EFFECTIVE IMPLEMENTATION OF HIGH-QUALITY MATH CURRICULUM AND INSTRUCTION

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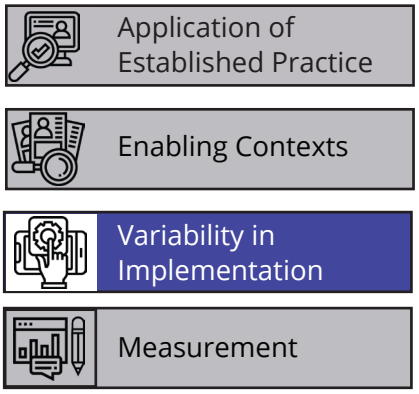
INTRODUCTION

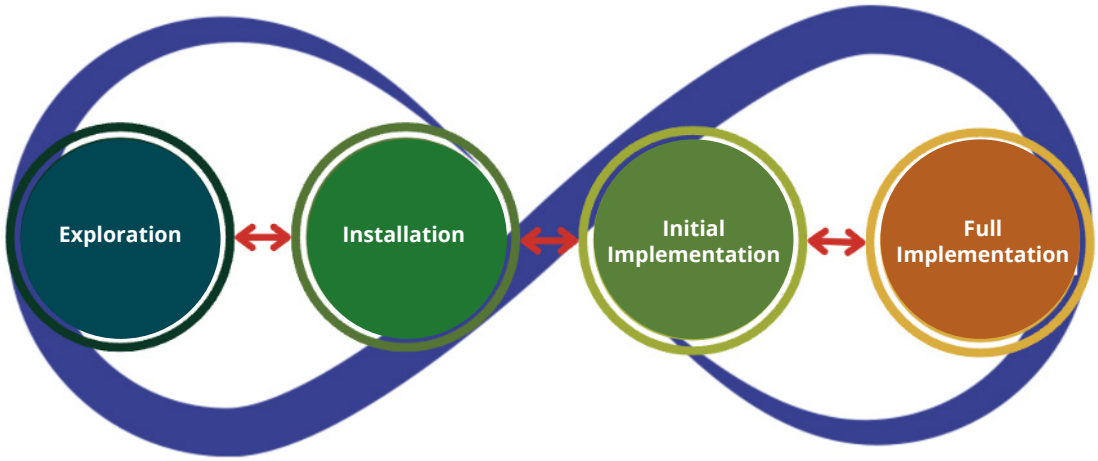
Curriculum adoption and implementation is not a one-time event for districts and schools. It is a multi-year process involving district leadership in multiple units (e.g., curriculum office, finance office, superintendent office, student services), school leadership, instructional staff, students and their caregivers, and other relevant community partners. When the process is done well, it supports districts in building a coherent instructional system and achieving their instructional vision to ultimately support improved student academic achievement. To guide the adoption and implementation process, the Active Implementation Framework of Implementation Stages (Fixsen & Blase, 2020) can be used. The Implementation Stages framework outlines a non-linear, multi-year dynamic process with specific activities and strategies needed at different times within the process.



What is the Effective Implementation Cohort (EIC)?

The EIC is a project designed to help school districts implement an instructional system that supports using a high-quality middle school math curriculum. The EIC aims include:

- increasing districts' capacity to implement a high-quality middle-grade math curriculum to accelerate learning for students experiencing poverty, Black, Latino/a, and/or English Learner (EL)-Designated students,
- learning and sharing with the larger education community what districts need to have in place for effective implementation, what aspects of implementation at the district and school level most benefit priority students, and the work involved in making site-wide implementation successful.



Metz et al., 2015

The *Implementation Stages* framework describes four stages of implementation including:

EXPLORATION

Within this stage, districts and schools identify needs and assets, explore and select potential evidence-based programs, and engage in readiness activities to create a shared understanding of the implementation effort (e.g., why, what, and how).

