 8th grade in 2009-2010, and then 7th grade in 2010-2011.

The curriculum is organized around overarching mathematical concepts rather than just coverage of state standards to accommodate changes in policies, such as state standards, without major revisions.

Implementing a common mathematics curriculum across schools supports student learning by providing continuity, especially among students who move between schools in the district.

##### *Planning Guide*

The current goals for the Planning Guide (PG) include: providing uniform pacing and content coverage across the district, providing a common understanding of the rigorous teaching and learning expected, and providing support for integrating curriculum and professional development with model lessons and protocols for studying student work.

In sixth grade, as in the past, the main resource is the adopted Glencoe textbook. Teachers are expected to use the PG to integrate as many “hands on” and supplementary materials as possible in order to increase rigor in the curriculum. In seventh grade, the district is writing and implementing the “S” curriculum to address the Seventh grade state mathematics standards by using high-level tasks and to support teachers in maintaining the rigor of those tasks. In Eighth grade, the district is continuing to use and refine the “E” curriculum that was developed during the 2009-2010 school year. Both the “S” and “E” curricula are available online and use PowerPoint presentations written and created by district mathematics coaches and specialists. The district is in its third year of using the “A” algebra curriculum, which is also supported by online PowerPoint presentations.

### *Professional Development around the PG*

For all sixth grade teachers, training in the use of the PG was conducted by district region (or area) and consisted of half-day pull-out sessions every six weeks. The focus of these sessions was on using the PG to increase the rigor of the tasks in the Glencoe curriculum.

For seventh and eighth grade teachers, mathematics coaches led full day pull-out sessions once every six weeks that focused on upcoming high-level tasks, including ensuring that teachers had the necessary technology and other resources for implementing the tasks. These sessions were conducted “just-in-time,” meaning that they were intended to be directly relevant to the next six weeks of instruction. All seventh grade teachers were expected to attend the training for their area together. At the other grade levels, only new teachers and teachers who are identified as struggling teachers by their principals were required to attend sessions that were conducted by area. In addition, the district Mathematics Department has started recording webinars available to teachers online that focus on technology issues. The webinars were the only form of voluntary PD offered for mathematics teachers this year.

### *Findings: Curriculum Implementation*

As stated above, District C is attempting to improve mathematics instruction in middle schools by building school leadership capacity and teacher capacity to implement a rigorous curriculum. Despite the supports that District C has provided, curriculum implementation continues to be a challenge. Although our data-collection and research timeline has not allowed us to analyze the video-recordings of classroom instruction from this school year, we have analyzed aspects of the quality of instruction from the prior three years of the study. We have found that across all three of these years, the cognitive demand of the tasks implemented have been significantly lower than the cognitive demand of the task as written in the curricular materials. This corroborates reports from district leaders that other external audits have suggested that implementation continues to be an area of weakness for District C. Maintaining the cognitive demand of tasks has proven to be a challenge for teachers in all four of the school districts involved in our study (including those districts using the Connected Mathematics Project 2 curriculum).

One source of teachers’ difficulty in maintaining the cognitive demand of tasks is that their visions of high quality mathematics instruction remain underdeveloped. As in the past, we find that teachers are still developing their understandings of District C’s vision of high-quality mathematics instruction. In particular, when asked to describe the key characteristics of high-quality math instruction, over a third of the teachers in our sample do not mention whole-class discussion. In addition, less than one quarter of the teachers in our sample go beyond broad characterizations (e.g., real world, hands-on, etc.) in their descriptions of the nature of tasks in high-quality math instruction. Department Chairs’ visions of high quality mathematics instruction are not more developed than the visions of the other teachers in their schools. Research suggests that in order for teachers to develop ambitious instructional practices, they need opportunities to work closely with and learn from others who have already developed relatively sophisticated practices.

Unfortunately, given the lack of expertise of the Department Chairs and teachers, many schools do not have these resources on their campuses.

### *Findings: Planning Guide*

Our interviews indicate that most teachers and Department Chairs are using the PG either individually or during common planning time to determine the content and pacing of instruction (i.e., which specific lessons to teach, in what order, and how many lessons they should take to address various objectives), to “see what’s tested,” or simply to know what general mathematical topics they should be covering at a given point in time. The majority of the teachers in our sample also report that they use student test results (e.g., to pinpoint specific standards on which they should focus) in conjunction with the PG to plan for instruction.

