Quality Review Report

2017-2018

Manhattan Center For Science And Mathematics

High school 04M435

260 Pleasant Avenue
Manhattan
NY 10029

Principal: David Jimenez

Dates of Review:
November 14, 2017 - November 15, 2017

Lead Reviewer: AJ Hepworth
The Quality Review Report

The Quality Review is a two-day school visit by an experienced educator. During the review, the reviewer visits classrooms, talks with parents, students, teachers, and school leaders and uses a rubric to evaluate how well the school is organized to support student achievement.

The Quality Review Report provides a rating for all ten indicators of the Quality Review Rubric in three categories: Instructional Core, School Culture, and Systems for Improvement. One indicator is identified as the **Area of Celebration** to highlight an area in which the school does well to support student learning and achievement. One indicator is identified as the **Area of Focus** to highlight an area the school should work on to support student learning and achievement. The remaining indicators are identified as **Additional Finding**. This report presents written findings, impact, and site-specific supporting evidence for six indicators.

Information about the School

Manhattan Center For Science And Mathematics serves students in grade 9 through grade 12. You will find information about this school, including enrollment, attendance, student demographics, and data regarding academic performance, at http://schools.nyc.gov/Accountability/tools/report/default.htm.

School Quality Ratings

<table>
<thead>
<tr>
<th>Instructional Core</th>
<th>Area</th>
<th>Rating</th>
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</thead>
<tbody>
<tr>
<td><strong>To what extent does the school...</strong></td>
<td></td>
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</tr>
<tr>
<td>1.1 Ensure engaging, rigorous, and coherent curricula in all subjects, accessible for a variety of learners and aligned to Common Core Learning Standards and/or content standards</td>
<td>Additional Finding</td>
<td>Well Developed</td>
</tr>
<tr>
<td>1.2 Develop teacher pedagogy from a coherent set of beliefs about how students learn best that is informed by the instructional shifts and Danielson Framework for Teaching, aligned to the curricula, engaging, and meets the needs of all learners so that all students produce meaningful work products</td>
<td>Area of Focus</td>
<td>Well Developed</td>
</tr>
<tr>
<td>2.2 Align assessments to curricula, use on-going assessment and grading practices, and analyze information on student learning outcomes to adjust instructional decisions at the team and classroom levels</td>
<td>Additional Finding</td>
<td>Well Developed</td>
</tr>
</tbody>
</table>
## School Quality Ratings continued

### School Culture

<table>
<thead>
<tr>
<th>To what extent does the school...</th>
<th>Area</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4 Maintain a culture of mutual trust and positive attitudes that supports the academic and personal growth of students and adults</td>
<td>Additional Finding</td>
<td>Well Developed</td>
</tr>
<tr>
<td>3.4 Establish a culture for learning that communicates high expectations to staff, students and families, and provide supports to achieve those expectations</td>
<td>Area of Celebration</td>
<td>Well Developed</td>
</tr>
</tbody>
</table>

### Systems for Improvement

<table>
<thead>
<tr>
<th>To what extent does the school...</th>
<th>Area</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3 Make strategic organizational decisions to support the school's instructional goals and meet student learning needs, as evidenced by meaningful student work products</td>
<td>Additional Finding</td>
<td>Well Developed</td>
</tr>
<tr>
<td>3.1 Establish a coherent vision of school improvement that is reflected in a short list of focused, data-based goals that are tracked for progress and are understood and supported by the entire school community</td>
<td>Additional Finding</td>
<td>Well Developed</td>
</tr>
<tr>
<td>4.1 Observe teachers using the Danielson Framework for Teaching along with the analysis of learning outcomes to elevate school-wide instructional practices and implement strategies that promote professional growth and reflection</td>
<td>Additional Finding</td>
<td>Well Developed</td>
</tr>
<tr>
<td>4.2 Engage in structured professional collaborations on teams using an inquiry approach that promotes shared leadership and focuses on improved student learning</td>
<td>Additional Finding</td>
<td>Well Developed</td>
</tr>
<tr>
<td>5.1 Evaluate the quality of school-level decisions, making adjustments as needed to increase the coherence of policies and practices across the school, with particular attention to the CCLS</td>
<td>Additional Finding</td>
<td>Well Developed</td>
</tr>
</tbody>
</table>
Area of Celebration

<table>
<thead>
<tr>
<th>Quality Indicator:</th>
<th>3.4 High Expectations</th>
<th>Rating:</th>
<th>Well Developed</th>
</tr>
</thead>
</table>

Findings
School leaders consistently communicate high expectations connected to questioning, student engagement, and assessment during instruction. The faculty has established a culture for learning that systematically communicates a belief and vision of high expectations related to college preparedness for all students.

