



Fostering an Effective Instructional Program

A Study of the Impact of the NYCDOE Multiple Pathways Institute

Report prepared by Eskolta School Research and Design for the
NYCDOE Multiple Pathways Institute

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Education

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The New York City Department of Education's Multiple Pathways Institute

Launched in 2012, the Multiple Pathways Institute (MPI) is an innovative, district-level, professional learning model that supports a citywide network of high schools exclusively serving students who have fallen behind in their education. MPI's research-aligned approach centers on building the leadership capacity of principals and the instructional capacity of teachers with the goal of improving student learning. The Institute engages principals and teacher teams as partners in driving school improvement by providing three years of customized professional learning. Schools receive leadership development, job-embedded coaching and technical assistance, and membership in a professional learning community that leverages the resources and expertise of peers. Sustainability of improvement outcomes is supported by graduating schools from each cohort that are chosen to become mentors to new schools. Graduates of the program cite higher daily attendance, increased state test scores, and a rise in graduation rates as just some of the student outcomes impacted by their involvement in MPI.

Applying to MPI begins with the principals from each school committing to sustained and active involvement in designing and advancing their school's work. Building from their school-wide improvement goals, they identify one high-leverage instructional goal and a new system or structure that will support meaningful school-wide change.

In order to provide comprehensive support that fosters long-term advancement in teaching and learning, the Multiple Pathways team uses a partnership approach to maintain networks of schools. The team has collaborated with

professional development partners, reDesign, LLC. and Eskolta School Research and Design since MPI's inception.

Essential Elements of the MPI Model

MPI's research-based drivers should not be interpreted as a checklist. Rather they are like pieces of a puzzle that are all necessary if a school's goal is to elevate student learning for all students:

- **Job-embedded instructional coaching and school-wide systems building.** Schools receive on-site coaching and technical assistance through a cooperative approach that transforms teacher practice and reshapes school structures to support these new practices. Coaches build the capacity of the pilot team of teachers through co-constructing cycles of continual improvement using observation, modeling, practice and reflection.
- **Continuous over time.** Schools participate for three years, then graduate and mentor new cohorts of schools, hosting site visits and providing 1:1 support to schools during professional learning community events.
- **Explicit principal involvement.** Principals commit to participating in the professional learning with their pilot team, which enables them to develop their instructional leadership skills. They must commit to oversee and support the coaching and systems design, and the eventual expansion of effective teacher practice school-wide.

- **Results-driven professional development.** School teams collect and analyze formative and summative evidence of student learning and use it to inform changes in instructional practices. Principals and teacher teams must have a shared vision of good teaching and improved student learning in order to shift their instructional practices based on formative and summative data,
- **Focused school support.** Principals take stock of the students' instructional strengths and needs and annually create and adjust a detailed work plan that identifies the school's 1-2 instructional goals. Based on quantitative and qualitative student data, the school's coach and principal co-create an implementation plan for improving teacher practice.
- **Collaborative networking.** Schools participate in a series of annual cross-school events where principals and pilot teams learn together through collaborative inquiry and hold their peers accountable as they tackle challenges to improving instructional practice. It is the collective capacity of the principals and teachers from the participating schools that often provides answers to some of the school's most difficult problems associated with change.

MPI Theory of Change

The Multiple Pathways Institute aims to improve student outcomes by leveraging its professional development model to support school leaders and teachers in research-based practices that lead to strengthened instructional capacity and enhanced learning for students.

The starting point of MPI support is direct work with school leaders. The Institute doubles down on helping participating principals become more

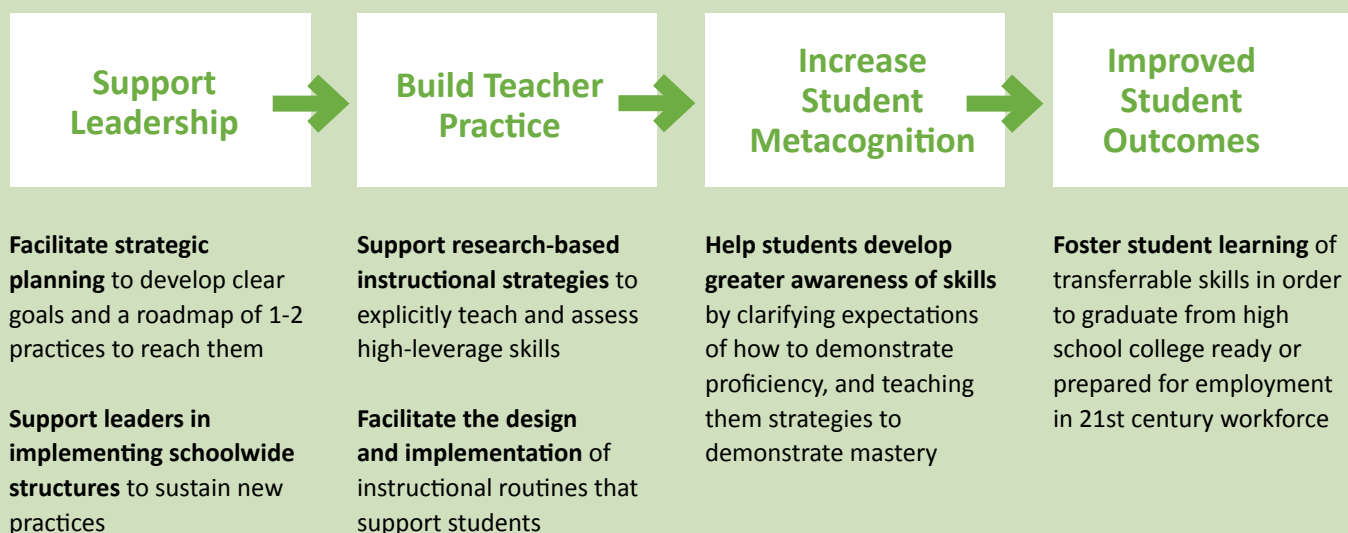
effective as major levers for driving student success. Research has shown the strong effect of school leadership on student learning, with one study estimating a quarter of school effectiveness being accounted for directly and indirectly by principal performance (Hallinger, Heck). In particular, a large part of school principals' impact hinges on their practices in setting a clear direction for the school and aligning school efforts to strategic goals (Leithwood, et al.) At the outset of each school year, MPI coaches work with principals to ensure the schools' efforts are couched in a strategic plan for long-term school growth.

Additionally, MPI coaches continuously engage the principal throughout the school's full experience to keep him or her active in advancing the work of the teacher team and in setting up school wide structures that foster the effective implementation of the team's work. This helps principals to build and sustain instructional coherence which has been shown to increase student achievement (Newman, et al.)