INSTALLATION

This stage involves preparing to implement the selected evidenced-based practices and includes developing plans to develop staff competency within the selected practice, identifying and communicating key messages, securing resources, developing the needed data system to drive decision-making, and refining and/or developing policies and procedures. This work occurs before students receive the evidence-based program or practice.

INITIAL IMPLEMENTATION

At this stage, the practice is being used and iterative cycles are engaged in using data to make improvements and address implementation barriers. This is where students first receive the service and newly trained staff are delivering it for the first time. Effective coaching is critical at this juncture.

FULL IMPLEMENTATION

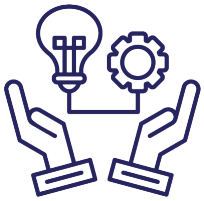
Full implementation is the stage dedicated to maintaining the implementation strategies and practices used (Saldana, 2014; Ward et al., 2021). The practice is fully integrated, used well by practitioners, and student outcomes are impacted (Fixsen, et al. 2005).

During every stage of implementation, your local community should be engaged, including partners such as internal staff, PL providers, union representatives, education preparation programs, and local organizations. It's also important to note that throughout these stages, the activities, and who needs to be engaged with these activities, is dependent on the decision-making structure of the district. Using a stage-based approach for implementing evidence-based practices offers several benefits:

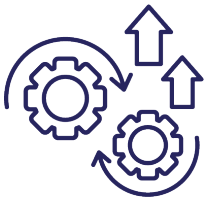
Structured process
Providing a clear and logical series of steps with descriptions of key activities needed to systematically plan, execute, and evaluate the process.

Improved outcomes
Ensuring implementation is feasible, accurate, and able to be monitored for progress and making of adjustments.

Resource management
Allowing for better allocation and management of the education agency's resources.



Engagement
Facilitating greater involvement and shared understanding of need and what it takes from leadership, staff, caregivers, students, and other community partners, program developers or purveyors at each stage.



Flexibility and adaptability
Allowing for adjustments based on learning, feedback, and changes in the local context. As challenges and opportunities arise, they can be addressed timely and iteratively within and between the stages.

Sustainability
Focusing on continuously measuring and continuing implementation from the beginning; a staged approach helps to ensure the right work is being done at the right time to ensure the practice is maintained.

What does a staged approach to curriculum or high-quality instructional materials (HQIM) look like specifically for a school district?

We answer this question by outlining a staged approach for HQIM adoption and implementation drawing on observations and learnings from the Effective Implementation Cohort (EIC) and the Active Implementation Framework of Implementation Stages. Within the staged approach for HQIM adoption and implementation, we highlight several districts' stage-based activities within the EIC and summarize key learnings.

EXPLORATION

The stage of Exploration is a time when the Local Education Agency (LEA) systematically determines the fit, practicality, capacity, and resource commitment to selecting and implementing the HQIM that aligns with their long-term instructional vision (e.g., 5-10 years out). During this stage, the LEA develops a team with diverse representation and knowledge from district and school administration, general and special education staff, other key staff, community, caregivers, and students to engage in activities related to designing the instructional vision and identifying assets, needs, and potential root causes to determine what instructional practices and HQIM are needed. With support often from an external professional learning provider, the team considers possible options of HQIM and instructional practices to address the needed changes, examines the fit and feasibility of the identified materials and practices to decide if they will move forward with implementation, and communicates with their community (bi-directionally) throughout the process. Intentional and purposeful use of exploration activities results in the establishment of readiness and collective commitment of all staff. Through shared understanding and consensus building, school staff begin to understand the benefits of using an effective practice to meet equitable student outcome goals; make a collective commitment to goals, objectives, roles, and responsibilities; and co-create the supports with leadership's active participation and commitment to equitable resources (Ward et al., 2023).