Generally 7th and 8th grade teachers are using the district-created curricula, “S” and “E”, and 6th grade teachers are using Glencoe as their primary curriculum. Although there is fairly consistent use of the curricula, there is variation in how closely teachers adhere to the curricula and PGs. It seems that in struggling schools, teachers’ adherence to the PG is being closely monitored, and teachers in those schools report less deviation from the lessons specified in the PGs. Across all 7th and 8th grade teachers in our sample, most report supplementing the district curricula with Glencoe, and other test prep materials.

### *Findings: Professional Development around the PG*

The majority of teachers who attended the “just-in-time” pull-out sessions found them useful for their instruction. The sessions familiarized them with the high-level tasks, allowed them to provide feedback on the curriculum, and to take activities back to their classrooms. In addition, teachers found it helpful that the PD sessions they attended were often led by the coach from their school. A few teachers reported variation in the quality of the just-in-time PD from session to session. Teachers report that, this year, the sessions were more timely in that they consistently preceded the upcoming six-week period of instruction. Despite the fact that all seventh-grade math teachers were expected to attend the pull-out sessions, we found that a minority of teachers in our sample did not attend because they did not want to miss class time and/or felt that they were already familiar with the curriculum.

This year, the district also provided voluntary webinars led by individuals from the district mathematics department. However, the vast majority of teachers in our sample had not watched the webinars.

### *Recommendations*

It is important to reiterate that the instructional improvements that the district is attempting to achieve through PD, the PG, and “E” curriculum are challenging for teachers. Even with instructional materials that are well-aligned with the improvement goals, teachers need substantial support if they are to implement the curriculum

effectively. The challenge is even greater in District C's case given that teachers are either primarily using the Glencoe textbook, which typically includes low cognitive demand tasks, or they are using new curricula that are still being refined. Although the PG is a critical resource, it alone cannot support teachers in implementing a new curriculum effectively or in increasing the rigor of the Glencoe curriculum. Effective PD is also essential. We broadly define professional development to include pull-out PD sessions, coaching, and teacher collaborative time (TCT), among other learning opportunities for teachers. In the following paragraphs, we offer several recommendations that focus on improving the effectiveness of these different PD opportunities for teachers.

Given that teachers continue to find the “just-in-time” model helpful, our first recommendation is that the district continue to use this PD model at all grade levels. We suggest that the PD focus on understanding the big mathematical ideas within the tasks teachers are preparing to use in their classrooms as well as on how they can best use the available materials to implement the curricula in rigorous ways. In addition, we suggest that the district continue the practice of having coaches lead the sessions attended by teachers from the schools they serve.

## **B. Access to mathematics content expertise in struggling schools**

### *Description*

The district is in the fifth year of using site-based instructional coaches in schools. There are currently 10 middle school mathematics coaches who work in schools Mondays through Thursdays. At the beginning of the school year, the coaches participated in a full-day professional development session that involved role-play scenarios of instructional conversations. This PD was based on coaches' responses to a survey of their needs and was designed by the Mathematics Department. A half-day follow up PD session was planned.

The assignment of coaches to schools is based on the tier system. The schools are categorized into tiers (1, 2, 3, 4, and 5) based on characteristics that include state testing and NCLB classifications. Schools that are classified as Tier 1 are assigned a full time coach and schools classified as Tier 2 are assigned a half-time coach. Coaches primarily serve schools in Tiers 3-5 by conducting district-wide professional development. In addition, all Title I schools are assigned a coach who will check-in occasionally.

Coaches are expected to work with all teachers in whatever capacity is appropriate at a particular campus. The leadership department expects the principal and the coach to develop a campus plan collaboratively and to check on progress and adjust the plan during the school year. The district mathematics department has created a coaching model that includes pre-conferencing, co-constructing a lesson, delivering the lesson, post-conferencing (i.e., the “coaching cycle”). Coaches are also expected to participate in walkthroughs with the principals, to play a leadership role in the mathematics teachers' collaborative meetings, to conduct school-based PD at their schools (during TCT or after

school), and to support the mathematics Department Chairs at their schools in becoming effective instructional leaders. One way that this support of Department Chairs might occur is for a coach to include the Department Chair in his or her conversations with teachers as a part of the coaching cycle. The intent is that the Department Chair will continue the work when the coach moves to another school. In addition, coaches are expected to take information they learn from their own professional development and conduct related professional development sessions for teachers in the schools they serve. Coaches also plan and conduct district-wide, pull-out, “just-in-time” professional development sessions for middle-school teachers.