With the strategic plans and leadership supports in place, the MPI work turns to the long-term focal point of supporting teachers to improve their classroom practices. MPI works with teachers to develop instructional and assessment practices and accompanying tools and systems that provide students with opportunities to learn, practice, and then demonstrate high-leverage skills in meaningful tasks that are relevant to students' lives. As students work toward skills mastery, MPI supports teachers in providing regular and targeted feedback that engages students in reflection and revision to their work. Analyses of multiple classroom interventions have shown this type of feedback to be one of the most powerful supports that leads to student achievement, especially when provided in ways that relate actionable steps around clear skills (Hattie & Timperley).

These practices supported by MPI, create student-centered classroom experiences which invite students to become aware of an important foundational skill—how to learn or for some students, how they learn best. An authentic student-centered learning experience is one in which students build awareness of skill expectations, understanding of concrete strategies for applying their learning, and reflectiveness about their progress. These serve as ingredients

for increased student metacognition around their learning as characterized by Ellis, et al. in a research review that identified the impacts of metacognitive efforts. This metacognition can provide a substantial boost to student learning, with one meta-analysis measuring its influence at more than double the average effect sizes seen over a wide range of academic interventions (Higgins, et al.), which sets students on a pathway to improved academic outcomes and success in school.



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A Concerted Study to Measure Institute Impact

During the 2018-19 school year, MPI planned and executed a systematic data-based investigation designed to gauge the impact of the institute across all participating schools. This effort grew out of more informal approaches in prior years of the institute, in which survey data, general trends in school Regents results, and anecdotal reports were used to assess participant satisfaction and growth.

To assess the institute's effectiveness in a more formal manner, MPI designed this investigation to gather and analyze a consistent set of data from two main sources, both closely linked to the institute's theory of change:

1. Data from School Visits

Researchers visited 11 individual MPI schools to collect data about educator practices in a baseline visit during the first half of the school year and again in a year-end follow-up visit to check for growth over time. At each visit, two researchers conducted a day-long series of classroom observations, interviews with school leaders, teachers, and students, and a review of relevant artifacts.

Data collection during the visits was centered on the goal-setting and support provided by school leaders and the instructional approaches of teachers in either skills-based instruction (9 schools) or feedback and conferencing (2 schools) depending on the school's area of focus within MPI.

At all schools, the data collected was then assessed against a framework of indicators representing potential areas of institute impact to

determine which were evident in the school. This framework of indicators reflected the expected progression of a school through MPI: beginning with developing educator understanding, moving to showing evidence of active planning and practice, and finally spreading to deeper levels of schoolwide implementation that codify and systematize practices.

Categories of MPI Visit Indicators:



2. Data from Student Metacognitive Prompts

To gauge the impact of educator practices on students, MPI teachers administered a set of prompts related to metacognitive awareness to students in classrooms of MPI teachers at the five schools completing their third year of MPI support. During the final term of the school year, students wrote responses to the prompts at two points in an MPI-supported course: near the beginning to establish a baseline and again near the end of the course after receiving MPI-supported instruction.

The prompts were designed by MPI researchers to be consistent across schools and asked students to demonstrate metacognition around their skill learning, including awareness of the skills involved in their coursework, naming challenges they encountered in demonstrating skills, and sharing steps for how they could improve their performance. Student written responses were collected and scored by MPI researchers using a rubric that defined a progression of metacognitive awareness, allowing baseline and end-of-course scores to be analyzed for growth in metacognitive awareness over the academic term.

Summary of Key Findings

An analysis of the data collected through this study showed evidence of impact in the schools across the Multiple Pathways Institute. School leaders, teachers, and students involved in MPI are making progress within areas supported by the institute as detailed in six main findings:

1. School leaders are setting more effective goals.

The number of school leaders establishing clear instructional goals for their schools has increased over the course of MPI participation.

2. School leaders are building systems to sustain progress.

School leaders demonstrate more evidence of schoolwide structures directed to support and sustain MPI work as they got further along in their MPI experience.

3. Teachers are strengthening skill-based instructional practices in their classrooms.

After receiving support from MPI during the year, teachers are showing more indicators of instructional planning and assessment with an intentional focus on key academic skills.

4. Teachers are strengthening feedback routines.

Feedback to students improved alongside growth in skills-based instruction and, within a subset of schools particularly focused on feedback, with a rise of research-based feedback methods.

5. MPI classrooms support students' metacognitive growth.

Student responses to metacognitive prompts show stronger metacognition over time, especially for those receiving the most MPI-supported instruction.

6. Growth in student metacognitive awareness is narrowing equity gaps.

As students are developing metacognitive awareness, the score differentials between subgroups of students are evening out, suggesting that practices implemented in MPI classrooms are increasing equity and providing all students with effective learning opportunities to grow their metacognitive abilities.

SECTION 1:

Impact on School Leaders

“Last year, we noticed our students needed more explicit instruction on discussion. The MPI team will become our Instructional Planning Team, helping us build a vision where student discussion is a major component of literacy.”

—Principal, Bronx High School for Leadership and Community Service

Recognizing that instructional improvement hinges upon the guidance and support of school leadership, the Multiple Pathways Institute directly engages school leaders in strategic planning to develop effective instructional goals and accompanying school structures that reinforce, enact, and sustain improvements. Through visits conducted to schools, MPI observed the Institute’s impact on instructional leadership capacity.

**Support
Leadership**



**Build Teacher
Practice**



**Increase
Student
Metacognition**



**Improved
Student
Outcomes**

School leaders are setting more effective goals.

The number of school leaders establishing clear instructional goals for their schools has increased over the course of MPI participation.

Data collected on school visits demonstrates that school leaders are intentionally building goals that will be meaningful to instructional efforts. By the end of the year, all school leaders in the institute were able to articulate how their goals connected to instructional practice. In particular, MPI school leaders grew by attending to the focus and manageability of their goals. In baseline school visits, less than half of MPI schools showed evidence that they had sufficiently clarified and simplified goals for them to be manageable. But at year-end visits, 8 out of 11 schools demonstrated that leadership had honed goals with an eye on supporting effective implementation (Figure 1-1).

Importantly, school visit data shows a correlation between growth in goal-setting by school leaders and increases in targeted teacher instructional practices. As shown in Figure 1-2, schools that went from no evidence of clarifying and simplifying goals in the baseline visit to being able to demonstrate that expectation by the end of the year saw a 27-percentage point increase in teacher practice indicators over that same time

FIGURE 1-1. Percent of School Leaders Articulating Effective Goals

MPI school leaders expressed clearer and more manageable instructional goals over their year in the institute.

