

# Cluster 4 Middle Grades Project: Math and Science Instructional Supports

## 2007-2008 End of Year Evaluation Report

August 29, 2008

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Authors are listed alphabetically and produced this report collaboratively. They share responsibility for its contents equally. 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 the authors. The hope is that these findings can facilitate improvement of this and related programs through open discussion and consideration of data-driven understandings.

This report is based upon work supported by the Chicago Community Trust, James McDougal Foundation, and Chicago Public Schools Office of Math and Science and Department of Program Evaluation. It incorporates and builds on previous external evaluation studies by the PRAIRIE Group of both the Chicago Math and Science Initiative (CMSI) and the Cluster 4 Middle Grades Project (C4MGP).

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## Executive Summary

This report is the final for this school year in a series of external evaluation studies completed by the PRAIRIE Group at UIC on the Cluster 4 Middle Grades Project (C4MGP) during 2006-2007 and 2007-2008. It focuses on how the C4MGP's activities and resources influence the middle grades structure and instructional practices within schools participating in the project and how these are similar or different within schools and among cohorts of schools. The 2007-2008 evaluation of the C4MGP was grounded in comparative case studies of 12 schools--nine were participants in the C4MGP and three were Comparison schools not participating in the C4MGP but implementing CMSI-supported curricula for four to five years.

In some aspects of how middle grades are shaped, we share evidence that C4MGP schools may differ from other schools in:

- Movement from self contained grade 6 classrooms toward departmentalization
- Movement toward offering Advisory periods
- Percentage offering approved Algebra I

In other aspects of how middle grades are shaped, we do not find evidence that the middle grades of C4MGP schools differ from other schools in terms of:

- Numbers of teachers endorsed in math and science
- Schedules that provide more or less than 300 minutes a week of instructional time in math and science
- Curricular materials being available on time (or not)
- Instructional practices corresponding or not corresponding to CMSI guidelines
- Teacher meetings held

A number of "supports" were provided to C4MGP schools with the intention that these would assist the schools as they restructured or re-envisioned their middle grades. The majority of schools implemented some strategies of the AVID program though the majority of middle grades teachers interviewed had little if any substantive interaction with their AVID coach. The vast majority of teachers and principals interviewed, on the other hand, had meaningful interactions with the University Math and Science Coaches who obtained materials for teachers, modeled lessons, helped teachers with pacing, assisted in teachers classrooms, etc. As with other teachers implementing CMSI, C4MGP teachers were encouraged to attend professional development in the CMSI curriculum they are implementing and to enroll in university endorsement programs. In two of the eight schools where teachers spoke of CMSI curricula professional development, teachers were split on whether or not the experience was a benefit to their instruction. Teachers from C4MGP schools were positive but not as positive about university endorsement programs as teachers from non-C4MGP schools. Most of the C4MGP Year 2 schools and the Comparison schools in our sample utilized an in-school or citywide specialist. Teachers found these specialists to be supportive in ways similar to the University coaches.

## Overview

The programmatic context for this report is the implementation of two district initiatives with overlapping areas of impact and overlapping goals: the 2006-initiated *Cluster 4 Middle Grades Project (C4MGP)*, which focuses on improving instruction in grades 6-8 and preparing students for high school; and the 2003-initiated *Chicago Math and Science Initiative (CMSI)*, which focuses on improving math and science education in grades K-8. This report incorporates and builds on previous external evaluation studies by the PRAIRIE Group of both the CMSI and the C4MGP.

The goal of C4MGP is that its schools implement accepted middle school structures and practices so that in grades 6, 7, and 8 the school has:

- Teachers endorsed in math, science, language arts and social studies (including an Algebra I-qualified teacher).
- Endorsed teachers teaching within a departmentalized structure
- 300 minutes a week minimum taught in all core subjects (language arts, math, science, social studies)
- Advisory periods supporting students' socio-emotional needs
- Math and science lessons taught with CMSI-supported curricula
- Algebra I taught by an algebra qualified teacher
- Vertical and horizontal meetings of teachers
- Teachers preparing students to use higher level thinking and organizational skills that will serve them in high school and beyond

During 2007-2008, C4MGP and the district provided the following “supports” to C4MGP schools in order to help C4MGP schools focus on middle grades.

- C4MGP Leadership Coaches consultation based on school needs and on coordination with other C4MGP, OMS and Area leaders
- C4MGP University Math Coaches and Science Coaches consultation based on school needs and on coordination with other C4MGP, OMS and Area leaders
- Various means of getting substitute teachers so middle school teachers can attend professional development around CMSI curricula
- Endorsement courses attended by
  - Middle grade math teachers not yet endorsed whose tuition is fully paid when they sign a commitment form
  - Middle grade science teachers not yet endorsed whose tuition is fully paid when they sign a commitment form
- Leadership training and planning meetings
  - Attended by school teams of principal and four teachers
  - Attended by AIOs and Area teams
  - Facilitated by C4MGP leaders, CPS leaders from OMS, Literacy, Social Studies and Libraries and by non-CPS consultants in a way that supports a coherent message about desired middle grades focus and instruction.
- AVID
  - Professional development for teachers
  - Materials for students
  - Work with AVID coaches

This report focuses on how the C4MGP activities and resources influence the structure and instructional practices within schools participating in the project, and how these are similar or different within schools and among cohorts of schools.

### Methods

This end-of-year report addresses questions outlined in the evaluation work scope for the 2007 – 2008 PRAIRIE external evaluation of C4MGP. The report is based on rigorous data collection and analysis that aims to provide timely feedback about the impact of supports given to schools participating in the C4MGP as the district and these schools continue to plan and implement these supports in the 2008-2009 school year.

The main work scope evaluation questions were as follows:

#### *Middle Grades Model*

To what extent are C4MGP schools able to make improvements in how they meet the needs of their middle grades students? What is the variability and change over time in the quality and scale of improvements made in schools in their second year of the project? Schools in their first year of the project? Comparison schools?

