WAKE COUNTY PUBLIC SCHOOL SYSTEM

Evaluation of the Mathematics Vision Project High School Curriculum

❖December 16, 2019 ❖ 3:00 p.m.

MGT CONSULTING GROUP

Presentation Agenda

- Overview of Study Methodology
- Findings and Recommendations
- Review of Data Gathering Activities
- Review of MVP Curriculum

How We Began

- Wake County Public School System (WCPSS) contracted MGT Consulting Group to conduct a review of the Mathematics Vision Project (MVP) curriculum.
- The purpose of the study was to assess the current level and quality of implementation of the MVP curriculum, and to analyze the curriculum in comparison to best practices in mathematics.

Our Approach to the Study

- MGT's approach to this work was based on best practices for program evaluation and consisted of three phases

Understand what exists currently, and what is planned for the future

Analyze the current status and compare to best practices

Develop findings and recommendations to assist in improving MVP implementation and assessment

Data Gathering in Schools

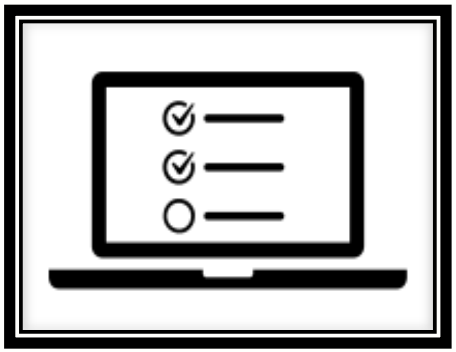
139
Classroom
Observations

23
School
Administrator
Interviews
31
Participants

23
Teacher Focus
Groups
161
Participants

23
Student Focus
Groups
178
Participants

Additional Data Gathering

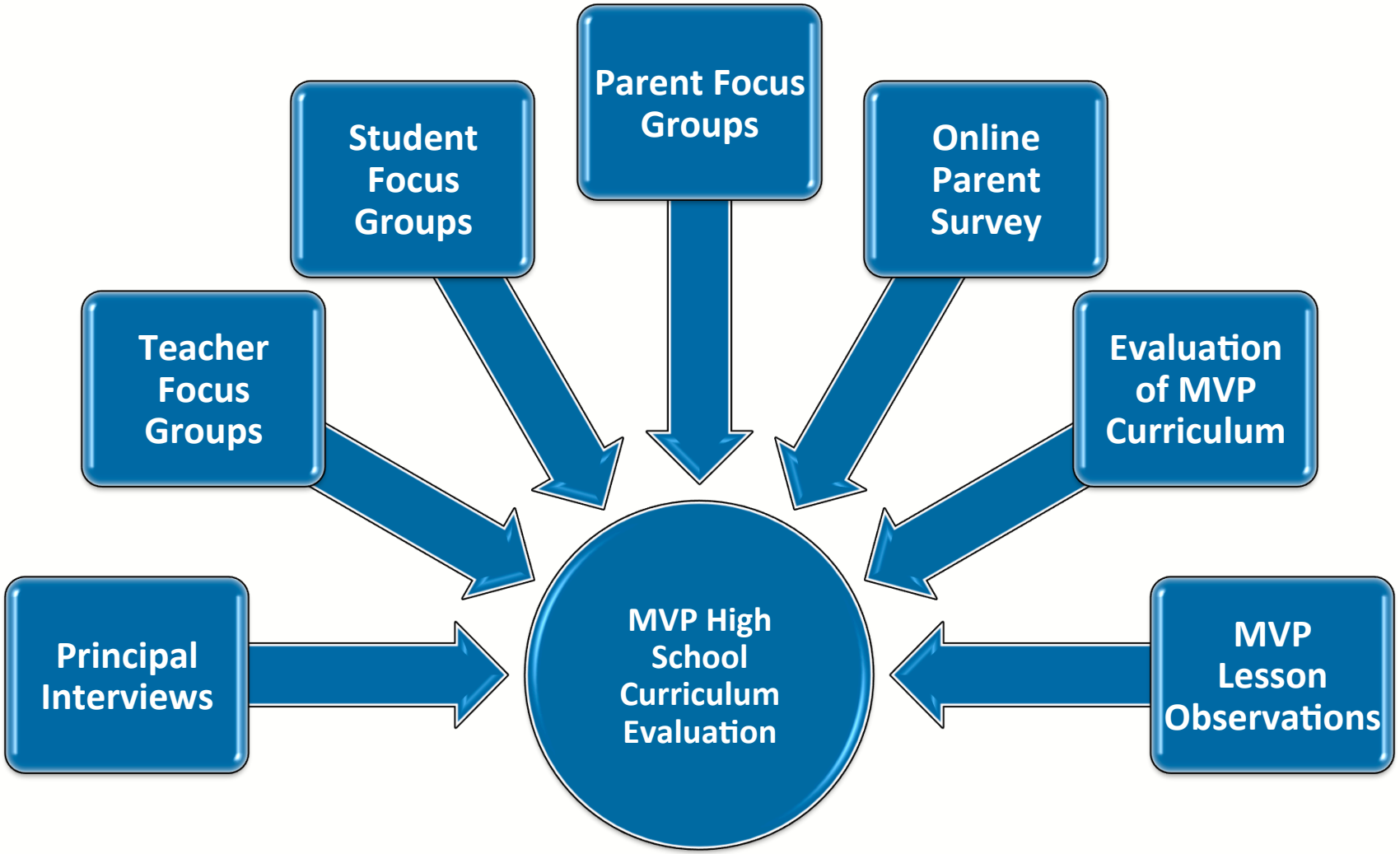


Online Parent Survey
3125 Individual Responses

Review of the MVP Curriculum Using the Instructional Materials Evaluation Tool (IMET)

4 In-Person Parent Focus Groups
10 Participants

Triangulating the Data for Report Findings



Overall Recommendation

Based on findings from its study, MGT recommends the continuation of the MVP Math Curriculum, with accompanying commendations, challenges, and recommendations.

Commendation

- **Commendation:** The approach to math instruction advocated by the MVP Math Curriculum is representative of best practices. The curriculum's emphasis on balancing procedural fluency with conceptual understanding of math encourages and strengthens problem-solving skills.