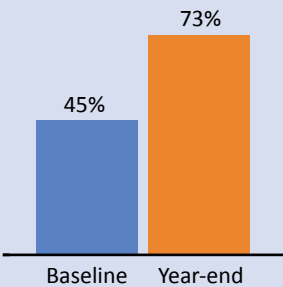
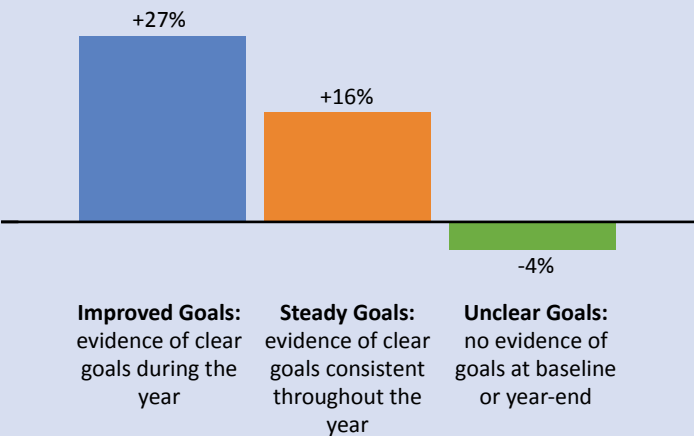


FIGURE 1-2. Change in Instructional Practice Relative to Goal-setting

Schools with increased clarity of goals also saw more growth in their instructional practice indicators.



period. Teacher practice indicators also rose, though not as steeply, at schools where clear and simple goals were evident throughout the year. In contrast, for schools where the clarification and simplification of goals was not apparent at any time in the school, their teacher practice indicators showed a slight decline over the year. This evident relationship between strengthened goal-setting and strengthened teacher practice supports MPI's focus on strategic planning as a high-leverage element of leadership capacity.

Snapshot of Progress:

Cascades High School

Early in their MPI work, teachers at Cascades High School established a series of practices around naming objectives for their lessons. MPI support helped teachers adopt a consistent format of “I can...” objectives that emphasize a rigorous skill. After that initial success, to continue that work, MPI coaches facilitated a conversation with school leaders to define a new strategic goal for the team. “We had teachers with a good grasp of teaching skills and alignment, but who struggled with assessing student skills based on mastery rather than completion,” the principal explains. In response, the principal and MPI coach mapped out steps for developing tools to define skills and support classroom teachers as they track progress through assessments. “Last year’s work got us in a good place to make the shifts we did this year. Now we can narrow our focus on assessments aligned to skills.” This focused instructional goal has laid out a clear and productive pathway for the teacher team supported by MPI to move ahead in their work.

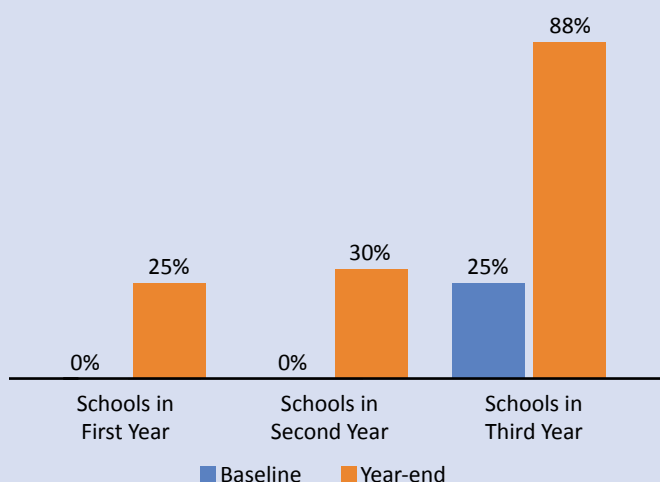
School leaders are building systems to sustain progress.

Over time, school leaders are demonstrating more evidence of schoolwide structures that support and sustain MPI work.

In addition to gauging goal-setting practices, school visits looked at how MPI work spread into other aspects of school planning. Overall, schools showed strong growth in this area with 50% of systematization indicators being evident across MPI schools at the end of the year as compared to only 9% in baseline visits. Disaggregating these results by the number of years schools have participated in the institute shows a distinct pattern of growth over time (Figure 2-1). Schools in their first and second year did not show evidence of this leadership move in their baseline visits, and by the end of the year, they demonstrated only a modest amount of the systemization indicators. Schools in their third year, however, showed evidence of a majority of systematization indicators (88%) by the end of the year, suggesting that more time in the Institute strengthens school leaders' capacity to build long-term plans to deepen their MPI work.

FIGURE 2-1. Systematizing by Leaders: Percent of Indicators Evident by Tenure in MPI

Schools who have been in the Institute for the most time showed the greatest growth in systematizing their MPI work.





Snapshot of Progress:

Voyages Preparatory High School

In the third year of MPI work at Voyages Preparatory HS, the principal created plans for sustaining the school's work with MPI. These included building the capacity of teacher leaders, embedding professional development into the school schedule in a more meaningful way, and regularly articulating the relationship between naming a set of high-leverage skills, intentionally building opportunities to develop and practice them in all courses, and then seeing students successfully demonstrate those important skills. He also named several structures and practices that the school had created to ensure that the goals are supported to push the school towards success in future years, including more consistent use of data and feedback loops around students who are frequently absent.

SECTION 2:

Impact on Teachers

Explicit skills instruction gives students tools to be successful across subject areas. MPI works with teachers to implement research-based practices for modeling and assessing skills and providing feedback to help students reach mastery. In data collection school visits, MPI aimed to gauge the degree to which teachers were planning for, teaching, and providing feedback on skill performance in their classrooms.

“I feel we are more focused. I’m tracking data and starting to see gaps in what students are doing. For example, one may need to work on writing a claim or describing in their own words. I can quickly see if they’re missing a step.”

—Aspirations Diploma Plus High School Teacher

**Support
Leadership**



**Build Teacher
Practice**



**Increase
Student
Metacognition**



**Improved
Student
Outcomes**

Teachers are strengthening skill-based instructional practices in their classrooms.

After receiving support from MPI during the year, teachers are showing more indicators of skill-focused instructional planning and assessments.

Data collected on school visits were analyzed for evidence of teachers using skills-based instructional steps, and showed notable growth over the year, as shown in Fig. 3-1. Within the set of indicators for planning lessons and assessments focused on skills, 31% of indicators were evident in the baseline school visits across the institute. Following further support from MPI, the planning indicators evident doubled to nearly two-thirds being present in year-end visits. Similarly, indicators of the actual implementation of instructional practices in the classroom increased over the year, rising from 11% being evident in baseline visits to nearly triple that seen in classrooms across the institute by the end of the year. While still showing room for further growth, these patterns suggest that MPI support is contributing to a steady strengthening of the approaches teachers take to support the skill growth of their students.