#### *AVID*

How does the AVID program operate in C4MGP schools?

#### *Supports for change*

What support is provided to the school to manage a shift in curricular structure, instructional philosophy, and possible personnel changes? How effective is this support, according to teachers?

The 2007-2008 evaluation of the C4MGP was grounded in comparative case studies of 12 schools. Nine of these schools were participants in the C4MGP, with five of them in their second year of participation (Year 2 schools) and four in their first year (Year 1 schools). In the Year 1 and Year 2 schools, evaluators observed teachers teaching math and science lessons in the middle grades. They also interviewed principals and specialists, and observed teacher meetings (e.g., grade level, departmental, middle grades planning). School-level data (and some observations of lessons)<sup>1</sup> from three Comparison schools were also used in this evaluation.<sup>2</sup> These Comparison schools were not participating in the C4MGP but had been implementing CMSI-supported curricula for four to five years, and had previously been studied as case schools for PRAIRIE's evaluation of the CMSI. In addition, these schools were listed in CPS documents as using AVID—one of the supports provided by the C4MGP.

The 2007-2008 case study schools represent various middle grade departmentalization configurations—within or across grades (See Table 4 and the discussion of departmentalization structure on pages 6-7). They also represent various student population sizes: three were large schools with more than 700 students, eight were medium schools with 351-700 students, and one was a small school with fewer than

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<sup>1</sup> While the design of the C4MGP evaluation did not call for observations of middle grades instruction in Comparison schools, in two Comparison schools we observed one middle grade math teacher. One teacher was observed three times and another was observed once doing an AVID lesson.

<sup>2</sup> Our work scope for the C4MGP called for data from four Comparison schools; however, after many months of dialog and visits to one of our selected schools, we were unable to get the three school personnel to consent to participate in the study despite multiple assurances from them that they would. This school had been in our study since the beginning of PRAIRIE work and had recently had a major turnover in administration and staff that we felt worthy of continued efforts on our part to document.

350 students. Schools were also chosen to include the widest variation in which CMSI-supported math and science curricula they used; whether or not they offered 8<sup>th</sup> grade algebra; which AVID coach was supporting the school; and which C4MGP university-based math or science coach was supporting the school.

The primary data analyzed for this report were:

- Classroom observations of middle school math and science classes with debriefing interviews with teachers (55 observations—31 math and 24 science)
  - 30 teachers from case study schools included:
    - 15 from Year 2 schools
    - 13 from Year 1 schools
    - 2 from Comparison schools
- Interviews with C4MGP support staff: AVID coaches, university coaches, and Area coaches (15 interviews)
- School-level data in case study schools included:
  - 13 observations of teacher meetings
  - 18 interviews with principals, specialists and/or AVID coordinators
  - 7 observations of AVID lessons (three during math classes)

In addition we analyzed these data in relation to CPS documents such as records of CMSI-based curricula professional development workshop attendance (2003-2007), C4MGP Readiness Reports, CPS endorsement data, and AVID materials (e.g., checklist used by AVID coaches). This report also draws on findings from 2006-07 evaluation reports based on interviews with C4MGP university-based math and science coaches and Area instructional team members; focus groups with C4MGP teachers during university math and science endorsement courses; interviews with principals; and observations of three meetings of middle grades teachers from each of six of the 24 schools participating in C4MGP. Some additional data were also available and considered from prior years' evaluation of the CPS Chicago Math and Science Initiative.

We also report on findings based on a separate survey sample of 33 C4MGP teachers and over 65 teachers from non-C4MGP schools taking university-based endorsement courses.

### **Findings**

Our findings section highlights changes schools have made in their middle grades in (A) school structure related to the configuration of classes, (B) use of AVID, and (C) how they use C4MGP-provided supports.

#### ***A. Focus on middle grades***

##### **Endorsed teachers**

Examination of math and science endorsements for teachers in C4MGP Year 2 and Year 1 schools and non-C4MGP Comparison schools based on district data are summarized in the table below. These numbers do not differentiate for middle grades teachers

**TABLE 1: Endorsement Characteristics for Two Cohorts of C4MGP Schools, 2006-2008**

	Year 2 Schools Average per school		Year 1 Schools Average per school		Non-C4 Schools Average per school	
	(%)	(%)	(%)	(%)	(%)	(%)
	In 2006- 2007	In 2007- 2008	In 2006- 2007	In 2007- 2008	In 2006- 2007	In 2007- 2008
Number of teachers with math endorsements	2.8 (8.6%)	2.0 (7.0%)	1.4 (4.5%)	1.8 (6.5%)	1.7 5.2%	2.1 6.6%
Number of teachers with science endorsement	2.0 (5.2%)	2.4 (8.0%)	1.6 (6.2%)	3.5 (10.6%)	2.3 6.7%	2.7 8.2%

Examination of external evaluation case study C4MGP schools found approximately two-thirds of the middle grades math and science teachers observed were endorsed in those subject areas for 2007 - 2008. Table 2 shows this breakdown for the schools in the external evaluation sample. Because we did not observe all middle grades teachers of math and science in sample schools, these numbers do not generalize and characterize the full picture at these schools.