EXPLORATION

STAGE ACTIVITIES

Stage-based activities for curriculum adoption and readiness:

- ☐ Develop district implementation team representative of staff, organization, and community including caregivers with knowledge to lead and support curriculum adoption and implementation process.
- ☐ Identify and cultivate sponsors and champions that have authority and cultural capital to promote the instructional vision, curriculum implementation and adoption process (e.g., principals, influential teachers, community leaders, etc.)
- ☐ Develop and/or refine your instructional vision for mathematics within your staff and community by identifying existing assets, changes needed, and potential root causes and reflecting on existing data trends to identify specific patterns and areas of strength or challenges unique to the LEA.
- ☐ Assess what is currently in place to address your instructional vision and changes needed, as well as leverage assets.
- ☐ Identify and learn about other potential curricula to address the vision and changes needed.
- ☐ Assess fit and feasibility of options identified by considering the following:
  - ☐ The curriculum's evidence (including instructional best practices), supports available, and usability (does it include criteria for adaptation or strategies for differentiation for students with disabilities and students from diverse linguistic and cultural backgrounds, etc.)

- How well the curriculum addresses your district's data-based and identified needs.
- The fit of the curriculum with your instructional vision, alignment to state standards, other instructional programming, and your community values.
- Your district's and school's capacity to use the curriculum including financial resources, technology, staffing, etc.

☐ Assess and create readiness of your districts, schools, caregivers, and community for instructional vision and curriculum implementation.

☐ Develop communication messages, clear ways to obtain feedback, and a plan regarding the adoption process.

EXPLORATION

KEY OUTCOMES OR BENCHMARKS

Key outcomes or benchmarks being strived for in this stage include:

★ Instructional vision refined/developed

★ Curriculum selected

★ Progress in developing acceptability of vision and curriculum by staff and community

DISTRICT HIGHLIGHT

Rochester City School District

The Rochester City School District and their professional learning partner, Teaching Lab, collaborated to establish a regular meeting schedule for the district implementation team. The dyad decided on a twice a month team meeting schedule with alternating weeks for planning meetings with Teaching Lab and the district leads. At the start of the EIC, the Rochester implementation team consisted only of the members of the district math department. As the district continued their implementation efforts, the Rochester Executive Director of Math reached out to other district and school staff to expand the implementation team to ensure that multiple perspectives were represented. Ultimately, Rochester City Public Schools established a diverse implementation team that included various district and school level representation including MTSS, Bi-lingual Education, Equity, Inclusion & Curriculum, Chief Academic Officer, Special Education, Executive Director for Math, and Teachers on Assignment for Math, and a middle school principal. Ferron Morgan, Teaching Lab Director-Program, added that this diverse team

> *"provided the benefit of knowing how the implementation was being felt, received, and engaged at different "strata" and positions within the same ecosystem. These various perspectives, at times divergent, created a healthy, productive tension and consistent reminder that strong, diverse implementation teams are structured and values-driven while also maintaining an organic responsiveness to evolving needs."*

INSTALLATION

Following the decision to implement the selected materials and practices, implementation teams develop or refine the necessary supports to build staff knowledge and skills as well as the district's organizational capacity during the Installation stage. In this stage, the district implementation team works closely with schools and their professional learning provider to ensure the practices are clearly defined and usable for the staff implementing them. The team also develops an implementation plan that outlines (a) protocols for selecting staff needed for implementation, (b) training and coaching supports, (c) data systems including what data will be collected (i.e., outcome, integrity/fidelity, and process data), and how and when data will be collected, analyzed, and shared, and (d) decision-making criteria for determining success. In addition, it is during the Installation stage that teams identify teachers who will participate; provide initial training; ensure access to materials and equipment necessary to support use of the effective materials and practices; and develop and use feedback loops among staff, leadership, caregivers, students, and other relevant community partners for effective communication. By district and school professionals working together to co-create the implementation supports, LEA staff and other community members are included in the process, and their current work is valued.

