Effective Implementation Cohort

Data Practices, Use, and Needs Among Providers, Executive Sponsors, Coaches and School Districts Implementing High-Quality Middle School Math Curriculum

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Prepared for the Bill & Melinda Gates Foundation by

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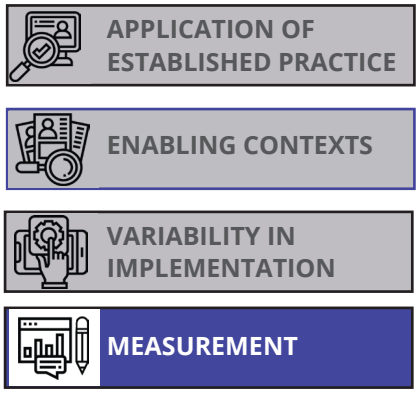
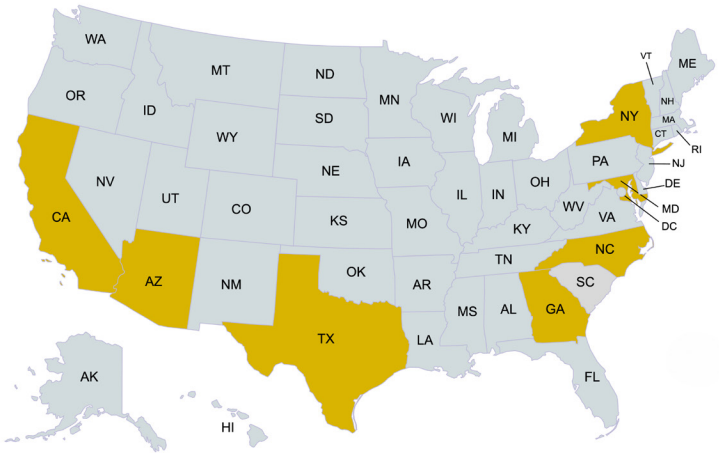
The Effective Implementation Cohort (EIC) initiative funded by the Bill and Melinda Gates Foundation was designed to support effective implementation of a high-quality middle school math curriculum. As a Learning Partner, the National Implementation Research Network (NIRN) seeks to support partnerships between providers and school districts in their implementation and measurement efforts and collect and study data to answer the investment's learning questions within the cohort-wide learning agenda.

LEARNING QUESTION 3 OF 6:



NIRN NATIONAL IMPLEMENTATION RESEARCH NETWORK
FRANK PORTER GRAHAM CHILD DEVELOPMENT INSTITUTE

To better understand current data practices, identify what data were most useful to EIC grantees, and uncover any unmet data needs, NIRN conducted 47 semi-structured interviews and listening sessions with Providers, Executive Sponsors, and district and Provider staff providing instructional coaching. Interviewees represented 12 curriculum provider organizations and 15 school districts across 7 states.



WHAT ARE THE CURRENT DATA PRACTICES?

1 Value data is integral part of implementation work

> ***A big success is that data review is not seen as the separate event or the separate thing, but it's actually just a natural part of what we're doing.*** (Provider)

Providers emphasized the importance of data in implementation work and regularly met with Executive Sponsors, District Teams, and Coaches to review data and discuss findings. One notable success highlighted by several district teams was their approach to data as an integral part of implementation work rather than a separate activity.

2 Use of multiple data sources

Executive Sponsors, Providers, and Coaches reported utilizing multiple data types and methods (e.g., observational data, survey data, assessments scores, focus groups, walkthroughs) from a variety of sources (e.g., principals, teachers, students). Data collected usually included both qualitative and quantitative information. Data collection and visualizations were reported to occur through Google forms or via electronic systems or platforms, such as Tableau, Power BI, SchoolNet, and internal district websites.

> ***In our district, we have multiple different data platforms that we use. We use Tableau, we use Power BI, we use SchoolNet. We use an internal program that we have that, an internal website you can go to.*** (Executive Sponsor)

Sources of Data

Executive Sponsors mentioned formal teacher or student surveys, student exit tickets, rubrics used to assess teachers' and students' understanding of concepts, observations, check-ins, and informal conversations.