**TABLE 2: Middle Grades Endorsement Characteristics for Two Cohorts of Case Study C4MGP Schools, 2007-2008**

Case Study Schools Observed	Middle Grades Math Teachers Endorsed/observed (School level CPS database: number, percent as in Table 2)	Middle Grades Science Teachers Endorsed/observed (School level CPS database: number, percent as in Table 2)
<b>Year 1</b> <i>School A</i>	<b>2/3</b> (1 3%)	<b>3/3</b> (3 9%)
<i>School B</i>	<b>2/2</b> (4 8%)	<b>2/2</b> (9 18%)
<i>School C</i>	<b>1/2</b> (5 21%)	<b>1/2</b> (5 21%)
	<b>5/7 or 71%</b>	<b>6/7 or 85%</b>
<b>Year 2</b> <i>School D</i>	<b>1/2</b> (2 5%)	<b>1/2</b> (1 3%)
<i>School E</i>	<b>1/1</b> (3 14%)	<b>--</b> (2 9%)
<i>School F</i>	<b>2/3</b> (2 8%)	<b>2/3</b> (5 21%)
<i>School G</i>	<b>1/2</b> (2 7%)	<b>1/2</b> (3 11%)
	<b>5/8 or 63%</b>	<b>4/7 or 57%</b>

There was not a clear trend from these data to suggest that C4MGP had assisted Year 2 schools so that they were any further along with having endorsed middle grades teachers than were Year 1 or non-C4MGP schools. If district-wide data could identify the percent of middle grade teachers who were endorsed, then a better comparison could be made with the C4MGP schools.

According to a spring, 2008 survey of teachers in a sample of CMSI university courses conducted by PRAIRIE for its *Teacher Experiences in CMSI University-based Math and Science Endorsement Programs* evaluation report, the group of C4MGP teachers found their courses to be as engaging, relevant, and rigorous as did the surveyed teachers not in C4MGP schools. However, the C4MGP teachers were not as strongly in agreement regarding the positive characteristics of engagement and relevance, but more strongly in agreement that their courses were rigorous. The difference does not appear to be associated with the level of C4MGP teachers' experience as teachers or past exposure to college-level math and science. The section in this report on supports for change offers more detail on how C4MGP teachers experienced the university endorsement program courses.

**Departmental structure**

The table below shows the six possible departmentalization configurations (in rows) and how schools in the C4MGP for two years (Year 2 schools) changed configurations over time and also the configuration of schools that began the C4MGP in 2007- 2008 (Year 1 schools).

**TABLE 3:  
Departmentalization Configuration Characteristics of All C4MGP Schools, 2006-2008**

How each middle grade configured			Number of C4MGP Schools		
6 <sup>th</sup> grade	7 <sup>th</sup> grade	8 <sup>th</sup> grade	Year 2		Year 1
			2006-07 (% of 24)	2007-08 (% of 23)	2007-08 (% of 9)
Self-Contained	Self-Contained	Self-Contained	1 (4.2%)	1 (4.3%)	0 (0%)
Self-Contained	Within Grade Departmentalized	Within Grade Departmentalized	3 (12.5%)	1 (4.3%)	0 (0%)
Self-Contained	Across Grade Departmentalized		7 (29.2%)	1 (4.3%)	0 (0%)
Within Grade Departmentalized	Within Grade Departmentalized	Within Grade Departmentalized	5 (20.8%)	4 (17%)	4~ (44%)
Within Grade Departmentalized	Across Grade Departmentalized		3 (12.5%)	3 (13%)	4~ (44%)
Across Grade Departmentalized * ^			5 (20.8%)	13 (57%)	1 (11%)

\* One school had half its 6-8 classrooms as self-contained and the remaining schools across grade departmentalized.

^ One school was grouped by student ability across the grades.

~According to C4MGP documents, one school in this category shifted from 6<sup>th</sup> grade self-contained to departmentalized.

Between the beginning of the school year in 2006 and the end of the school year in 2008, 10 of the 23 Year 2 schools made changes in their configuration. Eight Year 2 schools changed from self-contained 6<sup>th</sup> grade to 6<sup>th</sup> grade departmentalized, at least for math and science. However, two Year 2 schools shifted away from departmentalization to self-contained classrooms.<sup>3</sup> None of the Year 1 schools used self-contained configurations for grade 6.

Table 4 lists the configuration characteristics in our C4MGP and Comparison case study schools for 2007-2008. The configuration of our sample C4MGP schools and our CMSI Comparison schools mirrored the 2007-2008 population of C4MGP, where almost all schools were departmentalized, even for grade 6.

<sup>3</sup> These schools were not in our evaluation case study sample, and our data about why these shifts occurred are limited.

**TABLE 4: Configuration Characteristics of C4MGP Case Study Schools, 2007-2008**

How each middle grade configured			Number of schools (classroom observations made) *	
6 <sup>th</sup> grade	7 <sup>th</sup> grade	8 <sup>th</sup> grade	Year 1 & Year 2 C4MGP Case Schools (% of column)	Non-C4MGP Comparison Case Schools (% of column)
Self-Contained	Self-Contained	Self-Contained	0	0
Self-Contained	Within Grade Departmentalized	Within Grade Departmentalized	0	0
Self-Contained	Across Grades Departmentalized		0	0
Within Grade Departmentalized **	Within Grade Departmentalized	Within Grade Departmentalized	3 33% (12 math, 13 science, 1 AVID)	1 33% (1 AVID used in math)
Within Grade Departmentalized **, ***	Across Grades Departmentalized		3 33% (9 math, 7 science, 2 AVID—1 in math)	1 33% (0)
Across Grade Departmentalized			3 33% (7 math, 4 science, 2 AVID)	1 33% (3 math, 0 science, 1 AVID)

\* The number of middle grade observation totals for the subject area for each cell appears in parentheses.

\*\*One school described 6<sup>th</sup> grade as “semi-self-contained” meaning a teacher taught two sections of specialized subject area and the rest of subject areas to a self-contained homeroom.

\*\*\*One school departmentalized across 5<sup>th</sup> & 6<sup>th</sup>.

Of the 12 C4MGP schools (see Table 3) making a shift in how they departmentalize, only four were in our sample (see Table 4); thus, we have limited information on the causes for these shifts. However, we examine more closely the movement of three of these schools (Two Year 2 and one Year 1 schools) moving from self-contained 6<sup>th</sup> grade to some form of departmentalization in order to understand how the observed changes relate to school-level factors and/or C4MGP supports. Brief synopses of their stories are presented in the Vignettes section of this report on page 17.