In addition to directly working with teachers in schools and through professional development, coaches are expected to spend about a fifth of their time this year creating the “S” curriculum and/or refining the “E” curriculum.

### *Findings*

The majority of middle-grades mathematics coaches that we interviewed have visions of high-quality mathematics instruction that are compatible with district’s vision and are slightly more sophisticated than the teachers, Department Chairs, and principals with whom they are working. This is to be expected, given that district coaches were often selected based on their mathematics instructional expertise and they work closely with the other members of the district mathematics department who have sophisticated visions of high-quality mathematics instruction.

Teachers are generally positive about the support currently provided by the coaches. The most common coach activities described by teachers are observing classrooms, providing PD during TCT, and sharing resources. Coaches provide feedback to teachers after observing instruction, but the nature of the feedback provided is inconsistent across coaches (e.g., some coaches just say “good job” whereas others spend time talking about specific aspects of the lesson). In addition, some coaches co-teach or model instruction (either during TCT or in classrooms). However, coaches rarely co-plan with teachers. This suggests that, contrary to district leaders’ expectations, coaches do not appear to be using the full coaching cycle with any consistency when they work with teachers. In the majority of schools in our study, coaches provide PD (e.g., demonstrating lessons, unpacking standards, leading a book study) during TCT. However, when they are not modeling a lesson or leading other PD, coaches tend to take a backseat so that the math Department Chair can lead TCT. We think that this arrangement underutilizes the coaches’ relative expertise during TCT. In some schools, coaches also substitute-teach and write common assessments, which do not make use of their expertise in the ways the district intends.

In addition to working with teachers in particular schools, coaches plan and lead district PD. They also spend significant amounts of time contributing to the mathematics curriculum development efforts. Much of this work outside of schools occurs on Fridays or after the workday ends, leaving little time for their own professional development, which has decreased even more this year. At the time of the interviews, the only PD

consistently mentioned by coaches was the full-day session at the beginning of the year. Some coaches have received additional PD (e.g., PD through the IO) because they were responsible for leading related sessions for teachers, Department Chairs or principals, but participation was not widespread. When asked about PD, only one coach mentioned sessions on Fridays, indicating that they see the Friday activities as a component of their work rather than PD. Although we did not ask consistently in our interviews, there are indications that instructional supervisors are observing and providing feedback to coaches as they carry out their work in schools.

### *Recommendations*

The ambitious nature of the instructional changes the district is attempting and the limited expertise in mathematics teaching at the school level indicate that the expertise of the district math department and coaches is a crucial resource that must be used effectively. In the remainder of this section, we focus on what we think might be the best ways to make use of the relative expertise of the mathematics coaches and the district mathematics department.

Our second set of recommendations pertains to coaches' activities in schools. First, given their relative expertise, we recommend that coaches take a more active role in TCT on the campuses they serve. In addition to planning and preparing for TCT with the Department Chair, we suggest that the coaches lead TCT. We elaborate on this recommendation below in the Teacher Collaborative Time recommendations. When not working with groups of teachers in TCT, coaches can continue to work with individual teachers. In particular, coaches should continue to be expected to implement the coaching cycle with teachers. Second, the district should clarify to both coaches and principals that coaches should work with teachers directly in the schools they serve. Coaches are not developing teacher capacity when they work as substitute teachers and spend time creating common assessments.

Because coaches are the primary source of expertise regarding high-quality mathematics instruction in the district, our third recommendation is to continue to provide them with opportunities to further their own learning. In particular, we recommend that instructional supervisors observe coaches' work in schools, including incorporating a version of the coaching cycle when they do so. This would involve pre-observation meetings between the coach and instructional supervisor prior to the coach's work in supporting teachers (whether working with individual teachers or groups of teachers during TCT), then having the instructional supervisor observe that work, and, finally, conducting post-observation meetings to debrief the observed work and plan for future work. This arrangement would allow for ongoing PD for coaches that is incorporated into their busy schedules and is close to practice. A critical component of this work would be a PD session for all of the coaches at the start of the school year to frame these ongoing, job-embedded PD experiences.