FIGURE 3-1. Skill-based Instruction: Percent of Indicators Evident

Evidence of MPI-supported teachers planning and implementing skills-based instruction increased over the school year.

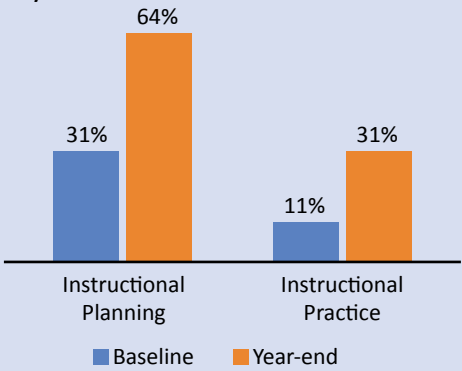
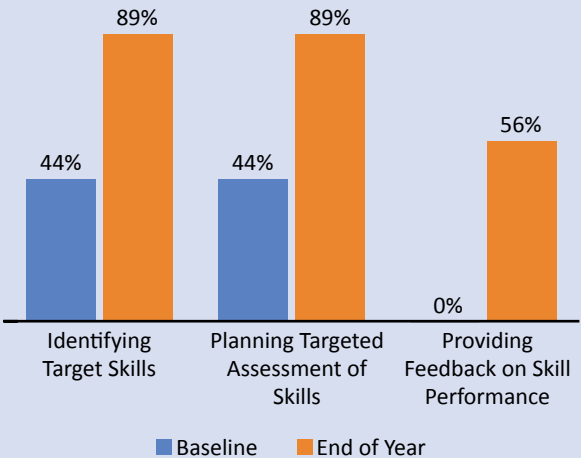


FIGURE 3-2. Schools Demonstrating Key Indicators of Skill-based Instruction

The number of MPI schools showing evidence of core instructional steps increased over the year.



Looking more closely at specific teacher moves, Figure 3-2 illustrates that teachers made notable growth in three core indicators of effective skill-based instruction: identifying target skills, planning targeted assessment of skills, and providing feedback on skill performance. For all three indicators, less than half of MPI schools were able to demonstrate them in baseline visits, with no schools showing evidence of feedback on skill performance. By the end of the school year, the number of schools showing these core indicators of quality skill-based instruction more than doubled. Teachers in nearly all schools (89%) demonstrated an explicit identification of key skills and an ability to design assessments aligned to those skills. Additionally, teachers in a majority of schools (56%) followed up on these skills-based activities with feedback to students on how well they were performing with those skills.

Snapshot of Progress:

Voyages South Preparatory High School

Over the course of the year, teachers at Voyages South HS honed their instructional strategies to more effectively teach skills to students. Leading into the year, the school had worked with MPI to develop and codify a set of skills-based instructional strategies around questioning, determining importance, and making inferences. As the implementation of these strategies spread across classrooms, the MPI team created routines like intervisitations and a protocol for looking at student work to monitor the impact of the instruction and reflect on ways to make improvements. The protocol supported teachers in collaboratively reviewing observations of students and their successes and challenges in demonstrating skills in class work to continuously refining their codified skills-based instructional strategies. The principal of Voyages South relates the progress they've seen through this MPI work, "Teachers are now identifying skills students need, coming up with activities, and then modeling those skills in the classroom. They also look at student work to adjust and figure whether or not those strategies are working, so they're kind of like their own little laboratories that are building those specific activities to teach skills."

Teachers are strengthening feedback routines.

Feedback to students improved alongside growth in skills-based instruction and, within a subset of schools particularly focused on feedback, with a rise of research-based feedback methods.

Over the course of the year, MPI teachers deepened their understanding of effective feedback practices, as well as their provision of quality feedback to students. Within the institute in 2018-19, there were two schools whose MPI work focused specifically on engaging with research and using that research to create structures for delivering effective feedback. Visit data from these schools was analyzed for evidence of specific indicators related to effective feedback practices, which showed notable areas of growth (Figure 4-1). Within these schools, the amount of evidence that teachers understood research-based feedback strategies increased throughout the year. Additionally, the schools went from demonstrating no indicators of creating research-based feedback tools, to 70% of those indicators being evident in year-end visits.

Beyond the group of feedback-focused schools, additional MPI schools demonstrated growth in indicators related to their provision of feedback as part of their skills-based instruction

FIGURE 4-1. Quality Feedback: Percent of Key Indicators Evident

Over the course of the school year, MPI-supported teachers increasingly worked using best practices and tools.

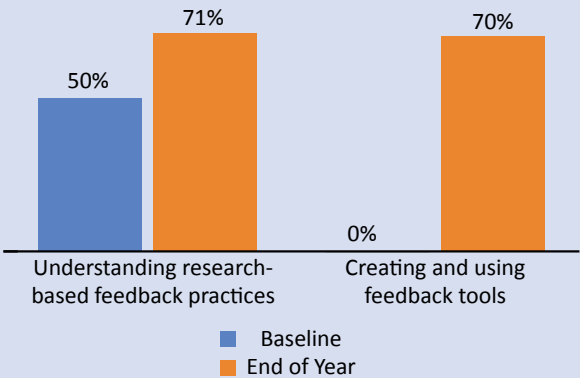
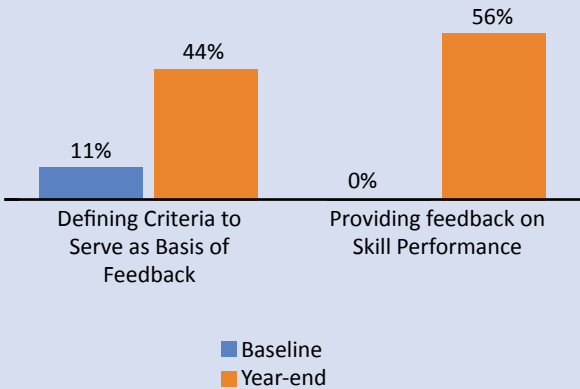


FIGURE 4-2. Schools Demonstrating Key Indicators of Quality Feedback

The number of schools integrating intentional feedback steps into skills-based instruction increased over the school year.



work (Figure 4-2). In gathering data about skills-based instructional planning, MPI visitors first looked for evidence of the precursor to effective feedback, teachers defining criteria as reference points for feedback on student skill performance. By the end of the year, four times the number of schools at the baseline visit showed evidence that they were defining such criteria for skill performance. Similarly, as noted in Finding 3, evidence of delivering feedback to students about their skill performance went from no evidence across schools during baseline visits to being present in over half of MPI schools by year-end.