### Time on subjects

While all of our sample schools were departmentalized in some way (Year 1, Year 2, and Comparison schools), we still observed schedules for math and science with less than 60 minutes of instruction per day. We observed seven schools with 60 minutes for math, four schools with 50 or fewer minutes for math, and one with 90 minutes for math on alternating days. Because the majority of these grades were departmentalized, we observed roughly the same breakdown in number of minutes of science instruction. In some cases we noted official schedules with 60 minutes of instructional time; however, the enacted schedule often was 50 minutes or less due to factors such as delays in students moving through the building or other events going on in the school, according to teacher reports. In some schools, across grade departmentalization time for subjects was not the same as within grade departmentalization for subjects—in other words, if 7<sup>th</sup> and 8<sup>th</sup> grade were departmentalized across grades but 6<sup>th</sup> was departmentalized within 6<sup>th</sup> grade, these schedules did not necessarily have the same number of minutes of subject area instruction. For example, at one school there were 6<sup>th</sup> grade science classes with 60 minutes of science instruction and 7<sup>th</sup> & 8<sup>th</sup> grade science classes with 50 minutes or less of science.

Although we were able to observe a number of lessons in these classrooms, it is not clear to us whether, or which, observed changes over time could be attributed to the departmentalization structure. However, we are able to report that teachers continued to use the CMSI curricula with varying ratios of teacher and student talk (the ratio being an indicator of teachers' development as users of CMSI-supported math and science curricula), and that nearly half of our sample schools were not consistently providing 60 minutes of math and/or science instruction daily.

### **Advisory**

Within the 24 C4MGP schools active in the program in 2006-07, we found no evidence indicating schools had an Advisory period. However, with the reconfiguration of some schools, we find changes to school schedules. In four Year 2 case schools, Advisory periods began in 2007-08 with times ranging from 10 to 150 minutes a week. Three schools used AVID and/or a set curriculum addressing students' socio-emotional needs. This contrasts with our Comparison schools, none of which referred to a formal Advisory period; although one school described using a weekly counseling curriculum in homeroom, and another had a 15-minute period after lunch each day when students could talk with their teacher. Only one of our Year 1 case schools had an Advisory time scheduled this year, a 40-minute per week period that utilized a socio-emotional program. Of the three schools that did not have Advisory, two were planning to implement it next year, with one of these specifying that speakers will come in to address concerns of teens.

### **Instruction with math and science CMSI-supported curricula<sup>4</sup>**

In our data brief *Middle Grades Math and Science Instruction and Supports in Cluster 4 Project Schools* (January 2008), we indicated that nearly half the math and science teachers interviewed told us that they did not have the CMSI materials they needed at the beginning of the year. Of the three Year 1 schools sampled, one school reported not having enough science materials for all students, and two schools reported not receiving materials for math and/or science until November. In these schools, students had to share books, manipulatives, and/or science kits – in some instances there was one grade-level set of materials shared between classes. Four of the Year 2 schools sampled, by contrast, indicated they had all necessary materials, while the fifth experienced a delay in receiving Spanish-language books. Teachers cited a number of reasons for these problems, including lack of sufficient funds to purchase materials for each student or classroom, errors or complications in the ordering process, and loss of or destruction of materials by students. Based on the limited data we have for the remaining C4MGP schools, there appeared to be similar issues of late-arriving or not enough materials in these schools as well.

Observations of both math and science courses in Year 1 and Year 2 C4MGP schools were analyzed on a number of indicators including “as is” use of curriculum and lesson modifications related to ISAT, use of manipulatives, and the ratio of teacher-student talk. We did not find evidence of differences between the cohorts, or between C4MGP schools and non-C4MGP schools. Nor, with regard to the analytic categories of “teacher talk,” “student talk,” or “individual work time” did we find evidence of change in types of classroom activities from fall to winter (for 11 teachers) or from 2005-06 to 2006-07 to 2007-08 (for five teachers). Based on observations and debriefs in 2007-08, no significant correlations could be determined between teachers' practices in response to the ISAT, the amount of time they had used the curriculum, or their stated beliefs about the curriculum or their students; nor did we find evidence of a relationship between teachers' professional development attendance and their decisions on curriculum use.

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<sup>4</sup> Findings on math and science instructional practices in C4MGP schools were first reported in depth in a C4MGP evaluation data brief *Middle Grades Math and Science Instruction and Supports in Cluster 4 Project Schools* (January 2008).

Looking at instruction across the classrooms of 28 (14 Year 1 and 14 Year 2) middle grade teachers from C4MGP schools observed in 2007-2008, and debriefing with teachers when possible, we found the following:

- Curriculum use with regard to ISAT varied. Data collected from September 2007 – February 2008 indicate that ISAT preparation was a significant factor influencing C4MGP teachers' instruction and use of CMSI curricula. Of the 22 middle grades teachers who spoke about ISAT, 11 (nine math, two science) indicated they did not vary their instruction, while the other half (six math, five science) reported changes to their use of the curriculum. Changes included skipping lessons, supplementing by providing additional extended response practice or creating a new unit, adding “computational” practice, changing the order of instructional units or pacing over the year to accommodate ISAT.
- Use of manipulatives was limited. We observed limited student use of manipulatives (such as protractors, calculators, attribute blocks etc) in middle grades classrooms. More often, the teacher used the manipulative to demonstrate content to students.
- The percent of class time used for teacher talk (as opposed to student talk) hovered near 50% across all classrooms observed. Teachers spent about half the lesson lecturing, explaining, and/or leading discussion. For both teachers observed multiple times this year and teachers observed this year and past years, no patterns over time were discernable relative to proportions of talk within the lesson observed.
- The percent of class time used for teacher talk (as opposed to student talk) was higher in Year 1 math than in Year 1 science classrooms (59% to 43%). Teacher talk in Year 2 math and science classrooms were nearly the same (math 51%; science 50%). In over half of all classes observed, students appeared to be engaged and participating, even when the talk was teacher dominated. Students' verbal participation occurred largely in response to teacher prompts.
- In both math and science classes, student talk consisted primarily of answering questions posed by teachers. In a third of the classes, the teacher encouraged students to engage in dialogue during group or individual work times. Student questioning occurred less frequently. The majority of questions asked were of a procedural nature, followed by clarifying questions.