Formal sources of data cited by **Coaches** included observational data gathered during classroom walkthroughs (often conducted in collaboration with school administrators and sometimes with other teachers or coaches) and student data (e.g., test results, work products, exit ticket or survey results, and observations of students working). **Coaches** mentioned the following informal sources of data: observations of teachers' engagement in learning and professional development and asking for feedback on teacher learning from colleagues, coaches, or others.

Providers reported collecting data through focus groups, surveys, student work, pre and post-professional learning assessments, and classroom walkthroughs and observations.

3 Focus on data triangulation

Executive Sponsors, Providers, and Coaches agreed that usual practice was to examine data from multiple sources and collection points prior to drawing conclusions. Rarely did they report exploring one data point in isolation from other existing evidence.

> ***So I think we have to look at data from multiple lenses. We can look at first the formative data that we get from the end of the sessions to know where we need to make improvements. We can also look at data from teacher understanding. We have brought in student work to professional development to try and look at it from a formative lens, looking at what did the students know and understand. But I think then we also have to look at data from a summative assessment. So looking at the State assessments to see where the students showing either a high understanding of the concepts and skills or a lower understanding of the concepts and skills, because that data will also help us inform where we need to put more prioritization to the professional development. We can also look at data from, we do have the Mobi Mac system within the district. We also have IXL. So what does the benchmark assessments that we're using within the district also tell us about skills and understanding. So that's another set of data that we can use to help us support those professional developments.*** (Executive Sponsor)

4 Access to sufficient amount of data

There was agreement that an amble amount of data was available, with no need to add additional data or collection points. One noted challenge was finding the time to analyze all this information in a timely and meaningful way.

> ***I think we have enough data. I wouldn't suggest any more. I can't think of something that I really would need to see. I think what's provided already is pretty sufficient.*** (Coach)

> ***I don't think we've run into a lot of challenges. We've streamlined it, so everybody has their own link for their school. I think it's just them finding the time to actually get in there and look at it. And then understanding, okay. Here's the data. Now, what do I need to do with it?*** (Executive Sponsor)

5 Multi-purpose use of data

Executive Sponsors, Providers, and Coaches used data for a variety of purposes, including to:

- **Understand the program impact on teacher and student outcomes**

> ***We're actually administering our teacher and student survey here in the spring, but we're looking at growth over time for student and staff efficacy, capacity, and perception of themselves as mathematicians and math educators. As well as where they think we're looking at specific academic outcome data.*** (Executive Sponsor)

- **Evaluate implementation progress and curriculum fidelity**

> ***We gather data three times a year in regards to see, hey, how is this impacting the system? We'll observe multiple classrooms and see a broader system impact, we have coaching to support individual teachers with implementation of curriculum on school site, and then we get constant feedback on that. And then within the coaching component, we're doing inquiry cycles around problems of practice and then we'll get feedback within the problems of practice, then with that work we should begin to see movement on implementation, like integrity of implementation.*** (Provider)

- **Guide conversations, make decisions about next steps, and set priorities and goals**

> ***Thinking about the purpose of each of the data points and making sure that we're having conversations both at our weekly meetings for sponsor driver, but also during our district implementation team meetings, to be able to think about what is this data source, what are we using it for, what do we need to do with it, so to have those conversations both at the district level, then at the school level as well.*** (Provider)

- **Engage in shared learning, professional development, and Professional Learning Communities (PLC) activities**

> ***I'm able to use that data from the walkthrough data. And at three o'clock when they have their PLC at the end of the day, the math department, I was sitting there with the strategist and we would look at the data and then from two o'clock to three o'clock, we would prepare a presentation for the PLC based on that data that day. And I thought that was pretty remarkable.*** (Coach)

6 Appreciation of tailored sharing and dissemination

Executive Sponsors and Providers emphasized the need to collectively examine data and disseminate findings to a variety of critical perspective groups, including district teams, superintendents, teachers, and families. Executive Sponsors reported often taking a lead communication role, with Providers and Coaches supporting these efforts. For instance, Coaches frequently served as communication mediators between Providers and teachers because of their connection to both.

Of note, it was difficult to determine if or how data were disseminated to families, with many tending to rely on principals and teachers to share directly with families/caregivers. All were cognizant of the need to be sensitive about what and how data were shared, recognizing that the same information may be presented in different ways to different audiences.