Snapshot of Progress:

Urban Dove Team Charter School

In the 2018-19 school year, the MPI team at Urban Dove focused specifically on developing feedback practices aligned to schoolwide competencies they had developed in previous MPI work. Working with their MPI coach, the team applied research-based ideas to create a tool that guides teachers and students through the discrete steps needed to engage with skills and apply feedback to improving performance. The tool highlights specific competency-based expectations of the assignment and prompts students to think ahead about how they will demonstrate the related skills. It also includes space for teachers to highlight strengths and “one small next step” in response to students’ work, which they record alongside self-reflection from students. Teachers point out that this is leading them to give feedback more frequently, and in more targeted ways: “We usually focus on just one or two competencies for an entire unit, that way our feedback is pretty specific to see growth to the next steps.” Students are noticing. One Urban Dove student comments, “I care a lot about the feedback we get, the feedback helps us know what we want to do to be better.”

SECTION 3:

Impact on Students

The ultimate goal of all MPI support is improved student learning. Recognizing that a foundational component of students' long-term academic success is their metacognitive awareness of expectations for demonstrating skills and steps they can take to improve their own performance, the institute works with teachers to build students' metacognition. Using a set of metacognitive prompts, the study gauged the impact of this instructional focus on student metacognitive growth.

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**Increase
Student
Metacognition**



**Improved
Student
Outcomes**

MPI classrooms support students’ metacognitive growth.

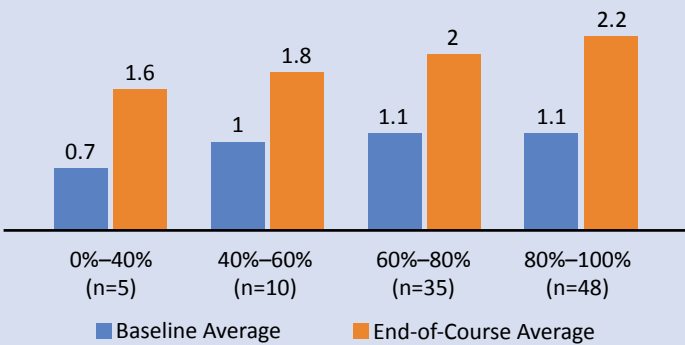
Student responses to metacognitive prompts show stronger metacognition over time, especially for those receiving the most MPI-supported instruction.

As part of the culmination of their MPI experience, five schools completing their third year in the institute specifically measured student metacognition within courses taught by MPI-supported teachers. Near the beginning of the course, teachers asked students to respond to a set of questions prompting them to demonstrate metacognition around their work on a course assignment. This included asking students to describe skill expectations, reflect on their work, and explain strategies for making improvements. Student responses were rated with a rubric-based score from 0 to 4 to provide a baseline measure of students’ metacognitive awareness.

As the course continued, teachers implemented classroom strategies they had developed with MPI coaches and received ongoing support to strengthen their explicit skills-based instruction to students. At the end of the course, teachers again asked students to respond to the prompts around a course assignment, and a comparison to the baseline showed clear evidence of growth in student

FIGURE 5-1. Metacognitive Response Scores by Attendance Levels.

Students that had more time in MPI-supported classrooms showed greater growth in metacognitive awareness.



metacognitive awareness over time in all participating schools. Across all students who completed both baseline and end-of-course responses, their rubric-based scores grew from an overall average of about 1.0, which represents an emerging ability to name what they are learning and a next step, to a 2.0, which represents being able to describe specific challenges encountered in an assignment and a change to make in the future. Notably, this growth occurred over a short window of one course so does not represent the full potential of student growth but offers evidence of the efficacy of the MPI-supported instructional strategies and the promise of more substantial long-term impact with continued support.

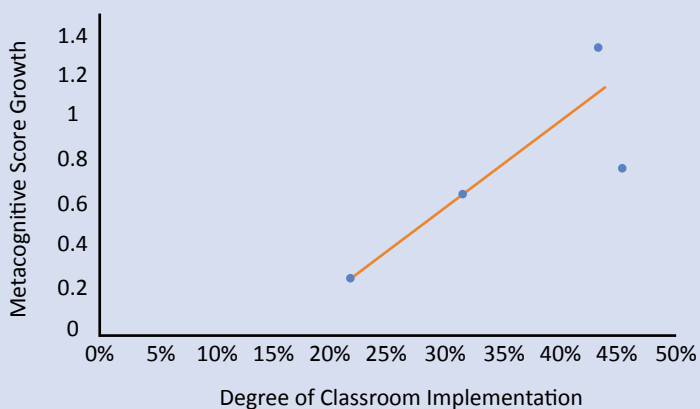
A sample of responses from a student completing the metacognitive prompts after a writing task in her ELA class exemplifies this average growth. At the beginning of the course, she wrote,

“On this task I was showing the skills of making an argument and inference. (A challenge was) finding evidence. (What I can do better is) trying myself.” At the end of the course term after a similar task, she wrote “On this task I was showing the skills argument and inference. (A challenge was) I did not give good evidence but my point was clear. (What I can do better is) I could write more or I could use details from the reading.”

In addition to the overall trend of growth, a closer look at the score data shows that there was a relationship between students who earned higher scores on their end-of-course responses and the amount of their exposure to MPI-supported instruction. As shown in Figure 5-1, students with strong attendance during the time period of this study earned higher average scores on their end-of-course metacognitive prompt responses compared to students who attended fewer days of school. Students with attendance levels of 80-100% doubled their scores over that time. It is also notable that within these transfer schools, which often support students who are unable to attend school consistently, students from all attendance bands

FIGURE 5-2. Change in Metacognitive Response Scores by Degree of MPI Classroom Implementation

Schools with evidence of a greater degree of MPI implementation in classrooms also saw the greatest growth in students’ metacognitive awareness.



demonstrated growth by the end of the course.

When looking at this student score data alongside data collected about educator practice during the school visits, there are additional trends that underscore the effectiveness of MPI-supported instruction. Organizing schools by the strength of MPI implementation that was evident in their year-end visits (which occurred in the same time period that metacognitive prompts were administered to students) reveals that schools with stronger evidence of implementing MPI work in classrooms also saw more growth in student scores on metacognition responses. Figure 5-2 illustrates the higher amount of metacognitive score growth in schools who also showed higher levels of implementing MPI- based instructional tools and practices. Doing this analysis with a larger sample of schools could provide a stronger test of this correlation, but this trend within the current set of schools that have both student score and year-end visit data suggests that MPI support, as anticipated by the theory of change, is creating conditions for stronger metacognitive development in students.