### **C. Teacher collaboration around mathematics instruction**

#### *Teacher Collaborative Time (TCT)*

The district requires each school to schedule one period a day for common grade level or team planning and one period a day for content-based TCT (led by the mathematics Department Chair or coach) that focuses on the teaching and learning of mathematics. The purpose and content of this daily scheduled time is determined at the school level, but the Area Leadership Directors have outlined the kinds of activities that they view as productive in supporting teachers' learning. These activities include planning lessons together, sharing teaching strategies, examining student work, and using data to strategize collaboratively on improving student learning, engagement, and achievement.

Principals and coaches participate in professional development about the expected uses of TCT, including ways to make student learning the focus of these meetings. They are expected to attend these meetings on a semi-regular basis. This year the district intends that coaches will take a more active role in planning and leading these meetings.

#### *Findings*

Our interviews indicate that all schools continue to have regularly scheduled TCT, and that teachers increasingly report that this collaborative time is helpful in supporting them in improving their instructional practices. Although the frequency with which the principal or an assistant principal attends TCT meetings continues to vary across schools, school leaders report that they attend TCT whenever possible. In some schools, mathematics teachers meet daily as a group, in others, they meet only twice per week (although this is often in schools with block schedules). For some schools, these meetings are primarily with the entire mathematics department, with the mathematics Department Chair typically leading them in order to facilitate discussion and keep everyone on task. In other schools, mathematics teachers only meet regularly by grade-level, and the leaders of the meetings are often grade level teachers. Some schools have taken up a hybrid model of meeting as a whole department and then breaking out into grade-level groups. Coaches continue to attend TCT meetings if they are in the building at that time. They report providing PD occasionally during TCT (e.g., doing math together, talking about student-centered instruction, unpacking standards, modeling questioning techniques, and doing data analysis) but otherwise just observe the meetings, interjecting only if they feel that it might be helpful. Their limited participation is at odds with the district's plan for them to take on a more active leadership role during TCT.

TCT continues to focus on the best practices activities outlined by Area Leadership Directors, although activities vary depending on whether teachers meet by department or by grade level. We found a decrease in the amount of time spent on paperwork and other administrative duties during TCT this year, with only one school spending a significant portion of TCT in this manner. In half of the schools in our sample, there is a schedule for the types of activities that should occur in TCT meetings (e.g., data analysis on Monday, lesson planning on Tuesday, PD on Wednesday, etc.). During whole department TCT,

the most common activities are professional development and data analysis. Other activities that teachers reported doing during whole-department TCT include: looking at student work, sharing teaching strategies, discussing pacing, and creating common assessments. We believe that collectively analyzing student work has the potential to support teachers' improvement of their instruction provided that it is guided by a knowledgeable facilitator. However, we found that, in practice, examining student work often involved looking at common assessments in order to profile students for intervention or deciding what content needs to be re-taught, rather than analyzing student solution methods in order to plan lessons or whole class discussions. It is unlikely that analyzing data solely to target students for interventions or select content for re-teaching will result in significant improvements in the quality of teachers' classroom instructional practices.

During the grade level TCT, teachers primarily engage in activities related to lesson planning, which we believe have the potential for supporting the development of stronger teaching capacity within mathematics departments. But, in some schools, teachers continue to report that they often divide up the work associated with lesson planning (e.g., one teacher plans the lesson, a second collects the necessary materials, and a third makes copies) rather than planning the lessons together. This practice is inconsistent with District C's recommendations for co-planning lessons and reduces the potential of the activity to support instructional improvement.