### **Algebra I**

Nine of the 23 C4MGP Year 2 schools offered 8<sup>th</sup> grade students Algebra I classes approved by CPS. The percentage of C4MGP Year 2 schools with the approved Algebra I offering was higher than Year 1 or other CPS schools. In 2007-2008, 39% of Year 2 C4MGP schools offered Algebra I while 17% (81 of 483) of all CPS elementary schools offered Algebra I.

Two Year 2 case schools sampled offered 8<sup>th</sup> grade algebra programs approved by CPS. Three Year 1 case schools offered some form of 8<sup>th</sup> grade algebra—a pilot, an unofficial program, and one approved by CPS. Given our small sample, it is difficult to say whether the grant has helped these schools start an algebra course in their schools, but it is worth noting that none of the Comparison schools has CPS-approved algebra at this time. A separate PRAIRIE external evaluation report regarding 8<sup>th</sup> grade Algebra across CPS schools is available and offers additional evidence on the characteristics of and supports for elementary schools offering algebra: *CMSI High School Algebra I for Middle Grade Students: Logistics, Students, Instruction, and Teachers and Their Preparation, 2007-2008, August 2008.*

## **Teacher meetings**

All of the nine case study Year 1 and Year 2 C4MGP schools reported that middle grades teachers had regular scheduled (most often weekly but up to quarterly) grade level meetings. However, there was conflicting evidence as to how regularly those meeting schedules were adhered to and how much of the meeting time was devoted to instructional issues. For example, in some schools administration said that teachers held regular meetings while teachers said they did not have structured meetings. Data from our non-case study C4MGP schools (interviews with various C4MGP coaches and/or the CPS readiness reports) suggested that the majority of these schools had weekly grade level meetings. Data from our four Comparison schools suggested that half of these held grade level meetings on a regular basis.

Topics and issues discussed this year in grade level meetings were similar to those we noted in our data brief *The Cluster 4 Middle Grades Project: The Experience of Teachers* (August 2007), suggesting that there has been no measurable change in the content of teacher meetings from last year to this year. Meetings we observed this year focused on the following, listed roughly in order of frequency: pacing; issues with specific students; integration of and collaboration across the curriculum; planning events (field trips, graduation, etc.); issues related to ISAT (discussed more frequently closer to the test) or other tests, such as the Constitution; lesson plans; ordering materials; and writing across the curriculum.

Variation was observed in the nature of the meetings. Some of these variations were whether or not the meetings were held/or attended regularly, who ran the meetings (specialist, administrator, teacher), whether or not there was a printed agenda, and the level of teacher collaboration and support for one another. We did not see any difference between Year 1 and Year 2 schools where meetings were held.

## **B. AVID**

The AVID program is a support that C4MGP has provided to its schools in an effort to promote a middle grades model. Below we summarize the use of AVID in the C4MGP schools.

Comparison of how schools use AVID across the 12 case study schools in the external evaluation found that Year 2 C4MGP schools and Comparison schools used AVID in similar ways: for example, utilizing the AVID binders, using the note-taking strategies, providing a college awareness program, engaging students in the Socratic Method, and using AVID posters. Observations and interviews with personnel in the four case study C4MGP Year 1 schools indicated that all of these schools demonstrated little AVID implementation. Moreover, to the extent these schools tried to use AVID, their implementation was uneven within the school, between grades and between classrooms within the same grade. In these Year 1 schools:

- Not all teachers were trained in AVID
- Of those who were trained, some used AVID strategies and tools while others used AVID only for a limited period of time
- Those teachers who were implementing AVID mentioned using binders and note-taking strategies

In Year 2, Year 1, and Comparison schools, most teachers did not use the AVID coach as a support. In all four sample Year 1 schools, AVID coaches were reportedly not seen in schools until late fall or winter. When teachers at these schools were asked about supports to their instruction, AVID coaches were never mentioned. In fact, Year 1 teachers spoke of never or rarely seeing an AVID coach. Some Year 2 teachers complained that AVID coaches only came by to check on their use of AVID binders and never came by to give one-on-one support to implement AVID strategies. Teachers in Comparison schools described a similar lack of engagement with AVID coaches.

According to teachers in case study schools, the following were obstacles to implementing AVID:

- Time
- Competing programs at the school
- Lack of hands-on support to utilize the AVID tools
- No clear vision about the use of AVID articulated by C4MGP

### ***C. Supports for change***

#### **C4MGP University Math and Science Coaches**

C4MGP also provided schools with access to a university-based coach familiar with implementing the CMSI math and science curricula. We asked teachers and administrators in our case schools about the university coaches who came to their school and if and how they saw the sessions with the university coaches as a support to their instruction. Overall, the teachers and administrators indicated that the university coaches were helpful. Furthermore, there seemed to be no noticeable difference between reports from Year 1 and Year 2 school staff. Both cohorts reported that coaches were helpful with the following needs: obtaining materials, modeling instruction, helping teachers to pace instruction, assisting in classrooms, helping new teachers, providing ideas, differentiating instruction, answering questions, and helping teachers prepare students for ISAT. Principals and school specialists spoke highly of the university coaches, saying they noticed improvement in the teachers' instruction as a result of their work with teachers. They also noted that university coaches were very accessible.