Commendation

- **Commendation:** There is a high degree of fidelity in the implementation of the MVP Math Curriculum throughout the district, particularly in the following areas:
  - Productive Struggle
  - Use of Mathematical Language and Student Discourse
  - Use of MVP Teacher and Student Materials

Challenge

- **Challenge:** Messaging around MVP Math Curriculum implementation has produced confusion, specifically around the topic of supplementation, and assistance with productive struggle.
- **Challenge:** The implementation of the curriculum does not provide sufficient supports for students of varied ability levels to access the curriculum at the appropriate level of challenge.

Recommendations

- **Recommendation 1:** Provide an informational campaign on the MVP Math Curriculum for both schools and parents.
- **Recommendation 2:** Deploy MVP Math teachers who successfully champion the program through both the quality of their daily instruction and their students' gains in math performance, as instructional coaches for the program throughout the district.

Recommendations

- **Recommendation 3:** Continue to build supplementary resources to improve the accessibility of the curriculum for students of all ability levels.
- **Recommendation 4.** Provide differentiated training for teachers of Math 1, 2, and 3 that builds on their instructional strengths and supports continuing growth and improvement in the implementation of the curriculum.

Recommendation

- **Recommendation 5.** Continue to expand the bank of MVP Math practice items and formative assessment items aligned with end-of-course and year-end assessments.
- **Recommendation 6.** Create more intentional instructional programming for Limited English Proficient students and Students with Disabilities.

Recommendation

- **Recommendation 7:** Examine the structure of the curriculum and mathematical practices at the K-8 level and make modifications necessary to strengthen students' foundational math skills.