Impact
Through collegial inter-visitations teachers are trained and hold themselves accountable for strategies that embed positive learning environments into lessons across grades and subject areas. Students own their educational experience and are prepared for the next level because of receiving clear guidance and supports.

Supporting Evidence

- School leaders, together with teachers, conduct weekly team meetings which focus on instructional patterns, trends, and student achievement as revealed by data based performance assessments. Effective ongoing professional development has resulted in improved instruction and increased student achievement across all grades and content areas. Staff embed inquiry based learning experiences in student-centered classrooms ensuring the instructional focus on engaging students in their learning is achieved. Assessment results demonstrate the success of their work. For example, in physics students are critically thinking and writing explanations about their calculations, yielding an increase in the number of students passing the Regents and the number of learners scoring at mastery.

- Teachers across all grades and content areas hold themselves accountable for effective implementation of focused reading and writing during instruction. All teachers of Advanced Placement (AP) courses attend workshops to ensure students experience content and assignments that mirror real world applications. A review of unit and lesson plans demonstrates purposeful planning of real world college and career readiness skills. These values are also incorporated in lesson plans across non-AP courses and evident in student work. For example, math and science teachers challenge their students to reflect on their calculations and lab results by writing specific higher order task explanations to demonstrate their thinking. When writing, students are not permitted to use the word “it” when describing their findings, rather they must refer explicitly to what they are writing to and what they know.

- Students have clear ownership of their educational journey and are able to articulate an understanding of how staff systematically defines those expectations. One student shared teachers ensure all students have the right to obtain information and be held to high academic standards. Teachers explain why students need to improve on their work and how to do better while “striving to make the work perfect.” All students interviewed agreed with this sentiment.
Area of Focus

Quality Indicator: 1.2 Pedagogy
Rating: Well Developed

Findings
Alignment of teaching practices across the vast majority of classrooms consistently supports rigorous instruction with the curricula. There exists a coherent set of beliefs regarding how students learn best when completing their work products and engaging in discussions.

Impact
Students engage in critical discussions, challenge one another’s thinking, and produce meaningful work products, although students identified as gifted and talented could benefit from more strategic challenging scaffolds to further demonstrate their high levels of thinking.

Supporting Evidence

- Across the vast majority of classes, teacher practices consistently reflect an understanding of how students learn best, including engaging students in critical thinking and high levels of discussion. Teachers embed purposeful alignment to the Danielson Framework for Teaching in their instruction to provide the best instructional practices and learning opportunities for students. A government class was student led and teacher facilitated. Students taught the lesson and critically challenged one another to build on their responses and ask clarifying questions. Furthermore, students themselves provided extensions, exit tickets and reviewed them to provide assistance with the lesson.

- Students were engaged in conversation in every class visited. Additionally, they had to justify their thinking by providing an explanation and making connections from personal and real world applications to the content. An English Language Arts class (ELA) began with students making predictions and brainstorming with their classmates to determine the meaning of a series of quotes randomly handed out to each student. Through conversation and analysis of the language, conventions, and text associated with the quotes, students meaningfully developed their own interpretation of the lesson's objective accurately.

- In an earth science class for English Language Learners (ELLs), students demonstrated their clear understanding of the theory of continental drift both by self-selecting maps of Pangaea and correctly reconstructing them. The students were required to do this both orally and in writing. Various groups of students, when challenged, were masterfully able to explain the five arguments for the theory. This was done without hesitation. Similarly, students in an Integrated Co-Taught (ICT) math class accurately challenged one another to prove their thinking regarding justification of a shape being an isosceles triangle with congruent sides after having written out a logic statement, which intentionally contained an error.
Additional Finding

<table>
<thead>
<tr>
<th>Quality Indicator:</th>
<th>1.1 Curriculum</th>
<th>Rating:</th>
<th>Well Developed</th>
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Findings

School leaders and faculty mutually agreed that a consistent lesson planning template to guide curricula consist of rigorous habits and higher-order thinking skills. Unit and daily lessons are planned and refined coherently using student work and data across grades and subjects.

Impact

All students, especially students with disabilities due to autism in the NEST program and Integrated Co-Teaching (ICT) classrooms are able to demonstrate their thinking through purposeful differentiated planning, resource tools, and scaffolds. All students have access to tasks that are cognitively engaging.