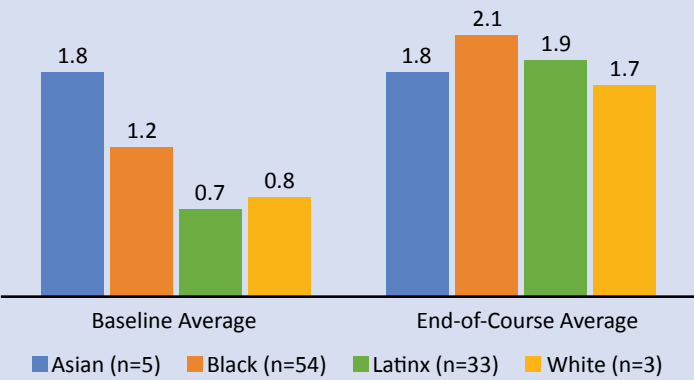
Growth in student metacognitive awareness is narrowing equity gaps.

As students are developing metacognitive awareness, the score differentials between subgroups of students are evening out, suggesting that practices implemented in MPI classrooms are increasing equity and providing all students with effective learning opportunities to grow their metacognitive abilities.

Equitable learning opportunities across the school system would cultivate all students’ metacognitive skills, however, disaggregating student data from the metacognitive prompts shows students’ prior learning experiences did not equally support all ethnicities. There are multiple gaps evident in the metacognitive awareness at the beginning of course, but after receiving MPI-supported instruction, subgroups who scored lower at first experienced more growth and caught up with their peers in a way that closed the gaps observed in baseline data. For instance, Figure 6-1 shows how students from all ethnic groups (excluding Asian students, whose average scores remained generally consistent over time) demonstrated growth in their metacognitive development. There was an average score gap of 1.1 between highest and lowest-scoring subgroups in the baseline but this shrank to a notably narrower gap of 0.4 in end-of-course averages. Specifically, the

FIGURE 6-1. Metacognitive Response Scores by Ethnicity

Metacognitive awareness grew for students during the course term in a way that narrowed differences across ethnic groups.



largest subgroups, Black and Latinx students, demonstrated about one full rubric level of growth (average score increases of 0.9 and 1.2 respectively) by the end of their course.

(Note: While their growth is reported here, there is a statistically small sample of students who identified as white and completed the prompts. Additionally, the student count for students who identified as Native American or multiracial was too low to report).

Similarly, students who were English Language Learners (ELL), while also being a somewhat small sample,

demonstrated lower metacognitive prompt scores relative to non-ELL students at first, but experienced greater growth by the end of their course (Figure 6-2). In baseline responses, their average score was less than half that of their peers. However, at the end of their course, the average score for ELL students rose to 4.5 times their baseline score and nearly matched the average end-of-course score of their peers. Notably, non-ELLs also demonstrated robust growth, nearly doubling their metacognitive scores during the course term.

The same trend held for students with individualized education plans (IEPs) who also demonstrated growth in their metacognitive scores and narrowed gaps (Figure 6-3). Their average baseline score was less than half the average score of their peers without IEPs, however, their average score at the end of their course represented growth nearly four times higher than their average baseline score. Importantly, their average end-of-course score was comparable to the average end-of-course score of their peers. Students without IEPs also showed growth in this time, nearly doubling their baseline average score by the end of the course term.

FIGURE 6-2. Metacognitive Response Scores by ELL Status

The gap between ELL students and non-ELL students evident in baseline scores was nearly closed by the end of the course term.

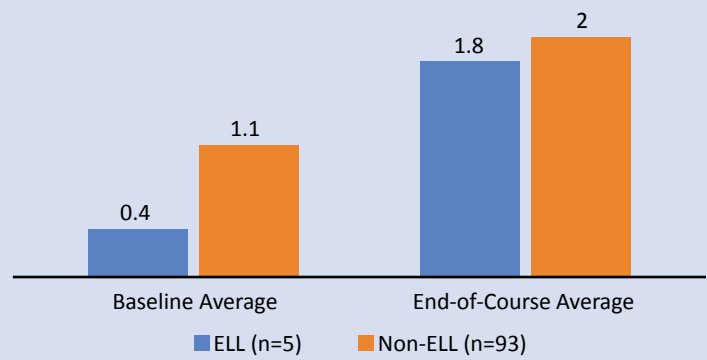
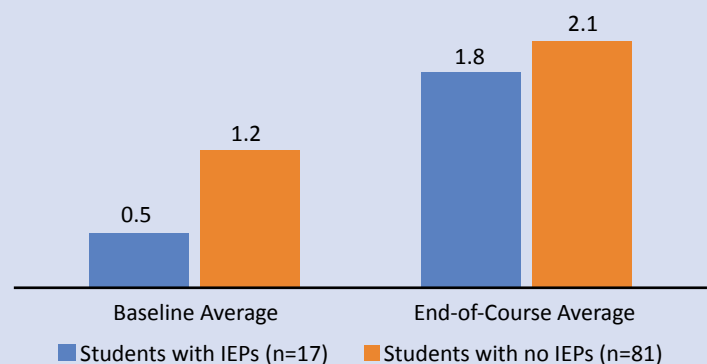


FIGURE 6-3. Metacognitive Response Scores by IEP Status.

The gap between students with IEPs and students with no IEPs evident in baseline scores was greatly reduced by the end of the course term.



Appendix A - 2018–19 MPI Schools

School Name	Years in Institute	Visit Focus Area
Aspirations Diploma Plus High School	2	Skills-based Instruction
Bronx Community High School	2	Skills-based Instruction
Bronx Haven High School	2	Skills-based Instruction
Brooklyn Academy	2	Feedback & Conferencing
Brooklyn High School for Leadership and Community Service	1	Skills-based Instruction
Cascades High School	2	Skills-based Instruction
Innovation Diploma Plus High School	3	Skills-based Instruction
New Directions Secondary School	1	Skills-based Instruction
Olympus Academy*	3	Feedback & Conferencing
Voyages Preparatory High School	3	Skills-based Instruction
Voyages South High School	3	Skills-based Instruction
Urban Dove Team Charter High School-I	3	Feedback & Conferencing

*Did not receive a year-end data collection school visit and not included in analysis for findings 1–4.

Appendix B - Sample Agenda for Data Collection School Visit

Time	Institute Visitor	Embedded Coach/Facilitator Visitor
8:00-8:30	Arrive, introduce self to principal, get ready	
8:30-9:00	MPI teacher team group interview Room: 301	Non-MPI teacher team group interview Room: 302
9:07-9:47	Co-observe a classroom and have a brief norming conversation about observations Classroom: 304	
9:49-10:29	Observe two more classrooms alone (MPI) Classroom 1: 404 Classroom 2: 301	Observe two more classrooms alone (Non-MPI) Classroom 1: 302 Classroom 2: 411
10:31-11:11	Student group interview(s) Room: 310	
11:11-12:15	Artifact Review and Flex Time: <ul style="list-style-type: none"> • Review artifacts to identify evidence of look-fors • Gather any missing items • Ask clarifying questions of staff where needed • Reflect on data collected thus far and places to collect more to be able to consider all relevant look-fors • Use flex time to observe meetings or PD if possible, talk to additional staff where helpful • Prepare for principal interview by determining priority areas to probe 	
12:15-1:00	Principal interview Room: 310	
1:00-1:45	Visitor Debrief: <ul style="list-style-type: none"> • Do a final check on the completeness of data and ask for any necessary clarification or additional piece of data. • Institute visitor and Embedded visitor reflect on look-fors and discuss initial ideas of what was evident for Institute visitor to be ready to do write-up. • Email principal and team to say thank you and share a few positive highlights. 	