MVP Math Lesson Observations

- Observation Window: October 1 – November 6
- Observations were conducted in 139 classrooms:
  - Math 1 (middle and high schools)
  - Math 1 Foundations (high schools)
  - Math 2 and Math 2 Honors (high schools)
  - Math 3 and Math 3 Honors (high schools)

MVP Math Lesson Observations

- MGT developed an observation checklist to assess the fidelity of implementation of the MVP High School Math Curriculum in four domains:
  - Program Fidelity
  - Program Delivery
  - Program Resourcing
  - Program Support of Varied Learners

MVP Math Lesson Observations

Program Fidelity

- The extent to which program components are delivered as prescribed including the core MVP Math content, instructional methods, and key learning activities.

MVP Math Lesson Observations

Program Delivery

- The extent to which teachers are supportive of and prepared for lessons and demonstrate familiarity with MVP Math Curriculum content, methods, and strategies to achieve the program objectives.

MVP Math Lesson Observations

Program Resourcing

- The extent to which critical features that distinguish the program are present. This may include technology resources and consumables.

MVP Math Lesson Observations

Program Support of Varied Learners

- The extent to which the program's resources are used to support students with varied learning needs. This support can include differentiation and scaffolding of instruction and student learning activities.

MVP Math Lesson Observations

Classroom Observation Rubric

- Within each of these domains were a series of specific performance indicators, each of which were rated on a 4-point Likert scale based on the degree to which they were evident during the classroom observations.

4	3	2	1
Very evident throughout the class session	Evident during most, but not all of the class session	Evident during a limited portion of the class session	Not evident to any degree during the class session

MVP Program Domain Ratings*

MVP Program Domains	Rating
Program Fidelity	3.1
Program Delivery	3.0
Program Resourcing	2.5
Program Support for Varied Learners	2.0

*On a 4-point scale.

Strongest Domain Indicators*

Indicator	Rating
Curriculum scope and sequence utilization is evident.	3.5
Recommended materials are present and utilized.	3.5
Teachers demonstrate familiarity with the content of the lesson and its sequence.	3.7

*On a 4-point scale.

Weakest Domain Indicators*

Indicator	Rating
Deviations and adaptations are present and work well to enhance learning.	1.7
Lessons have multiple entry points and content is structured to allow student access at the appropriate level of challenge.	1.7
Teachers use the program in a way that maximizes student choice within appropriate parameters to foster improved focus and engagement.	1.9
Strategies are utilized to improve learning outcomes for all student subgroups (e.g., English Language Learners, Students with Disabilities, etc.).	1.7

*On a 4-point scale.

MVP Focus Group Interviews

- MGT conducted structured interviews with school administrators, teachers, and students during each of the 23 school site visits
- Focus Group Participants:
  - 31 school administrators
  - 161 MVP Math teachers
  - 178 MVP Math students

School Administrator Interviews

Overall Impressions of MVP

- The curriculum focuses on math conceptualization not rote memorization of formulas.
- Pushing students to engage in math conversations at a deeper level requires a more collaborative planning process.
- If taught with fidelity, the curriculum works well for students.

Structures to Support MVP Implementation

- Collaborative teacher planning time embedded in the master schedule
- District training differentiated by teacher experience levels
- Quarterly district MVP Math Curriculum training
- A visiting math specialist provided by the district
- Structured scheduling of MVP Math courses

Activities to Ensure the Quality of MVP Implementation

- Conduct classroom walk-throughs and formal observations of math classes and provide feedback to teachers
- Participate in collaborative planning meetings
- Adjust the master schedule to keep the number of math lesson preparations to a minimum
- Attend district math meetings and communicate curriculum-related updates to math teachers

School Administrator Interviews

Teacher Responses to MVP

- The MVP Math Curriculum is more challenging for struggling students who have not been exposed to MVP Math in middle school.
- Conversely, some teachers felt that the productive struggle component of the MVP Math Curriculum was especially beneficial to struggling students because it deepened their level of mathematical thinking and understanding.