Supporting Evidence

- Assignments reflect the requirement for rigorous habits and higher order skills. A task centered on analyzing a document dealing with the first five amendments of the Bill of Rights states students will first analyze the text, then explain in their own words, and summarize an opinion statement as to why The Bill of Rights is important. Furthermore, an exit ticket is planned so students must individually support their answer with examples and reasoning from the text. Similarly, a geometry lesson plan prompts students to extend their thinking by making connections to previously taught concepts of triangle congruence to justify their reasoning and identify the best strategy.

- Coherent rigorous expectations for students exist across all classes. All lesson plans embed high levels of questioning to ensure students are engaged in critical thinking and required to demonstrate their knowledge in writing or discussion. Questions from a variety of lesson plans require students to write for five minutes addressing such questions as, “Explain how you selected a piece of evidence that would support your claim.” “How are wavelengths of light related to the energy released?” “Are some rights less important to Americans now than then?”

- Reflection and analysis of results from a baseline assessment led to a purposeful change with a lesson plan, which addressed how rates and patterns are used to solve patterns. The revised lesson plan included an emphasis on fractions. Additionally, an adjustment to selectively use content vocabulary, rather than introducing all new words at once, led to an increase in student achievement when learning the differences between the algebraic terms; associative, distributive, and communicative properties.

- General education and special education teachers plan lessons together using student work samples to ensure the appropriate scaffolds and modifications are in place to engage all students and advance them through their learning. For example, a social studies lesson designed to have students analyze political cartoons from various eras in United States history purposefully includes structures to support all students with disabilities, ELLs, and high achievers with individual supports. The high performing students will receive cartoons that require significant detailed analysis and complexity while students with disabilities will receive cartoons with labels to add clarity, and ELLs will receive additional historical visual supports as needed. All modifications are derived from baseline assessment data and teachers review of prior students’ work products.
## Additional Finding

<table>
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<tr>
<th>Quality Indicator:</th>
<th>2.2 Assessment</th>
<th>Rating:</th>
<th>Well Developed</th>
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### Findings

There is a schoolwide emphasis on the analysis of student work by both teachers and students using Teachers College rubrics and self-created checklists aligned to the school’s curricula offering a clear portrait of student mastery. Additionally, a variety of ongoing checks for understanding during instruction make all learners fully aware of their next steps from kindergarten through grade five.

### Impact

Students and teachers receive actionable feedback regarding student achievement and teachers make effective adjustments when necessary to meet all students' learning needs.

### Supporting Evidence

- Teachers consistently analyze student work to inform pedagogical next steps. Across math classes, digital assessment devices are used to instantly check understanding of multiple-choice questions. The results are used to adjust instruction by grouping students who grasp the concept to move ahead, while those who need further clarity receive additional instruction. Following the additional instruction, exit slips are provided to assess students understanding again on the same concept to determine if further intervention is necessary outside of the normal math programming, such as extra-help or student tutoring. Lastly, the exit slips provide information regarding the do now for the following lesson. Similar constant analysis occurs across classes providing teachers with meaningful feedback regarding student achievement.

- Teacher generated checklists address the major parts of each task with an emphasis on the Common Core Learning Standards. Students purposefully refer to their checklists and rubrics to determine if they have successfully included sufficient support with their draft and completed assignments. The measures in place appropriately match each assignment with clear connections to the learning objective allowing students to understand how to achieve mastery. Students can fully explain all details of their rubrics, checklists, and assessment tools to meaningfully understand their achievement and produce high quality work. Furthermore, students can articulate teacher feedback and task expectations without referring to their rubrics or samples of work, demonstrating their ownership of what they are learning.

- Questions from student to student and student to teacher reflected critical thinking and ensured students were aware of their next learning steps. One student in a business law class asked his partner to justify his reasoning for his claim that the concept of “double the intent,” existed in reference to a crime. During a science lesson on osmosis, students with their partners justified how they would expect the transfer of molecules to occur across a cell membrane. The teacher confirmed student understanding by walking around and reviewing individual group’s results prior to having one student explain clearly their thinking to the whole class.

- Students in an ELA class used a rubric to review their completed written assignment and that of their peers prior to assessing it for a rating. Furthermore, students asked probing questions of their peer for clarity to push the thinking to the next rating level according to the rubric.
## Additional Finding

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<th>Quality Indicator:</th>
<th>4.1 Teacher Support and Supervision</th>
<th>Rating: Well Developed</th>
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### Findings

Through a teacher led mentor program, effective professional development, and cycles of observations, teachers are provided feedback in a timely manner. Using the Danielson *Framework for Teaching* the feedback accurately addresses strengths, challenges, and next steps.