INSTALLATION
STAGE ACTIVITIES

Stage-based activities for preparation of curriculum implementation, including provision of aligned professional learning (PL):

- ☐ Continued development of implementation team: determine membership and ability to engage in functions needed to support curriculum implementation and improvement.
- ☐ Create an implementation plan:
  - ☐ Identify measurable benchmarking goals and outcomes for implementation.
  - ☐ Secure and plan for staff selection and aligned professional learning for initial users and supporters of the materials and practices.
  - ☐ Develop follow-up support and coaching plans, including capacity-building opportunities for identified coaches and relevant leaders.
  - ☐ Identify what data (e.g., outcome, integrity/fidelity, process) and how data will be collected and used to monitor and improve curriculum use (i.e., data system, identify rubrics, frequency).
  - ☐ Develop decision-making criteria for expanding the use of curriculum to additional schools and classrooms.
  - ☐ Secure resources needed for curriculum purchase, aligned professional learning, data systems, and other supports.
- ☐ Provide curriculum-aligned professional learning to launch a vision that includes defined instructional practices and curriculum.
- ☐ Review and align any internal policies and procedures to support the vision and use of curriculum (e.g., professional learning calendar, walkthrough observation schedules, data collection, and review meetings).
- ☐ Communicate via feedback loops with leadership, staff, caregivers, and community partners (including PL providers and publishers) to support instructional vision and curriculum.

INSTALLATION

KEY OUTCOMES OR BENCHMARKS

Key outcomes or benchmarks being strived for in this stage include:

- ★ High-quality curriculum-aligned professional learning is being accessed by teachers.
- ★ A data collection and review schedule is set (progress monitoring and implementation fidelity).
- ★ Continued progress in developing acceptability and appropriateness of vision and curriculum by staff and community.

DISTRICT HIGHLIGHT

Guilford County Schools

UnboundEd/CORE Learning partnered with Guilford County Schools (GCS) to support the implementation of Open Up Resources math curriculum. UnboundEd/CORE Learning kicked off the partnership with an intentional launch period focused on empowering 16 district leaders to support school leaders across 24 schools. Together, UnboundEd/Core and GCS built a district implementation team, bringing in members from the district content office, professional learning, research, and principal supervisors. Utilizing our curriculum implementation planning resources and equity-focused discussions, this cross-functional team co-developed a clear implementation plan with a well-defined vision and goals to ensure the curriculum became a district-wide priority which would guide the three-year partnership. Once this was complete, our efforts focused on professional learning, communication, and measuring impact.
A key part of our launch period was planning for professional learning, designed to align district and school leaders on a shared implementation journey. Together we organized classroom observations and professional development sessions, building a systematic approach to supporting school leaders and ensuring consistency across the district. The capacity-building of district leaders was crucial to maintaining sustainable support beyond the partnership which included their active participation in planning, engaging in the school supports, and continuous reflection alongside the UnboundEd/Core Learning team. Throughout the process, transparency and engagement were prioritized through our frequent use of a comprehensive communication plan, keeping all stakeholders informed and actively involved.

Collaborating with the GCS' Accountability and Research team, we embraced a continuous improvement cycle, using data from Integrity Walks, Learning Walks, and participation feedback to track progress and adjust strategies. This data-driven approach ensured equitable support for all schools. Emily Hare, Director of Math at Guilford County Schools, highlighted the value of the collaboration:

> *"This work helped me think about how to best leverage collaboration between district and school instructional leaders, so we're building capacity while staying actively involved in the work."*

This partnership laid a strong foundation for successful and sustained curriculum implementation across the district.

INITIAL IMPLEMENTATION

During the Initial Implementation stage, the selected high-quality instructional materials and practices are introduced in classrooms for the first time. Teachers receive coaching support and feedback to develop their proficiency. To guide this process, implementation teams meet regularly to analyze data and continuously differentiate support to meet educators' needs and to maximize opportunities for student success. The team also uses data and decision-making criteria to systematically expand the use of instructional materials and practices by additional school staff. It is imperative that clear communication protocols are in place, from teachers in the classroom to the school and district teams, who ensure teachers have the support they require and can enact procedural changes for sustainability. This support legitimizes the process, reinforces staff's collective commitment to improvement, and communicates to them that district and school administration value the work they are doing. As the district's and school's capacity improves, their ability to use implementation data to continuously strengthen training and coaching systems based on fidelity data as well as academic outcomes of our priority students is critical in leading the school and district to full implementation (Kloos et al., 2022).