Student Responses to MVP

- The curriculum "comes as a shock" for many 9th grade students who did not experience it in middle school.
- The intensity of effort required for these students to successfully navigate the curriculum also requires greater supports to the curriculum and planning effort from teachers.

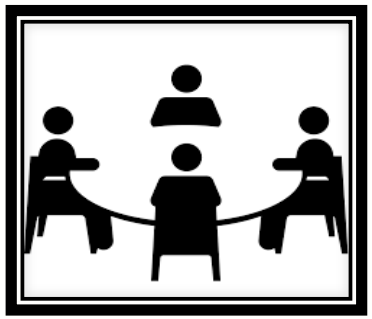
Parent Responses to MVP

- Overall, schools have not had a high volume of responses from parents regarding MVP.
- Parents have expressed frustration with an inability to help their children at home, and the additional cost and inconvenience of hiring tutors.
- Parents who had questions or concerns about the MVP Math Curriculum felt more positive about the curriculum after talking with teachers.

School Administrator Interviews

Would Select MVP Again?

- There were several qualifiers (i.e., “Yes ,if…”):
  - Provide a larger bank of practice problems, sample assessments.
  - More supporting strategies and materials are provided for varied learners.
  - Have more options around how the MVP curriculum is used



Teacher Focus Groups

Overall Impressions of MVP

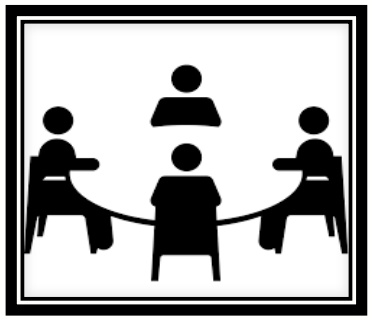
- Impressions varied across the focus groups.
- The additional level of challenge provided by the curriculum and the mathematical discourse students routinely engage in during MVP Math classes is very positive.
- The curriculum requires more planning and must be supplemented/scaffolded to support learners of all ability levels.

Gaps in the MVP Curriculum

- Gaps were acknowledged in the first year of the implementation; however the district, and teachers at individual schools have worked hard to close them through the use of supplementary materials.

Use of MVP to Support NC Math Standards

- Teachers provide notes on Canvas to identify ways to improve MVP alignment with NC Math Standards.
- Teacher notes on daily lessons is a useful tool to ensure alignment and improve pacing.
- The MVP teachers' guide provides helpful strategies for supporting learners.



Teacher Focus Groups

Features to Add to MVP Curriculum

- More practice items of all skill levels.
- More graphics and visuals, and a study guide aligned with NC Math assessments.
- Additional technology resources like DESMOS and pinning links to the NC Math Standards on the website.

Assessment Structure of the MVP Curriculum

- Assessments are sometimes too short and need to be modified to match the NC Math assessments.
- The district is continuing to build a bank of sample test items aligned with NC Math assessments.
- As teachers, we have built our own assessments.

How You Support Student Learning with MVP

- Increase the amount of time working through the math problems with students; modeling the way.
- Strategically assigning math problems.
- Working on different tasks to practice the same concept and build skills.
- Encouraging math conversations and thinking.

Student Focus Groups

How Teachers Support Your Learning

- Using the workbook and going step-by-step to explain the math problems.
- Requiring students to highlight passages in the workbook, circle key passages and vocabulary, and identify the main math ideas in the narrative.
- Providing an overview of the upcoming unit and agendas for the units and lessons.

Aspects of the MVP Curriculum That Are Helpful

- Being able to work ahead and not have to wait on other students.
- Having real world math problems to solve.
- The organization of the math workbook; having one lesson per day.
- The clear structure of the Ready, Set, Go.

Aspects of the MVP Curriculum That Are Not Helpful

- Sometimes the content is too much to get through in one lesson.
- The homework can be a lot of work without others to talk through the problems with you.