#### **CMSI-supported curricula professional development**

We asked teachers and administrators in our case schools about professional development opportunities, and if and how they saw these as a support to their instruction. Six of our C4MGP schools reported that the professional development opportunities have been helpful. Teachers in these schools mentioned that professional development was useful for understanding concepts and pacing, including how to adjust for the ISAT exam (e.g., modifying sections of a lesson). In two schools teachers held mixed views about the usefulness of professional development. In a handful of schools teachers and administrators complained about the difficulty of scheduling—either because the sessions took up teachers' weekends or because teachers needed to miss time during the school week to attend. Teachers at two comparison schools where we observed math instruction shared that they no longer attend CMSI professional development as they had already attended some sessions of new &/or experienced user professional development in the past.

#### **Endorsement programs**

The school administrators interviewed for this evaluation commented on the C4MGP grant's effect on the endorsement process in their schools. Those who mentioned C4MGP as a support for getting teachers endorsed appreciated the funds to make this possible. One specialist said,

...being part of that...grant [C4MGP] helped a lot. Both our math teachers, 7<sup>th</sup> and 8<sup>th</sup> grade—neither one of them had their math endorsement. So they both went through that program when we initially got involved in it and started their middle school endorsement and then finished up with their masters in mathematics education. They went the whole way. Our 6<sup>th</sup> grade teacher—same thing. She did not have her middle school endorsement when we moved her from writing to math. We just knew she'd be good at the math, and we put her right in those classes. And she is almost finished with her master's in mathematics education. You know, it's given us the ability to get our teachers for math and science definitely endorsed and to help a few of the others so

we can move them around, or we do know that they can get that extra help in other places.

Teachers observed and interviewed did not explicitly mention the C4MGP-provided tuition support as helpful to their gaining an endorsement; however, evaluators did not explicitly ask them about this connection in debriefing interviews. Teacher survey data obtained from administration of the PRAIRIE survey instrument *University Courses: Written Reflections for Teachers* offered more direct teacher views on specific university courses in which they were enrolled during 2007-2008. The group of C4MGP teachers found their courses to be as engaging, relevant, and rigorous as did the surveyed teachers not in C4MGP schools. However, the C4MGP teachers were not as strongly in agreement regarding the positive characteristics of engagement and relevance, but more strongly in agreement that their courses were rigorous. The difference does not appear to be associated with the level of C4MGP teachers' experience as teachers or past exposure to college-level math and science.

The following table and graphs display differences found on indexes of engagement and relevance between Cluster 4 respondents and all other respondents.<sup>5</sup>

**Table and Figure 5**  
**I find this course to be engaging – Cluster 4 respondents versus all other respondents**

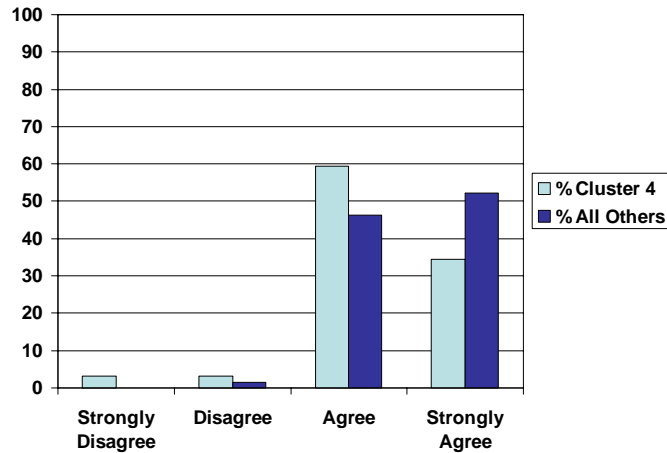
Is your school part of the Cluster 4 Initiative		Frequency	Percent
Cluster 4 (32)	Strongly Disagree	1	3.1
	Disagree	1	3.1
	Agree	19	59.4
	Strongly Agree	11	34.4
<b>Average Rating = 3.3*</b>			
Non-Cluster 4 (67) <sup>6</sup>	Strongly Disagree	0	0.0
	Disagree	1	1.5
	Agree	31	46.3
	Strongly Agree	35	52.2
<b>Average Rating = 3.5*</b>			

\*These mean ratings differ significantly ( $p < .05$ )  
Ratings are on a scale from 1 (strongly disagree) to 4 (strongly agree)

<sup>5</sup> The Tables and findings in this section based on surveys of teachers are excerpted from another PRAIRIE evaluation report for CPS, *Teacher Experiences in CMSI University-based Math and Science Endorsement Programs* (August 2008).

<sup>6</sup> All numbers in parentheses in the tables are the number of respondents within each subcategory for the particular item.

**I Find this Course to be Engaging – Cluster 4 Respondents  
Versus all other Respondents**



As shown in Table 5 and the accompanying graph, Cluster 4 respondents indicated lower levels of engagement in their courses. Examination of the distribution of the ratings on this item shows that Cluster 4 respondents were less likely to strongly agree that the class was engaging than were all other respondents.

**Table and Figure 6**

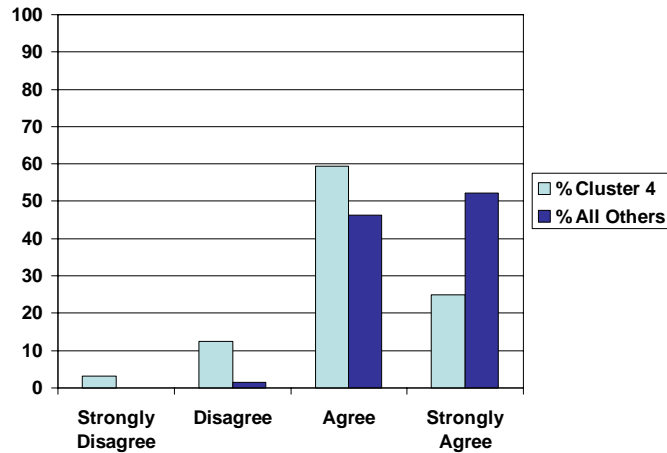
**My instructor provides me with specific strategies to use with my students – Cluster 4 respondents  
versus all other respondents**

