



Outcomes for All:
Supporting Diverse Learners' Success with Grade-Level Content

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Recommendations from "The Opportunity Myth"

- Make greater access to grade-appropriate assignments an urgent priority for all students, no matter their race, income level, or current performance level
- Give all students, especially those who are behind grade level, access to instruction that asks them to think and engage deeply with challenging material
- Ensure educators enact high expectations for student success by seeing firsthand that students are capable of succeeding with more rigorous material

Make your case!

1. "[M]aterials created or selected by teachers were generally less likely than those provided by their district to meet academic standards appropriate to the grade level in English language arts and math." (TNTP, 2018)
2. "Teachers spend 7 hours per week searching for instructional resources (both free and paid-for) and another 5 hours per week creating their own instructional materials." (Marci Goldberg, K-12 Market Advisors)
3. Evidence from top-performing international education systems supports how important it is for all students to have a high-quality, content-rich curriculum that builds student knowledge (Common Core, 2009).
4. "A number of research summaries over the last few years have brought attention to the impact that high-quality instructional materials have on student learning." (Steiner, 2018)
5. Very high percentages of teachers report using materials they've developed or found themselves on their own to teach their students (Kane et al., 2016 & Kaufman et al., 2017)
6. "Studies have shown that selecting a high-quality curriculum can have a bigger impact [on student learning] than a number of other popular interventions such as decreasing class size and offering merit pay to teachers." (Boser, Chingos, & Straus, 2015; Koedel & Polikoff, 2017; Whitehurst, 2009)

PD Reflection

Think of a typical school-based PD session in your school or district.

- **Content:** What is the content of the PD?
- **Facilitator:** Who develops/delivers it?
- **Duration:** How long does it last?
- **Application:** How is it applied back in classrooms?

Prairie City & Magic Math: A Case Study

Prairie City School District, a Class C school district in Nebraska, had experienced several years of low student achievement in math, which was more pronounced at its schools serving high populations of English Learners. Schools had been inconsistently using a math curriculum purchased by the district 4 years earlier, with limited district or school-based expectations for adherence to the curriculum resources. Professional learning on math instruction in Prairie City had usually consisted of 1-2 days of training per year on the existing curriculum, largely focused on how to use the resource and its different components. In addition, 3 or 4 teachers from each school were also sent to external math conferences and institutes.

District Elementary Curriculum Specialist Angela Roberts, having attended professional learning offered by the NDE, learned about the impact of adopting high-quality instructional materials paired with intensive professional learning, worked with her colleagues to map out a plan to improve math outcomes for Prairie City students. Here is her story.

July to December, 2018

Angela realized that it was challenging for many of her K-5 elementary schools to provide content-specific support and training on math instruction at the school level, either because their leaders lacked expertise on math content and pedagogy, or because the school leadership teams were very small in size. Generally, teachers were more comfortable teaching ELA, and many teachers and leaders did not consider themselves “math people.” In October, Angela conducted a 5 minute district wide survey on a PD day to measure teacher and leader buy-in to the current curriculum and professional learning supports offered by the district, and also gave participants the chance to offer suggestions on how to improve it. She analyzed the findings and kept them in mind as she built her plan for curriculum adoption and professional learning, and also reached out to ESU colleagues for support.

With the possibility of new textbook adoption on the horizon, Angela and her team, along with an ESU staff developer, created a plan to engage multiple stakeholders in the selection and adoption process. First, she assembled a Math Committee with two representatives from each school- one teacher and one administrator. She convened the Math Committee three times for half days over the course of Fall, 2018. The committee learned about the Math Instructional Shifts demanded by Nebraska’s College and Career Ready Standards for Mathematics, and then created a district vision for math instruction. They learned about the intersection of the Shifts and the selection of quality, aligned instructional materials. The Math Committee selected 3 different potential math curriculum programs (all rated “green” on EdReports website) and Angela arranged to receive sample materials and to hear presentations from each program vendor. The Committee also invited all educators from across the district to come to the district office to review the sample materials and learn more about the Math Committee’s process, and kept the greater community updated by sharing information regularly in the district newsletter. In December, the Committee ended up selecting Magic Math for their K-5 math curriculum, and shared this news and their decision-making process widely with educators and families across the district along with their rationale for choosing the program by holding a webinar and providing a brief presentation for principals to share at their December staff meetings.