Student Focus Groups

Your Overall Impression of the MVP Curriculum

- Even for students who are not strong in math, MVP creates an environment where mistakes are a part of learning.
- Having more than one way to work a problem takes some pressure away and is fun.
- Being able to talk with other students or just work on your own is helpful.

Features to Add to the MVP Curriculum

- More math practice problems.
- More blank pages in the workbook for notes and working out math problems.
- Interactive note pages to guide note taking during lessons.
- A glossary of math vocabulary.
- An index of math formulas for easy reference/reminder.

Online Parent Survey and Focus Groups

- MGT consultants developed a survey that was made available online and also administered in four parent focus groups.
- Parents received a link to the online survey if their child :
  - Currently was enrolled in Math 1 during the first semester of the 2019-20 school year
  - Currently was enrolled in Math 2 or Math 3 in the first or second semester of the 2019-20 school year
- WCPSS Technology Services deployed 32,085 emails to parents meeting this criteria.

Online Parent Survey and Focus Groups

- Parents of students currently enrolled in Math 1, 2, or 3 at the 23 selected schools were randomly chosen by WCPSS Technology Services to be focus group participants.
  - 175 invitation calls were made
  - 31 parents responded affirmatively
  - 10 parents attended across four focus group sessions

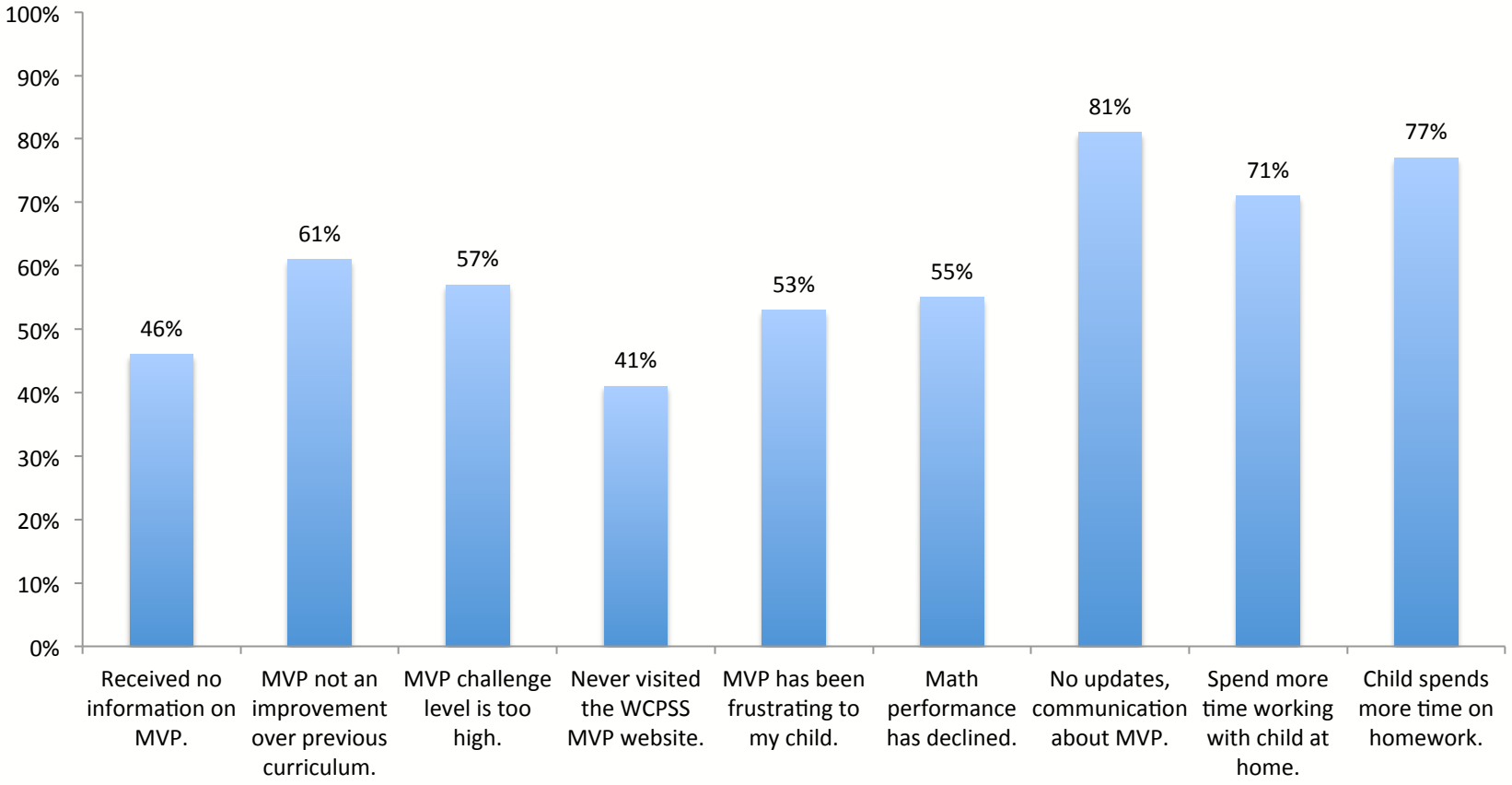
Online Parent Survey and Focus Groups

- Online Survey Window: October 29 – November 13
  3125 respondents
- Parent Focus Groups: October 29th and 30th, and November 4th and 5th
- The survey was in a multiple choice format and had the option of unlimited narrative responses to provide greater detail on each item.

MVP Math Curriculum Parent Survey

- Information about MVP (Initial and Updates)
- How MVP differs from previous curriculum
- MVP's level of challenge
- Familiarity with the WCPSS MVP website
- Children's experience with MVP Math Curriculum
- Children's math performance since MVP adoption
- Time parents spend helping children with homework
- Time children spend working on homework/assignments