INITIAL IMPLEMENTATION

STAGE ACTIVITIES

Stage-based activities for using the curriculum, implementing ongoing aligned professional learning and coaching, and using data for improvement purposes:

- ☐ Implementation team meets regularly (per calendar/schedule to inform agenda). It uses data and feedback to improve the support provided to teachers in their use of curriculum and instructional practices and monitor the impact on identified goals and outcomes.
- ☐ Curriculum-aligned professional learning continues to be provided to leaders and instructional staff and is tailored to their role within the curriculum implementation process.
- ☐ Teachers begin to receive coaching or follow-up support either individually or through small-group formats.
- ☐ Two-way communication continues via feedback loops with leadership, staff, caregivers, and community partners (including PL providers and publishers) to support instructional vision and curriculum.

INITIAL IMPLEMENTATION

KEY OUTCOMES OR BENCHMARKS

Key outcomes or benchmarks being strived for in this stage include:

- ★ High-quality curriculum-aligned PL and follow-up supports are being accessed by teachers.
- ★ Continued progress in developing acceptability and appropriateness of vision and curriculum by staff and community.
- ★ Progress is demonstrated in:
  - integrity of the curriculum's use.
  - integrity within the use of instructional practices.
  - the quality of implementation supports (e.g., professional learning, coaching).
  - the feasibility of implementation for both the curriculum and instructional practices.

DISTRICT HIGHLIGHT

Rio Grande City Grulla Independent School District

Rio Grande City Grulla (RGCG) partnered with the Dana Center at the University of Texas at Austin and Agile Mind to implement HQIM and instructional practices aligned to their mathematics instructional vision. A unique feature of this collaboration was the direct link between the professional learning support and a research center, which is the developer of the HQIM. This collaborative partnership was instrumental in ensuring the quality and relevance of the curriculum. It facilitated a feedback loop between teachers and developers, allowing for timely adaptations to address local needs while maintaining curriculum fidelity (e.g., ensuring examples reflected the students' and their community's linguistic and cultural diversity). Additionally, it enabled the integration of data collection and analysis into the district implementation team (DIT) meetings, ensuring that teachers received just-in-time support.

RGCG's success was facilitated by the active leadership of the Director of Accountability and Assessment, who ensured district administrators prioritized teacher growth. Simultaneously, the district implementation team managed more implementation-specific support (e.g., differentiated training and coaching) to ensure fidelity to the HQIM. This supportive environment fostered a positive and effective implementation process. Regular district implementation team meetings provided a structured space for data review, problem-solving, and ongoing coaching. By focusing on data-driven decision-making and continuous improvement, RGCG continues to successfully implement the HQIM to meet the specific needs of its students and the local community. The commitment and the collaborative efforts of all involved have led to a successful initial implementation of the high-quality curriculum and math instruction.

DISTRICT HIGHLIGHT

Pasadena Unified School District and Buffalo Public Schools

Pasadena Unified School District in California (PUSD) and Buffalo Public Schools (BPS) in New York worked with TNTP, the districts' professional learning provider, to assess the extent to which students and caregivers from historically marginalized groups had the opportunity to provide input on implementation efforts and were a consistent factor within the implementation process overall.

To understand early implementation conditions, TNTP leveraged existing systems and structures within the districts and also created data collection and analysis infrastructure where there were gaps. TNTP then conducted over thirty student focus groups and eleven caregiver focus groups across multiple years that focused on the implementation of either Eureka Math or iReady Mathematics. These conversations provided a valuable opportunity for students and caregivers to share their experiences with the curriculum while also aiding teachers by offering direct insights into students' needs. This understanding helped teachers and district leaders appreciate the purpose behind implementation initiatives such as professional development, coaching cycles, and their connections to student experience, teacher practice, and math outcomes.