### *Recommendations*

TCT has great potential to support improvement in teachers' instructional practices, although research suggests that this will occur only if it is led by someone who has developed both a sophisticated vision of high-quality instruction and accomplished instructional practices. As we have noted, most Department Chairs are not currently in a position to provide this leadership. In contrast, coaches tend to have a more sophisticated vision of high-quality mathematics instruction. Our fourth recommendation is, therefore, that the district gives coaches an explicit leadership role during TCT. Because a coach will not necessarily be present at every TCT, it is important for them to work with the Department Chair in developing the agenda. We suggest that coaches and Department Chairs continue to communicate and collaborate with each other in planning for TCT. We acknowledge the coaches' apprehensions about taking the leadership role from the Department Chair and we suggest that administrators help to mitigate potential tensions by being explicit about the purpose of TCT and the role of the coach, and by supporting coaches as they take on increasing leadership in this role.

Time to collaborate is a necessary, though not sufficient, condition for instructional improvement: teachers need to be engaged in activities that will support the improvement of their classroom instruction. Our fifth recommendation is that District C be more explicit about what activities should take place during TCT. We suggest that the most productive activities are ones directly related to the practice of teaching. For example, doing upcoming high-level tasks together with discussion of different solution methods in order to plan for instruction could be a very productive use of time. Although these

activities are a part of “just-in-time” PD for teachers, we anticipate that teachers will attend fewer of these sessions in the future because they are generally not required and teachers are becoming more familiar with the curriculum. Hence, incorporating some of these same activities (e.g., jointly working on high-level tasks with discussions of different solution methods) into TCT is likely to be a productive site for teacher learning. Given the coaches’ familiarity with these activities as leaders of the just-in-time PD, we suggest that they lead these activities on the campuses they serve. Additional activities that might be a focus of work in TCT include reviewing student work to better understand different ways students solve tasks or plan for future instruction. As necessary, engaging in and leading these activities should be an explicit focus of coach pull-out and job-embedded PD.

As mentioned above, some schools have been meeting as a whole department and then breaking out into grade-level groups in the same room during TCT. Although many of the activities that are directly related to the practice of teaching would need to occur by grade level, meeting as a whole group allows for greater access to expertise and more consistency of activity. We think that this model of meeting as a whole department and then breaking out into smaller groups has the greatest potential to provide opportunities for teacher learning. Our sixth recommendation is for all schools to adopt this model to organize their TCT as frequently as possible, especially when the coach is on campus. This should increase the influence of TCT work on teachers’ classroom practices, especially if the coach meets with each grade-level group during this time.

#### **D. School-based instructional leadership**

##### *Description*

District C expects principals and other administrators to be instructional leaders at their campuses, working to lead teacher collaboration within their schools and to promote high quality instruction aligned with the district’s vision as a means of viewing, assessing, and communicating about the quality of classroom instruction. A principal or other school leader assigned to the math department, the math content supervisor, is expected to understand the mathematics curriculum, have conversations with teachers about teaching and learning, and monitor classroom instruction. To accomplish these tasks, school leaders are expected to work with the mathematics Department Heads and coach (if the campus has a coach) to help build their own understanding of high quality mathematics instruction and to make use of the expertise of the mathematics Department Chair and the coach to build capacity of the teachers at their school. One of the IO’s goals is that school and district staff will use the language of its recommendations as they carry out their work in schools and at the district level. The IO conjectures that the widespread use of a common language about a school’s core mission promotes coherence and the development of a shared vision of high quality instruction.

District C has implemented several strategies to support school leaders' development of effective instructional leadership practices, including structuring the district into areas, promoting the role of the Department Chair Team and providing ongoing professional

development for school leaders during the summer and during the school year through their areas.

### *School Leader Professional Development*

The district plan includes intensive, ongoing professional development (PD) for principals in order to promote effective instructional leadership in core content areas. This school year, District C implemented a new PD program for principals, “District C Leadership Institute.” As a part of the program, principals were required to attend four 3.5 hour sessions: one each in English, math, and science, and then one chosen from a list of 24 options. The required math session focused on formative assessment and was coordinated by the math department. The IO is working more closely with other content areas this year and has a decreased role in planning and leading math-specific professional development.

### *Areas*

The district is organized into three areas that are designed to support principals as they make the shift from managers to instructional leaders. In order to bring about this shift, the areas have focused on principals’ understanding and use of district tools (including walkthroughs, the curriculum website, and tools provided by the IO).