January to June, 2019

The Math Committee continued to meet over the course of the winter and spring of 2019, this time for three 2-hour sessions held toward the end of the school day. The Committee's focus shifted from curriculum selection over to planning for implementation. The committee accomplished the following:

- Learned about the research behind the curriculum and best practices for curriculum selection and implementation
- Received materials and training on how to re-deliver a session back at their schools on the new curriculum and why it's important; this session was designed to share high-level curriculum research with teachers and give them a chance to start exploring the materials
- Provided feedback on Angela's plan for professional learning for the upcoming school year and on district expectations for school-level implementation
- Discussed bumps in the road they might face during implementation in terms of educator knowledge, skill, and mindset, and what they might do to address these challenges

Angela realized the profound impact that school leaders have on curriculum support and implementation, and she appreciated that so much of teacher improvement work happens at the school level and is driven by school leaders. She also realized she was up against a culture in which principals and assistant principals tended to be more focused on building management and operations than on true content-specific instructional leadership. For this reason, she worked with her colleagues and ESU staff developer to plan and deliver a 2-day Math Instructional Leadership Institute for principals, APs, instructional coaches, and teacher leaders that she held in June, 2019 before leaders started up their summer planning. At the Institute, Prairie City school leaders...

- Reviewed math performance data (including subgroup performance data) from prior school years and reflected on what had gone well and what had not
- Learned about the foundations of college- and career-ready math instruction and the Shifts, as well as more about Magic Math, particularly the components of the program that are vital for school leaders to know about such as the flow of a Magic Math block and its components
- Learned about the first in a sequence of math leadership topics that would be part of the 4 additional half-days of professional learning that leaders would receive on leading Magic Math during the school year
- Explored Prairie City's vision for math instruction and asked questions about it. Together, the district staff and school leaders ironed some of the details to ensure clear expectations for Magic Math implementation. They dug into which aspects of implementation would be flexible and which would be mandated for all schools to ensure equity of implementation
- Planned out key summer tasks to focus on that would set the stage in their schools for Magic Math implementation
- Learned about the district's Magic Math-specific success metrics and walk-through tool

July 2019 through the 2019-2020 School Year

Starting in July, leaders received monthly coaching on their math instructional leadership and the application of their work supporting teachers with planning and instructional coaching. They also attend four additional half-days of training on topics in Leading Magic Math.

Guiding Principles: Ensuring Outcomes for All

High Quality Professional Learning

1. **Start** with a solid Tier 1/general education foundation.
 - a. Educators should be supported to scaffold and differentiate from this foundation.
Stronger Tier 1 instruction means fewer students need remediation/intervention.
 - b. Ensure all educators understand the Instructional Shifts in ELA and Math demanded by College- and Career-Ready standards.
2. Once the foundation is built, provide *additional professional learning* for teachers & leaders on how to scaffold and support diverse learners on core curriculum content *through the lens* of Tier 1 instruction.
3. Special education/academic support teachers ALSO need professional learning on the general education curriculum.

Aligning Resources & Materials

1. Intervention should supplement, *not supplant*, core instruction.
2. Keep supplementary supports for diverse learners **aligned to core instruction** whenever possible.
 - a. *ELA/Literacy Example:* Provide diverse learners with additional knowledge-building on the Middle Ages in preparation for an upcoming unit on *The Whipping Boy*
 - b. *ELA/Literacy Non-Example:* Students read texts and articles from a computer-based reading program that are topically unrelated to core instruction
 - c. *Math Example:* Provide diverse learners with targeted review of pre-requisite standards for an upcoming Eureka math module
 - d. *Math Non-Example:* Provide diverse learners with general remediation of last year's content

Systems and Structures

1. Increase inclusive scheduling (push-in instead of pull-out) when possible and when appropriate.
2. Special education/academic support teachers need planning time together with general education teachers.
3. Leaders need training on how to implement the systems and structures that support this work.