Appendix C - Data Collection School Visit Indicators:

Leadership and Strategic Planning

Understood	The principal articulates a coherent and focused set of goals for the schools that connect to instructional practice. In succinct and clear terms, the principal can connect practices and systems in the school to a focus on developing students' key learning strategies, learning mindsets, mastery of competencies, climate of engagement, and postsecondary readiness.	The principal and program director: <ul style="list-style-type: none"> • Articulates a coherent set of goals for the school. • Clarifies and simplifies the goals sufficiently for them to be manageable. • Connects these goals to instructional practice. • Connects these goals to support for students with IEPs. • Connect practices and systems in the school to a focus on developing students' key learning strategies, learning mindsets, mastery of competencies, climate of engagement, and postsecondary readiness.
Planned	The school's stated plans for professional development, common planning time, teacher observation, and counselor supervision connect to a coherent, clear and focused set of goals that will develop students' key learning strategies, learning mindsets, mastery of competencies, climate of engagement, and postsecondary readiness. There is an intentional approach leadership can describe for supporting adult learning and distributed leadership within the school.	The school's stated plans reflect the same coherent, clear, and focused goals from the principal in: <ul style="list-style-type: none"> • Professional development • Common planning time • Teacher observation • Counselor supervision • Materials shared with the principal's supervisor (i.e., superintendent) • Materials shared with the program director's supervisor (i.e., CBO partner) Organizational development is clearly tied to: <ul style="list-style-type: none"> • A stated approach for cultivating adult learning • Sessions that reflect a developmental trajectory that progresses over time • Strategically distributed leadership in the school • A multi-year plan for the school's development
Practiced	In professional development, common planning time, and supervisory observations of teaching and counseling, the language the principal and other key leaders use reflects the same coherent and focused set of goals. Agendas as written or described by staff reflect an intentional approach to adult learning. Roles and responsibilities draw upon staff with experience, support from peers, and strong time management to distribute leadership.	When observed, the same set of coherent and focused goals and philosophy of organizational development are reflected in: <ul style="list-style-type: none"> • Professional development meetings LL • Interconnection from past PD sessions to current, reflecting a developmental arc • Common planning time • Supervisory observations of teaching • Supervisory observations of counseling • Agendas written or described by staff for meetings • Roles and responsibilities draw upon staff with experience, support from peers, and strong time management to distribute leadership.
Recorded	Staff throughout the school use the same language as leadership to discuss their learning goals. Staff and leadership can produce artifacts that serve as evidence of their own work towards these goals, and discuss and reflect on their own growth and efforts in relation to these. School leadership reviews staff progress in these areas and looks for trends.	Staff throughout the school use the same language as leadership to: <ul style="list-style-type: none"> • Discuss their goals for students. • Produce artifacts that serve as evidence of their own work towards these goals. • Discuss and reflect on their own growth and efforts. • Discuss how school leadership supports their growth.
Systematized	School leadership and staff can describe a multi-year path for development in relation to stated goals. They can situate where the school is in its progress based on what has happened last year, what is happening in the current months, what is happening by the end of this year. Leadership can further articulate how this year's work ties to next year's plans.	A multi-year path for development in relation to stated goals is evident in: <ul style="list-style-type: none"> • School leadership and staff can situate where the school is in its progress based on what has happened last year, what is happening in the current months, what is happening by the end of this year. • School leadership can further articulate how this year's work ties to next year's plans.

Appendix C | Data Collection School Visit Indicators:

Focus on Skills

Understood	Teachers and Instructional leaders can explain that targeted skills must be taught through explicit instruction wherein teachers model their thinking processes to students in order for students to learn how to think about the skills they are using. Additionally, teachers and instructional leaders can explain that this process of making the “invisible visible” must be planned in their lessons and taught by using various instructional modalities. Teachers and instructional leaders can also explain that targeted skills must be surfaced from unit assessments so that skills are intentionally taught and applied by students as they work towards an end-of-unit assessment.	<p>If asked, teachers and instructional leaders can explain that targeted skills can be:</p> <ul style="list-style-type: none"> • Explicitly taught by making their thinking visible to students • Intentionally planned for in lesson plans • Taught using a variety of instructional modalities (think aloud, providing examples, student demonstration, inquiry, guided practice, teacher modeling) • Surfaced from unit assessments • Must be taught in order to scaffold students towards and end-of-unit assessment
Planned	Teachers can describe how they will explicitly teach skills in their lesson plans by writing out the thinking processes that they will use to model a targeted skill. Additionally, teachers include “look-fors” within their plans that will guide their feedback to students on the targeted skills once they have been modeled and students are applying them. Also, in their lesson plan, teachers design a formative assessment that directly assesses the students’ learning of the taught skill.	<p>In lesson plans, there is evidence that teachers have:</p> <ul style="list-style-type: none"> • identified targeted skill(s) to explicitly teach (surfaced from unit assessments) • explained how the targeted skill will be made “visible” to students • included “look-fors” that will guide their feedback when conferring with students about their application of the targeted skill • planned a formative assessment that assesses student learning of the targeted skill
Practiced	During a lesson observation or inter-visitation, teachers explicitly teach targeted skills. Teachers can make use of a variety of instructional modalities to explicitly teach the targeted skill including: think-aloud, providing examples, student demonstration, inquiry, guided practice, or teaching modeling. Once they have explicitly taught the skill, teachers confer with students and have them reflect on their own understanding and application of the targeted skill. Finally, teachers assess students on the application of the targeted skill.	<p>When observed explicitly teaching skills, teachers can demonstrate:</p> <ul style="list-style-type: none"> • An intentional selection of the instructional modality for explicitly teaching the targeted skill based on student needs, IEPs, and the skill itself • How their thinking processes informs how they apply a skill (In the lesson plan and instruction) • How the targeted skill will be applied by students • Conferring and providing feedback to students about their application of the explicitly taught skill • An assessment of the students’ application of the targeted skill
Recorded	During common planning meetings, inquiry meetings, or professional development, teachers and instructional leaders assess student work, wherein students have applied the explicitly taught skill, to evaluate the effectiveness of their instruction. Additionally, teachers discuss and finalize instructional methods, based on effectiveness in student learning, to share school-wide. Teachers and instructional leaders work together to create an evaluation or criteria tool for explicitly teaching skills that guides their instructional growth in this area. Instructional leaders and fellow teachers can then provide feedback to each other on their explicit instruction of skills using the collaboratively-designed evaluation or criteria tool during inter-visitations, common planning meetings, and professional development.	<p>Artifacts of this work (student work, lesson plans, inter-visitation data, etc.) enable teachers to analyze:</p> <ul style="list-style-type: none"> • The impact of explicit instruction of skills on student learning • How students are thinking about a target skill; student reflection on growth in a target skill • How their own growth in explicit instruction has progressed and develop a criteria tool to facilitate further professional development in this area • What instructional modalities are the most effective in explicitly teaching skills and codifying those instructional practices across the school
Systematized	Instructional leaders plan opportunities in professional development, inter-visitations, and common planning meetings to engage teachers in learning, planning, applying, and evaluating explicit instruction of skills and its impact on student learning. Teachers consistently design lessons that utilize explicit instruction when teaching targeted skills while also turnkeying their refined instructional practices to the rest of the staff, when necessary. Explicit instruction of skills is an integral part of every class and students are able to track their skill development progress in targeted skills.	<p>Leadership and teachers are able to demonstrate the following:</p> <ul style="list-style-type: none"> • Opportunities in professional development, inter-visitations, and common planning meetings to work on the explicit instruction of skills • Consistent, effective instruction of explicitly teaching targeted skills • Student tracking of skill development progress on targeted skills • Codified instructional practices around explicit instruction of skills based on data and refinement of practices