WHAT DATA WERE PARTICULARLY USEFUL?

1 Data that were actionable

Executive Sponsors, Providers, and Coaches most frequently used data that helped them pinpoint where to make changes. They refrained from using data that were too broad to identify needed next steps. For example, Providers made sure they were purposeful with survey data to facilitate any conversations with district teams about next steps.

> ***One that I would say that we have a growth opportunity with are the survey results, thinking about what are the principals saying, what are the teachers saying, what are the students saying, and really leveraging those in conversations of what we need to keep doing and what we need to change with our partnership but then within the district team, what do they need to work on in support of leadership, teachers, and students?*** (Provider)

2 Data that aligned with the questions of interest

> ***Ultimately we want to see if what we're doing is impacting student performance. So finding if we can find a direct link between what we do and student performance, that would be ideal.*** (Coach)

According to interviewees, the most useful data were those that were aligned with whatever questions they were interested in answering. For example, Coaches tried to collect student-level data that were most aligned with what they covered in their coaching with teachers.

3 Data that were perceived as valid and reliable

Data credibility was raised as a major area of concern by Coaches. Coaches frequently disregarded data if they questioned their validity and reliability. For example, they made every effort to use student-level data that were collected soon after the teacher had taught a particular concept, rather than rely on more generic student assessments.

> ***Because many of our data that we use here, when we compare it, we might notice, they did good this time and it's the same test. And the second time that they took it and was lower, then what's going on? Because we have to look at that student engagement. Are the kids actually taking this serious because it's not a grade for them? So is that data actually really relevant to what we're doing? So I would say we are learning more and using that data is more beneficial when it's the class visits again. How many students were active? How many students did really understand the standard? Did they really meet the standard? That data right there is more relevant instead of all the other data that they're making us analyze.*** (Coach)

4 Data that were easily accessed and understood

> ***Those were the strongest things. With the XXX surveys, that... Not just digestible, but I guess approachable. It made you want to look at the raw data. So with the highlights and headlines, and asset-based statements, it made you want to dig deeper into it.*** (Provider)

Providers, Executive Sponsors, and Coaches identified data that were easily accessed, collected, and understood as being highly preferable. For instance, Providers reported that survey results that included highlights, headlines, and asset-based statements were particularly appealing to district teams, making them more likely to want to dig deeper into the data. Providers also noted use of data dashboards to both help with their own understanding of schools' performances (internal dashboard) and facilitate discussions with district teams (external dashboards).

Observations, classroom walkthroughs, and student data collected soon after a lesson was taught (e.g., exit tickets) were favored by interviewees. In addition, Providers identified the District Capacity Assessment (DCA) as being particularly useful in understanding implementation capacity levels. Executive Sponsors were partial to any easily understood data informing how they could best support teachers and students with implementation of the curriculum. Most reported that formal downstream student assessments were least useful, with mixed feelings about the usefulness of student work samples. Some Providers wished Coaches would infuse student work samples into their conversations with teachers, while other Providers expressed that student work samples are not useful because they are not collected with fidelity.

Table 1: Data Type Summary

Interviewee Group	Data Type	
	Most Useful	**Least Useful**
Executive Sponsors 	Student work products Classroom walkthroughs and observations Exit tickets Student feedback on perceptions of curriculum	Downstream formal student assessments (e.g., State assessments on student achievement) Teacher professional development feedback forms Student benchmark data
Providers 	Survey reports with highlights, headlines, and asset-based statements Observations Student work samples (including unit assessments) District Capacity Assessment (DCA)	MAP data Downstream formal student assessments Student work samples Student health data
Coaches 	Any data highlighting how teachers and students could be further supported with math curriculum Any data that provide them insight into teachers' teaching and students' understanding as a result of the coaching Observations (student engagement) Student-level data that were captured soon after the teacher has taught that concept	Student assessments created by curriculum developers

WHAT ARE ADDITIONAL DATA NEEDS?