Area meetings are held once or twice a month and focus on increasing principals’ capacity to serve as instructional leaders, familiarizing them with topics such as assessment, planning guides (PGs), collaborating with coaches, analyzing data, and general and math-specific instructional strategies. Area Leadership Directors meet one-on-one with principals on a regular basis in their schools, meet with principals as a collaborative group, and participate in principal PD. These meetings are intended to be instructionally focused and to provide both support and accountability for supporting teachers in implementing high-quality instruction and improving student achievement. Although approaches and expectations vary by area, principals in all three areas are expected to document their observations of classroom instruction and attendance at TCT meetings.

### *Department Chairs*

Department Chairs are expected to support principals in their academic content areas and to serve as content experts on their campuses. Department Chair teams have been in place in the district for over fifteen years. Over the past few years, there has been an increased emphasis on the role of Department Chairs in contributing to the development of instructional leadership in their schools. During the summer, the Department Chair team members received training at a Department Chair institute held by the district. For the last four years, this institute has included participation in IO professional development activities with their principal. This year, math Department Chairs also received PD that focused on the implementation of high-level tasks, IO tools (e.g., the for common lesson planning), and how to take a more active role in TCT. This PD was led by an

instructional supervisor. After attending the PD, the Department Chairs were expected to conduct related professional development sessions for teachers at their school. The math Department Chairs are also expected to contribute to instructional leadership at their schools by accompanying principals on walkthroughs.

### *Findings: School Leaders*

Similar to last year, the majority of school leaders (principals, assistant principals, and associate principals) expressed a vision of high-quality mathematics instruction that is compatible with the district's vision (e.g., math instruction should include students working in groups on high-level tasks). In our interviews, a greater number of school leaders than in the past indicated that classroom observations are an important part of their job responsibilities. Compared with last year, school leaders report with greater frequency and consistency that they look for alignment and adherence to the curriculum in their classroom observations, and that they have begun using Curriculum Summaries and other tools in order to support district goals for curriculum and instruction during observations. In describing their vision of high quality math instruction, school leaders consistently described a student-centered environment, stressing the importance of teachers acting as "facilitators," small group work, and whole-class discussion. When asked to describe the focus of their classroom observations, school leaders consistently mentioned importance of curricular fidelity and a student-centered approach, but principals were much less consistent in describing the specific instructional practices that they expect to see, the practices that constitute the day-to-day implementation of this curriculum.

When we asked school leaders about the District C Leadership Institute, most of them found it helpful, although a number of administrators in our sample were unable to attend training because of timing with the administrator hiring cycle or other professional commitments. The principals also characterized the professional development in mathematics provided through the areas as generally helpful, especially the elements of the PD that focused on the curriculum and on demonstrating what they should expect to see when observing classrooms. However, some school leaders questioned the benefit of working to solve high-level mathematics tasks, despite the fact that district content specialists indicated during interviews that this was an important element of the PD session.

Interviews that we conducted in September indicated that PD for mathematics content supervisors was planned in Area 1. Unfortunately, because of our sample of schools, our information about PD for mathematics content supervisors comes from interviews only with APs in Area 2. These APs stressed the helpfulness of the half day PD sessions offered every four to six weeks that focused on upcoming curricular units and use of the PG.

### *Findings: Department Chairs*

The mathematics Department Chair team members are expected to support principals in developing an adequate understanding of high-quality mathematics instruction. At the same time, we found that math Department Chairs are not always chosen on the basis of their math expertise, teaching effectiveness, or knowledge of math pedagogy and curriculum. Therefore, it is not surprising, that like last year, we found that the Department Chairs do not tend to have a deeper understanding of what high-quality mathematics teaching and learning looks like than the administrators and teachers with whom they are working in their schools. In interviews with school leaders, teachers, and the Department Chairs themselves, the role of the Department Chair was consistently described as one of a liaison between administrators and teachers.

We found that the majority of Department Chairs are not providing content-specific guidance to principals. Because of their teaching demands and because they share their planning period with the rest of the teachers in the math department, it is exceedingly difficult for them to observe other math teachers in their buildings or to accompany administrators on observations and walkthroughs. In addition, providing PD was not consistently or frequently mentioned as part of the Department Chair's responsibilities. In some cases, Department Chairs have found individuals outside the school to present on their areas of expertise. More often, Department Chairs describe the district PD that they have received to teachers during TCT meetings. This is unlikely to support teachers in improving their classroom practices.