### Impact

Schoolwide instructional practices and strategies that promote professional growth and reflection are elevated. Additionally, feedback articulates clear expectations for teacher practice, supports teacher development, and aligns with professional goals for teachers.

### Supporting Evidence

- Teachers overwhelmingly agree the feedback they receive from school leadership helps them improve their teaching and contributes to their professional growth. Several teachers shared they have previously received feedback from informal and formal observations identifying a need to improve their questioning techniques. The teachers further stated that after discussing techniques to improve their questioning with their respective department leader and implementing them, students across their classes are more engaged and able to express their knowledge of content more in depth. Additionally, teachers are ensuring opportunities for students to create their own higher-order questions that require the synthesis of ideas. The feedback and professional support is purposefully aligned to the teachers’ pedagogical goals, which they develop at the beginning of the year based on their prior Annual Professional Performance Review (APPR) evaluation forms.

- Baseline assessment results and teacher observation feedback are used to inform department professional development. The results are disaggregated and an area of focus is identified to determine specific student misconceptions and areas for pedagogical growth. For example, in social studies, teachers recognized students were struggling with document based questions. As such, teachers modified their rubrics to provide more curricular aligned references and checklists for students to use when completing document based questions. Regent exam assessment results indicate a growth of nine percent for the number of students performing at or above a score of eighty percent. Additionally, teachers furthered their proficiency for coherent instructional design and use of resources, thus aligning their improved pedagogy with their instructional goals.

- Teachers often use their goals in collaboration with their peers to identify effective practices. This provides opportunities for shared professional development especially during common planning time. Each teacher develops two sets of goals; one with a focus on instruction and a second goal based on state assessment results. They monitor their goals in conjunction with their department administrator and track them through the feedback and conversations that take place during official and unofficial observation conferences. Scholarship reports are also used to monitor their progress with goals. Teachers are able to speak to their goals and have internalized them as tools to support their instructional development.
# Additional Finding

<table>
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<tr>
<th>Quality Indicator:</th>
<th>4.2 Teacher Teams and Leadership Development</th>
<th>Rating:</th>
<th>Well Developed</th>
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</table>

## Findings

The vast majority of teachers are engaged in inquiry-based collaborations that systematically analyze key elements of teacher work, including classroom practice, assessment data, and student work. Additionally, distributed leadership structures exist across the school community.

## Impact

Schoolwide instructional coherence and increased student achievement for all learners towards mastery of goals along with improved teacher instructional capacity are in evidence. Additionally, teachers play an integral role in creating mentor programs and professional development opportunities that affect student learning across the school.

## Supporting Evidence

- Seamless protocols exist for all teachers to engage in weekly inquiry work that improve their pedagogy by reviewing student work and lesson planning documents. Department leaders and groups of content teachers along with special service providers, collaboratively review teachers’ work samples and documents to support student achievement and instructional practices. Teachers also align instructional practices to the Danielson Framework for Teaching. The impact of their work is evident in the establishment of cohesive practices and instructional improvement. For example, mentor texts are generated as a result of inquiry discussions and used as exemplars to guide student writing. The students’ overall college and career readiness skills have increased as a result of these inquiry practices. Additionally, Advance data reveal improvement for the teachers.

- Teachers have developed improved practices that support using probing questions for students with disabilities leading to improved organization and thinking skills, as well as an opportunity to answer higher-order thinking questions effectively. Furthermore, based on their inquiry work, staff has been able to better seat students in their classrooms leading to increased student discussions and achievement.

- Teachers have developed programs and taken leadership roles in implementing new initiatives that contribute to student learning. An experienced staff member recognized the need to support new teachers through the development of a mentor program. As a result, twice a month professional development is teacher led for the new teachers to assess the quality of their lesson planning and review of portfolio protocols, school procedures. Teachers' license requirements are discussed as well. The new teachers value the support and culture building the mentor program offers them. Additionally, Integrated Co-Teaching teachers meet regularly on their own to identify immediate needs using student data. This initiative was based on a review of prior Regents results across contents with a desire to provide students with increased support. Specifically, it addressed social studies, literacy, and writing, so students could generate improved analytical and descriptive detail in their writing. Results from benchmark assessments and formative assessments demonstrate student improvement.