1 Focus on timely in-depth analysis and expand on intentional use of data for action

Although appreciative of the availability of data, all three groups called for opportunities to conduct more in-depth, timely, and targeted analyses aligned with a particular stated purpose rather than simple data reviews. Data that were perceived as too broad or without specific intent for action were reported to have limited utility. For example:

- **Executive Sponsors were particularly interested in using and analyzing data for the purpose of understanding how to better support teachers and students.**
- **Providers wished for more intentional and timely data to support goal setting from one semester to the next, whether from student work or observations.**
- **Coaches admitted to limited use of data that they considered insufficient for identifying next steps, or that could not be used to demonstrate the impact of coaching on teachers and students.**

> ***I think challenges is knowing kind of having a one stop shop for data. And so right now in our district, we have multiple different data platforms that we use… And so it's frustrating because we're so data rich, which is great, but it also isn't in a singular platform…..And so it's hard to see a longitudinal vision of a student when it comes to data, because all of our data pieces are separate when you look at achievement, discipline, attendance, mental health, I mean, all of those things. So trying to get all of that triangulated on a student really is difficult in a school level of trying to figure out what is the data saying about kids. So that's definitely where we're falling short.*** (Executive Sponsor)

Interviewees also recognized the challenges associated with interpreting data trends for action, highlighting the need to develop strategies to analyze data easily and quickly in support of decision-making. Streamlining the data collection and analysis through technology was offered as one potential solution.

2 Beyond volume - Develop cohesive and meaningful data stories

There was consensus that the amount of data available was sufficient, sometimes to the point of being overwhelming. Executive Sponsors, Providers, and Coaches commented on the need to create meaningful, impactful, and compelling stories based on available data. Lack of time and capacity to interpret and discuss large amounts of data were raised as significant challenges. One potential solution would be to build district capacity in creating data stories to inform future discussions and decision- making.

> ***I just don't think that we're to that level where we have a good protocol to review data. What does the data tell us? And then the really important step, what do we change because of what the data tells us? And that's the last step that we're missing.*** (Executive Sponsor)

3 Revisit aligment of data types, methods, and systems with goals

Some interviewees questioned the alignment of data types and methods with the purpose of these evaluations. For example, Executive Sponsors highlighted the importance of evaluating teacher understanding of the curriculum, which student assessments were not designed to measure. Both Executive Sponsors and Coaches cited the connection between state standardized tests and student performance as an example of a possible misalignment between evaluation methods and student performance. They agreed that student performance was most accurately assessed when assessments were given shortly after a section of the curriculum was taught. Misalignment issues could be resolved through the creation of data matrices and intentional data planning to be shared with a variety of interested audiences.

> ***I think our state assessment data and our benchmark data is a very helpful tool in the fact that it gives us student understanding of skills. But at the same sense, I don't know if that is truly the best form of data because we are looking at teacher understanding and teacher misconceptions. So do we need to do more of a pre-post test on the teachers for their understanding? That may be something we need to do on a regular basis going into each unit that we haven't started, but it may be a piece that should be implemented. (Executive Sponsor)***

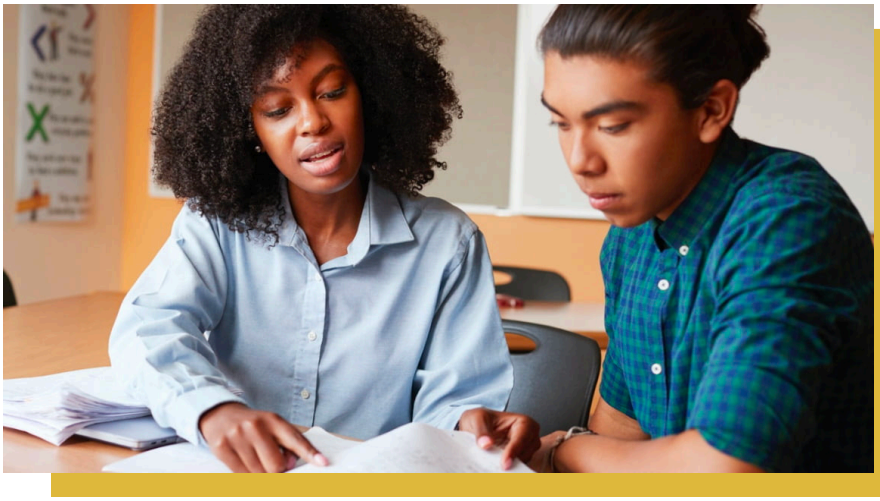
4 Acknowledge and address data feasibility, reliability, and validity limitations and challenges

Interviewees acknowledged the limitations of some of the collected data, especially around reliability, validity, and feasibility of data collection. For example, Providers identified downstream student measures and work samples as being of limited utility because of small sample sizes, few schools using student work as evidence of student performance, unclear results, and lagging indicators.