Is your school part of the Cluster 4 Initiative		Frequency	Percent
Cluster 4 (32)	Strongly Disagree	1	3.1
	Disagree	4	12.5
	Agree	19	59.4
	Strongly Agree	8	25.0
<b>Average Rating = 3.1*</b>			
Non-Cluster 4 (66)	Strongly Disagree	0	0.0
	Disagree	1	1.5
	Agree	31	46.3
	Strongly Agree	35	52.2
<b>Average Rating = 3.4*</b>			

\*These mean ratings differ significantly ( $p < .05$ )

Ratings are on a scale from 1 (strongly disagree) to 4 (strongly agree)

**My Instructor Provides me with Specific Strategies to use  
with my Students – Cluster 4 Respondents  
Versus all other Respondents**



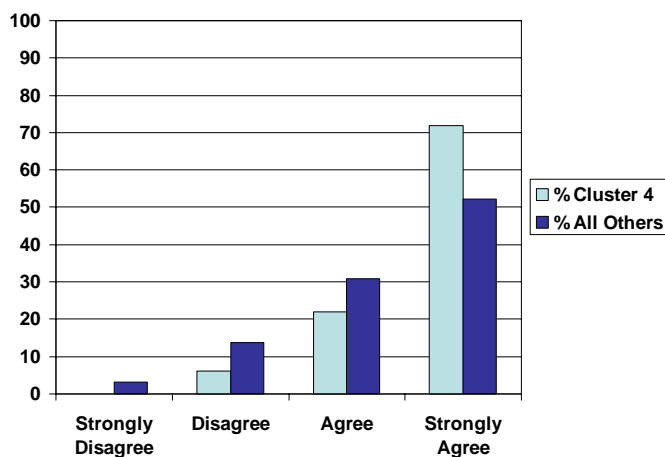
As shown in Table 6 and the accompanying graph, Cluster 4 teachers disagreed more often with the statement that they were given specific strategies to use with their students. Fifteen percent of Cluster 4 teachers (vs. 2% of non-Cluster 4 teachers) disagreed or strongly disagreed with this item.

**Table and Figure 7  
This course is at least as rigorous as other college courses I have taken  
Cluster 4 respondents versus all other respondents**

Is your school part of the Cluster 4 Initiative		Frequency	Percent
Cluster 4 (32)	Strongly Disagree	0	0.0
	Disagree	2	6.2
	Agree	7	21.9
	Strongly Agree	23	71.9
<b>Average Rating = 3.7 *</b>			
Non-Cluster 4 (65)	Strongly Disagree	2	3.1
	Disagree	9	13.8
	Agree	20	30.8
	Strongly Agree	34	52.3
<b>Average Rating = 3.3 *</b>			

\*These mean ratings differ significantly ( $p < .05$ )  
Ratings are on a scale from 1 (strongly disagree) to 4 (strongly agree)

### My Course is at Least as Rigorous as other College Courses I have Taken – Cluster 4 Respondents Versus all other Respondents



As shown in Table 7 and the accompanying graph, Cluster 4 teachers also indicated a higher level of agreement with the statement that their course was at least as rigorous as other college courses they have taken. Ninety-three percent of Cluster 4 teachers (vs. 83% of non-Cluster 4 teachers) agreed or strongly agreed with this item.

There is little in the interview and observation data to explain the difference in ratings of engagement between Cluster 4 participants and all others. However, two math instructors commented that participants seemed to have expected a “methods” course. We do not know whether the participants they were referring to were in Cluster 4, or if so, how many of them had this expectation. A science instructor suggested a possible problem in expectations, saying of his course “this isn’t a professional development short course.”

The survey found a 10% difference in the number of Cluster 4 respondents vs. other respondents who agreed with the statement that the course was at least as rigorous as other college courses they have taken. While some instructors indicated they were not aware of which students had “self-selected” and which were in their course because of Cluster 4, others commented that as a group the Cluster 4 teachers were less prepared than other participants for the level at which they were expected to perform.

#### **Support of specialists for instruction**

Across the population of C4MGP schools, 10 out of 23 Year 2 schools and four out of nine Year 1 schools employed a “freed teacher” math or science specialist to work with teachers on their implementation of CMSI-supported curricula. Of the case study schools visited by external evaluators, about half had in-school specialists. Only one Year 1 case school sampled had a specialist; three did not. Three Year 2 case schools sampled had a specialist; two did not. Three of the total 4 sample Comparison schools had a specialist.

When evaluators asked teachers at these case schools with specialists about the support they received, they described the math specialist as helping by modeling a lesson, by taking part of the class during the

class period, and, generally, by helping with their understanding of the curriculum and instructional use of materials.

### **Vignettes: Three Schools Reconfiguring the Structure of Their Middle Grades**

As mentioned at the beginning of this report, these three vignettes are based on the reconfiguration that has taken place in three of our case schools as they moved from self-contained classrooms to a departmentalized approach. In addition, these vignettes illuminate the role of C4MGP supports as they influence how schools focus on and shape their middle grades. We hope their stories will shed light on the multiple influences on schools, teachers, and students; and help stakeholders consider the relative effectiveness of different parts of the grant.

#### *Kenobi School<sup>7</sup>*

The principal at Kenobi School described the school's re-structuring of the middle grades as an intentional movement to provide a departmentalized structure, particularly for students in 6<sup>th</sup> grade, in keeping with the middle school philosophy articulated by the C4MGP. Kenobi started with the C4MGP cohort in 2006-2007. In that first year, the principal utilized C4MGP funds to have middle grades teachers meet and plan for a 2007-2008 reconfiguration of middle grades. During this planning, the principal shared with teachers what he had learned at the C4MGP principal meetings and passed out C4MGP sample schedules as they talked through how their school might move towards full departmentalization.