Insights from focus groups involving students and caregivers have shaped the overall implementation strategies of TNTP, PUSD, and BPS in their efforts to invest and sustain use of high-quality instructional materials alongside responsive instructional practices. In conducting these focus groups and using the learnings generated, each district also established a communication feedback loop with the community to make connections, bridge gaps in understanding, and continue building trust with students and caregivers.

FULL IMPLEMENTATION

When a school has at least fifty percent of their teachers using high-quality instructional materials and practices with integrity, and the desired student outcomes are being achieved, they are in the Full Implementation stage. It is key during this time that teams not get complacent and remove supports or stop meeting, assuming smooth sailing is ahead. To ensure continued success and prevent drifting back to previous practice, teams should maintain provision of needed training and coaching support, use of feedback loops, and regular use of data for continuous improvement. Schools continue to return to previous stage-based activities as they onboard new staff, apply their implementation infrastructure to other school-wide practices, and continuously develop the capacity of school staff, their community, and local school boards. By engaging in these implementation activities, practice can inform policy, and policy can enable effective practice where school funding formulas and finance policies are equitable and lead to closing long-standing disparities in student outcomes.

FULL IMPLEMENTATION
STAGE ACTIVITIES

Stage-based activities for supporting sustained and ongoing improved use of curriculum and expanding its reach within the district:

- ☐ Implementation team continues to meet regularly and use data and feedback to make improvements to the supports being provided to teachers in their use of curriculum and instructional practices as defined by the instructional vision.
- ☐ Implementation team uses data and applies decision-making criteria to expand the curriculum's use within the district and schools.
- ☐ Aligned professional learning, coaching, and other implementation support are continued to maintain skillful use of the curriculum and instructional practices as defined in the math vision.
- ☐ Continue to communicate via feedback loops with leadership, staff, caregivers, and community partners (including PL providers and publishers) to support instructional vision and curriculum.
- ☐ Evaluate attainment of identified goals and outcomes.

FULL IMPLEMENTATION
KEY OUTCOMES OR BENCHMARKS

Key outcomes or benchmarks being strived for in this stage include:

- ★ Progress continues to be demonstrated in:
  - integrity of the curriculum's use.
  - integrity within the use of instructional practices.
  - the quality of implementation supports (e.g., professional learning, coaching).
  - the feasibility of implementation for both the curriculum and instructional practices.
- ★ Evidence is generated that identified goals and outcomes are being achieved or demonstrate progress of being achieved.

DISTRICT HIGHLIGHT

EIC DISTRICTS

The EIC districts are continuing to work towards full implementation of their selected high-quality instructional materials and practices. Several districts are working on expanding their use of their HQIM to additional schools and classrooms given positive progress towards outcomes, while others are revisiting the stages of installation and exploration to ensure quality fit and alignment as they strive towards achieving their instructional vision and intended student outcomes.

SUMMARY

The work of implementation is dynamic and often referred to as being messy. Within implementation, the hearts, minds, and actions of our instructional staff, leaders, and our community are being changed (Blase et al., 2015). Using a staged approach provides us with a roadmap to ensure our messy work is systematic but also responsive to the context. As such, it is important to remember several key points when using a staged approach:

- The stages are not linear. Ending one stage to begin another is seldom the case, rather, the stages may overlap, and stage-based activities may be applied across multiple stages.
- The activities of the stages repeat at each level of the system. That is, a school team will need to go through stage-based activities in addition to the district or central office members going through the activities.
- A school can be in different stages at the same time for different practices. For example, a school may be in initial implementation for their selected math high-quality instructional materials and practices but are also in exploration as they identify needs for a practice to address social-emotional skills.
- Sustainability is attended to throughout the stages, beginning with Exploration.

It is important to note that implementation work is never done, but continuously adapting and improving through the use of data.

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