### *Recommendations*

Our seventh, eighth, and ninth recommendations concern supporting school leaders to develop expertise in a given content area. The district and the areas have, in many cases, allowed APs to focus on mathematics instruction while the principal focuses on language arts, or vice versa. This strategy appears to be productive, allowing school leaders to concentrate their efforts and enabling the district and areas to provide more intensive and targeted PD for those in the role of mathematics content supervisors. Hence, we recommend that District C continue the practice of content specialization for school leaders.

Our eighth recommendation is that the district and its areas continue the practice of providing mathematics content supervisors with PD that focuses on building their expertise in mathematics instruction. In particular, we recommend that this professional development continue to focus on upcoming high-level tasks from the curricula. However, during our interviews, some principals did not see the value of solving cognitively demanding tasks from the perspective of the learner; while others involved in the PD session saw this as a very important element of principal's training. The effectiveness of a training session will be compromised if participants are unaware of its goals or are not convinced that the activities in which they participate will help them be more effective. We suggest that District C make more explicit the goal of the PD

activity: understanding of the importance of maintaining the level of challenge of such tasks when they are implemented in the classroom. This point may be made clearer to the principals if the PD also provides contrasting cases of task set-up and implementation that reduce the level of rigor of the tasks. In the past, by incorporating the Curriculum Summaries and PGs into PD sessions for math content supervisors, the district and areas have been successful in encouraging school leaders to use these tools during observations and walkthroughs. Hence, we also suggest that these PD sessions continue to stress the importance of using these tools by building the sessions around them.

In the preceding paragraph, we recommended activities for PD for the school leaders serving as math content specialists. Our ninth set of recommendations concerns when these sessions might occur for different school leaders. For principals, we recommend that areas organize many of the content area PD sessions during monthly meetings so that principals can work in smaller groups to receive PD relevant to their particular content area(s) of specialty. For assistant or associate principals who have been designated the campus mathematics content specialists, we recommend that the district continue its recent practice of providing short, but relatively frequent, pull-out sessions that focus on the implementation of upcoming high level tasks from the PGs.

## **E. Supports specific to struggling students**

### *Descriptions*

#### *Response to Intervention*

Response to Intervention (RTI) is a new district initiative that aims to assist struggling students with three tiers of support. In particular, District C hopes that this initiative will close achievement gaps for specific populations (e.g., African American students, English language learners, special education students, etc.). Tier one supports involve differentiated instruction that is to occur as teachers implement high-level tasks. Teachers are expected to assess their students on an ongoing basis and adjust instruction accordingly. The PG contains information about differentiating instruction to support teachers in implementing tier one interventions. Tier two supports involve pull-out sessions for struggling students. Teachers are to identify students who are struggling and pull them out for additional instruction so that they can revisit challenging concepts in a smaller group. The tier three supports are school-based interventions. At this level, principals are expected to design interventions for their campuses that are to occur outside of the school day.

*Note: Part of the report pertaining to another initiative for a specific population of traditionally underserved students was removed to maintain district confidentiality.*

### *Findings: Response to Intervention*

Knowledge of RTI varied among the participants. A few of the teachers and principals interviewed had a general idea of what RTI entails. But even teachers who had a general idea about RTI tended to report not having a detailed understanding about how it was being implemented at their school. Others said that they believed they would be receiving professional development about how RTI would be implemented in the future. One school in our sample has already begun implementing an RTI plan, but it is not clear how well the plan aligns with the district's vision for this initiative.

### *Recommendations*

We believe both RTI and the other initiative have potential for improving middle school mathematics instruction. If they are well aligned with the other district initiatives, they are likely to support student achievement in general, not just for struggling students. However, it is not clear how these initiatives fit with other district initiatives at this point. Since there is generally little knowledge (especially at the school level) of either of these initiatives, our tenth recommendation is that the district outline a clear plan which explicitly states its vision for the RTI process and the other initiative, how they align with the district's vision for high-quality mathematics instruction, and the rationale for the design and implementation of these initiatives so that the intent is clear to all involved.