MVP Math Curriculum Parent Survey Majority Responses



MGT CONSULTING GROUP

N = 3,125

WAKE COUNTY PUBLIC SCHOOL SYSTEM

Evaluation of the MVP Curriculum

- MGT consultants evaluated the MVP Math Curriculum using the Instructional Materials Evaluation Tool (IMET).
- The tool is designed to help determine whether instructional materials are aligned to the North Carolina Standard Course of Study for Mathematics.

Evaluation of the MVP Curriculum

The evaluation of the curriculum focused on three areas:

- **Focus**: Are the areas of focus in the MVP Math Curriculum aligned with the NC Standards focus areas?
- **Coherence**: Is there a linkage across the grade levels of the major topics within each grade level?
- **Rigor:** In major topics, does MVP Math Curriculum promote conceptual understanding, procedural skill and fluency, and application with equal intensity?

Assessment of MVP Math Curriculum by IMET Standards

Focus and Coherence	Met or Not Met
Non-Negotiable 1: Materials must focus coherently on the Widely Applicable Prerequisites (WAP) in a way that is consistent with the progressions in the Standards.	**Met**

Assessment of MVP Math Curriculum by IMET Standards

Rigor and Balance	Met or Not Met
Alignment Criterion 1: Materials must reflect the balances in the Standards and help students meet the Standards' rigorous expectations.	**Met**

Assessment of MVP Math Curriculum by IMET Standards

Rigor and Balance	Met or Not Met
Alignment Criterion 2: Materials must authentically connect content standards and practice standards.	**Met**

Assessment of MVP Math Curriculum by IMET Standards

Access to Standards for All Students	Met or Not Met
Alignment Criterion 3: Materials must authentically provide supports for English Language Learners and other special populations.	**Partially Met**

MVP Curriculum Evaluation Summary

- **Continuation of the MVP Math Curriculum is recommended.**
- **Deploy a cadre of MVP math teachers to provide coaching on effective MVP implementation.**
- **Continue building the bank of online and other resources for instruction and assessment.**
- **Provide training on improving the scaffolding of instruction to allow the curriculum to be accessible to students of all ability levels.**

Thank You!