As teachers made out the schedules for the 2007-2008 school year, they built in one 40-minute period for advisory each week across the 7<sup>th</sup> and 8<sup>th</sup> grade departmentalization schedule, while 6<sup>th</sup> grade scheduled 20 minutes per day. They spoke of wanting to implement a program to address the socio-emotional needs of students.

Teachers at Kenobi found discussion with colleagues to be very helpful, whether this was with colleagues at the grade level meetings; colleagues across the district at CMSI professional development sessions; or university coaches observing, modeling, and discussing instruction with them.

#### *Skywalker Elementary*

The 7<sup>th</sup> and 8<sup>th</sup> grade math teacher at Skywalker explained the departmentalization shift as a way for him to "control" the content and quality of what students received in 6<sup>th</sup> grade mathematics. In particular, in prior years this school has had great turnover in 6<sup>th</sup> grade teaching staff with multiple instances of turnover during the school year. Therefore, by teaching the 6<sup>th</sup> grade in addition to the 7<sup>th</sup> and 8<sup>th</sup> grade mathematics, this teacher assumed the responsibility for 6<sup>th</sup> grade instruction and laid a solid foundation on which to build in 7<sup>th</sup> and 8<sup>th</sup> grade. Yet this school continues to be plagued by teacher turnover. During this year, the school lost another teacher. As a result, the principal moved students into already-full classes, causing class size in some cases to number close to 40. In addition, one of the middle grades teachers retired in June 2008. The middle grades math teacher wondered what next year will bring and how the school might reconfigure as a result of these staff changes.

This school had no time built into the schedule for Advisory, though in our conversations with the middle grades math teacher, he often referred to his approach to teaching in family terms, explaining that in his conversations with students he insisted that the classroom was their home and that the goal was for everyone to succeed; therefore, everyone was to treat each other with respect as one would in a family that wants the best for each other. When talking with parents about students in his class, he reminded parents that the students were "our" kids and that "we" (teacher and parents) need to work together to see that they all achieve to their potential.

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<sup>7</sup> All names of schools are pseudonyms.

At Skywalker Elementary, evaluators observed only mathematics instruction in the middle grades. Each observed lesson was 60 minutes. Students in grades 6 to 8 switched among four teachers and each department had 60 minutes for instruction on a daily basis.

The middle grades math teacher at this school found the specialist particularly useful as she was able to come in as needed to help work with students, especially when the class became overcrowded. The teacher also spoke highly of CMSI professional development and the insights gained from working with the University coach. Despite multiple attempts, we were unable to observe grade level or departmental meetings within the middle grades at this school; however, this teacher explained that teachers within the grade levels meet regularly on an informal basis.

### *Clone Academy*

Although Clone Academy began the year shifting from self-contained to “semi-departmentalized”—one teacher teaching math and science; the other teaching social studies and language arts—more than mid-way through the year, the 6<sup>th</sup> grade reverted to self-contained<sup>8</sup>. The teacher described the shift back to self-contained classrooms as a way for the school to “cut their losses,” as her colleague’s inability to teach and lack of classroom management was beginning to adversely affect her students. Seventh and 8<sup>th</sup> grade remained departmentalized across grades. None of the middle grades had an Advisory period.

Instruction in 7<sup>th</sup> and 8<sup>th</sup> grade math and science at Clone Academy followed a 60-minute class period, according to the schedule. However, even before 6<sup>th</sup> grade returned to an entirely self-contained classroom, we found that class periods varied in length of time, often depending on the teachers' joint decision that day to switch classes or not. During one observation a few weeks before the ISAT, we found the teacher using *Data About Us* from the CMSI math curriculum instead of using the CMSI science curriculum during the scheduled science period. In following conversations, we learned that one of the university coaches, the school-level specialist, and teacher had agreed that this change was a way to prepare students for ISAT. While we did not observe a science class at this school after ISAT, we were told that the teacher planned to continue implementing the CMSI science curriculum after ISAT.

Teachers in middle grades had the on-site support of a math specialist and spoke more positively about the support she gave in terms of their instruction than they did of any other support. Teachers also mentioned the help of the university math coach. Only one middle grades math teacher mentioned the usefulness of the professional development; she was a relatively new user. The other two teachers considered themselves “experienced” and did not attend professional development regularly or recently. Since 6<sup>th</sup> grade is separately departmentalized from the 7<sup>th</sup> and 8<sup>th</sup> grade, the 6<sup>th</sup> grade teacher reported not having any formal departmental or grade level meetings. The 7<sup>th</sup> and 8<sup>th</sup> grade teachers met weekly; however, these meetings were often short and reportedly involved “griping” and not much work on instruction. The school started to implement AVID late in the year; by the end of the year, we observed only sparse use of AVID, mainly just posters in the classrooms. Teachers seemed to believe in the power and importance of AVID but had not really started to implement it in their first year of C4MGP.

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<sup>8</sup> This 2<sup>nd</sup> restructuring within 2007-2008 is not noted in the above table or discussion.

## Discussion Questions

The findings we report above raise myriad questions for those who continue to work for the success of the C4MGP and the CPS students it influences. Among these many questions, we note below a selection of discussion questions focused around this project's focus on instruction of high quality math and science content and on serving the socio-emotional needs of adolescent students.

### **Focusing on Instruction**

- What impact on instruction do C4MGP planners expect to see due to schools changing how their middle grades are configured?
- How are the new configurations being monitored to ensure 60 minutes of instructional time per subject area?
- How is the C4MGP supporting schools in the timely acquisition of materials?
- How do C4MGP planners chart measurable changes in instruction as a result of these supports? Are some kinds of changes more important to them than others?

### **Focusing on Student Socio-emotional Needs**

- In what ways do C4MGP planners expect schools to configure Advisories and to work with students within these periods?
- How does/can C4MGP training and support to teachers as they step out of their subject area expertise into the area of meeting middle grades students' socio-emotional needs?