Appendix C | Data Collection School Visit Indicators: Feedback/Conferencing

Understood	Teachers can explain that feedback to students should be frequent, two-way, aligned to skills and strategies, use language that supports students' sense of self-efficacy and ability to improve, highlight recent strengths, and offer one to two challenging goals for improvement.	<p>If asked, teachers can refer to an exemplar to explain that feedback to students should:</p> <ul style="list-style-type: none"> • Occur with students multiple times per term • Prioritize particular students based on need, IEPs, and skills • Align to 1-2 specific identified, rigorous skill-based learning targets that have been previously explicitly introduced in class • Be two-way as teacher gets and gives feedback from and to student • Use language that supports students' sense of self-efficacy and ability to improve • Highlight recent strengths • Offer 1-2 challenging goals for improvement
Planned	In lesson plans and curricular materials, there is evidence that teachers have explicitly introduced learning targets that can be used for feedback, approaches to giving feedback, and scheduled time, activities, and materials within multiple class periods for feedback to occur between teacher and student, as student self-assessment, and peer-to-peer.	<p>In lesson plans and curricular materials, there is evidence that teachers have normed use with colleagues in how they:</p> <ul style="list-style-type: none"> • Explicitly introduced learning targets that can be used for feedback • Explicitly introduced approaches they will use to give feedback • Included materials to be used for feedback • Scheduled time and activities within multiple class periods for feedback to occur between teacher and student, such that priority students in the class receive feedback at least monthly • Scheduled time and activities that incorporate student self-assessment into feedback • Scheduled time and activities that peer-to-peer feedback into feedback
Practiced	When observed giving verbal or written feedback to students, teachers intentionally highlight 1-2 past strengths aligned to learning targets for the class and suggest 1-2 specific, challenging next steps in conjunction with seeking student reflection and suggestions on both.	<p>When observed giving verbal or written feedback to students, teachers:</p> <ul style="list-style-type: none"> • align to learning targets for the class • explicitly connect learning targets to rigorous research-based standards such as Common Core • seek student reflection on next steps • intentionally highlight 1-2 past strengths • seek student reflection on strengths • suggest 1-2 specific, challenging next steps
Recorded	Teachers throughout the school are able to produce artifacts of discussions in which students have regularly recorded self, peer-to-peer, and teacher-dialogue, including identification of specific strengths and strategies aligned to consistent classroom learning targets.	<p>In artifacts of student work produced by students throughout the school, teachers and counselors show that they have developed a refined tool that has developed through practice:</p> <ul style="list-style-type: none"> • Recorded reflection on assignments • Identified specific strengths • Identified specific strategies • Aligned to consistent classroom learning targets • Repeated this for priority students as many times as is the current month of the school year
Systematized	Principal, program director, assistant principal, and others responsible for supporting and supervising teaching staff provide time in professional development and materials for use by staff to understand, plan, practice, and record feedback cycles with students, and use discussion and analysis of feedback to refine the practice and identify trends.	<p>Leadership responsible for supporting and supervising teaching staff have created school-level policy evident in how they:</p> <ul style="list-style-type: none"> • Provide time in professional development to understand and plan feedback • Provide materials to plan and practice feedback • Provide materials to record feedback • Use discussion and analysis of feedback to refine the practice and identify trends

Appendix D - Metacognitive Prompts Administered for Student Responses

- I was able to show I can do the following skills (list skills or processes) or processes on the assessment by...
- These skills or processes will help me in the future by...
- The ways in which my skills and knowledge have changed through this unit are...
- I found the following to be challenging on the assessment. (List what you found challenging)
- One way I tried to overcome those challenges was by...
- One way that I could have done better on this assessment is by...
- In the future, I think I should _____ when it comes to assessments.

Appendix E - Rubric for Scoring Student Responses to Metacognitive Prompts

0	1	2	3	4
No evidence of metacognitive awareness around skills and challenges	<p>I can describe the content and skills I've learned through the unit/assessment.</p> <p>I can identify something I found challenging.</p> <p>I can talk about one thing I could have done better.</p>	<p>I can describe the content and skills I've learned through the unit/assessment, as well as how they are valuable to me in the future.</p> <p>I can identify one or more specific challenges I faced during the unit/assessment, as well as ways I tried to address them.</p> <p>I can describe one thing I will do differently in the future.</p>	<p>I can use details and examples to describe the content and skills I've learned through the unit/assessment, as well as how they are valuable to me in the future.</p> <p>I can identify one or more specific challenges I faced during the unit/assessment in detail, as well as ways I tried to address them.</p> <p>I can explain specific changes I will make to my learning process next time, as a result of my learning.</p>	<p>I can describe the content and skills I've learned through the unit/assessment with details and examples, as well as how they are valuable to me in the future.</p> <p>I can explain how my skills and knowledge have grown during the unit/assessment.</p> <p>I can use details and examples to describe several different challenges I faced during the unit/assessment using, as well as ways I tried to address them.</p> <p>I can explain specific changes I will make to my learning process next time, as a result of my learning.</p>