> ***We've dug into the sort of student survey and the teacher survey at the level of needing to look at just how we're doing for an annual report on where they're at with the goals that they identified. I don't think it's not been particularly useful. I think it's too lagging and it's unclear to [Exec Sponsor}, I think, how he can leverage those data sets.*** (Provider)

> ***Because many of our data that we use here, when we compare it, we might notice, they did good this time and it's the same test. And the second time that they took it and was lower, then what's going on? Because we have to look at that student engagement. Are the kids actually taking this serious because it's not a grade for them?*** (Coach)

Providers mentioned that attempting to conduct classroom observations was problematic given their remote work status. Likewise, Coaches highlighted students' testing fatigue and lack of motivation to do their best as potentially impacting the validity of any student assessments. In addition, differences in testing cultures across schools were reported to impact data validity. Coaches were unsure whether to trust data based on their knowledge of the school's approach to testing.



KEY FINDINGS AND RECOMMENDATIONS

1 Current Data Practices

Executive Sponsors, Providers, and Coaches used multiple data types and methods (e.g., observational data, survey data, assessments scores, focus groups, walkthroughs) from a variety of sources (e.g., principals, teachers, students). Current data practice successes included: district teams' approach to data as integral to implementation work rather than a separate activity; a focus on data triangulation; use of data for multiple purposes; and an appreciation for tailoring messages for different critical perspective groups when disseminating data. Notable challenges included: finding the time to analyze large amounts of information in a timely and meaningful way, and disseminating data results to families.

Recommendation: Implementation teams should continue striving to adopt effective data practices, while attempting to address the associated challenges. A review of current data practices with Providers and Coaches could be instrumental in developing efficient data practices that produce meaningful results for all critical perspective groups (e.g., administrators, families).

2 Useful data

Executive Sponsors, Providers, and Coaches reported using data that helped with actionable changes; were aligned with questions district teams were interested in answering; were easily accessed, collected, and understood; and were valid, reliable, and feasible to collect.

Recommendation: Data sources and methods should be reviewed based on the above criteria prior to final selection. A measure selection tool could be developed to assist the implementation teams with their decision-making around metrics.

3 Unmet Data Needs

All three groups called for opportunities to conduct more in-depth, timely, and targeted analyses aligned with a particular stated purpose. Data methods should be appropriately aligned with the purpose of these evaluations and need to be perceived as reliable, valid, and feasible to collect within a specific school culture. Data need to be interpreted and translated into meaningful, impactful, and compelling stories tailored for specific critical perspective groups.

Recommendation: Implementation teams should designate and train one or two individuals responsible for rapid analysis and synthesis, and allocate dedicated team time for data interpretation and decision-making. A data analysis and dissemination plan could be created ahead of time to facilitate intentional and timely data analyses, and guide the creation of tailored data stories for specific audiences. The level of depth and complexity of the data analysis and dissemination plan should be aligned with a specific school data culture.

Visit the Effective Implementation Cohort

The overall aim of the Effective Implementation Cohort (EIC) is to increase district capacity to implement a high-quality middle years math curriculum as part of a Coherent Instructional System to accelerate learning for students. The EIC Team seeks to support partnerships between providers and Local Education Agencies in their implementation and measurement efforts, as well as to collect and study data to answer the learning questions within the EIC Learning Agenda.

The EIC has a goal of producing reliable, practical evidence and measures to inform planning and implementing a district-wide high-impact math improvement initiative. This document is the second output for the measurement construction in the EIC Learning Agenda.

The EIC is a project within the National Implementation Research Network (NIRN). NIRN is part of the Frank Porter Graham Child Development Institute at the University of North Carolina at Chapel Hill.

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