Intervention Content Leader Syllabus

Day 0: Launch	
<p>Launching our Work: Mindsets & Systems that Support Diverse Learners</p> <ul style="list-style-type: none"> • <i>Setting the Context and Establishing a Vision:</i> Louisiana’s Theory of Action, <i>The Opportunity Myth</i>, the “Outcomes for All” framework, and defining “students who struggle” • <i>Self-Assessment:</i> Pinpoint strengths and weaknesses in current programming as related to the “Outcomes for All” framework 	
Intervention Content Leaders: ELA Sequence of Learning	
ELA Day 1	<p>ELA Content: Vision of Excellence, ELA/Guidebooks Foundations, and Classroom Case Study</p> <ul style="list-style-type: none"> • <i>The ELA Instructional Shifts:</i> Experience and unpack the three instructional shifts, and explore how they live in the ELA Guidebooks • Unpack a Guidebooks unit to understand the backwards design principle • Engage in a classroom case study to consider how we should and should not use various sources of data to inform instructional decisions • Revisit self-assessment and reflect on current schoolwide practices in literacy
ELA Day 2	<p>ELA Content: Supports for Reading and Understanding Complex Texts - Part I (Text Complexity, Reader’s Circles, and TDQs)</p> <ul style="list-style-type: none"> • Engage in a lesson from the Guidebooks unit as students, then debrief and unpack the experience • Learn and apply a process for analyzing a text’s qualitative complexity • Deepen understanding of the Guidebooks approach to close reading • Analyze how a sequence of questions can serve as a scaffold that support the reader in understanding these big ideas • Practice anticipating misconceptions and planning for additional questions to serve as scaffolds
ELA Day 3	<p>ELA Content: Supports for Reading and Understanding Complex Texts - Part II (Knowledge and Vocabulary)</p> <ul style="list-style-type: none"> • Deepen understanding of the role knowledge and vocabulary play in reading comprehension, and examine the supports for building and activating knowledge and vocabulary provided in the Guidebooks • Learn and practice applying additional knowledge and vocabulary supports for students who struggle
Application: Implement a lesson and bring back evidence of student learning to our next session.	
ELA Day 4	<p>Morning ELA Content: Supports for Reading and Understanding Complex Texts – Part II (Fluency) and Small Group Instruction</p> <ul style="list-style-type: none"> • Deepen understanding of the role fluency plays in reading comprehension, and Understand the principles of effective fluency instruction • Examine the fluency-building supports in the Guidebooks and learn strategies for providing additional fluency support for students who need it • Learn how to plan for effective small group instruction in literacy <p>Differentiated Afternoon Sessions:</p> <ul style="list-style-type: none"> • <i>Teachers:</i> Preparing to Support Teachers in Effective ELA Planning Practices • <i>Leaders:</i> Schoolwide Systems and Structures

Intervention Content Leaders: Math Sequence of Learning	
Math Day 1	<p>Math Content: Vision of Excellence, Math Foundations, and Classroom Case Study</p> <ul style="list-style-type: none"> • <i>The Math Instructional Shifts:</i> Unpack the three math instructional shifts, and explore how they live in the Engage NY Math Curriculum • Unpack a module to understand the backwards design principles of the curriculum • Engage in a classroom case study to a class roster/set of data and determine the challenges students may face in accessing the tasks in this unit • Revisit self-assessment and reflect on current schoolwide practices in literacy
Math Day 2	<p>Math Content: Experience and Unpack a Lesson and Explore Supports</p> <ul style="list-style-type: none"> • Experience and debrief a lesson provided in the curriculum and highlight supports that are already built into this lesson • Examine how the lesson was designed to address the aspect of rigor called for by the standard(s), and anticipate potential misconceptions or barriers in the lesson • Follow the process modeled in the morning to unpack and annotate a lesson, and identify opportunities to add in additional supports to the lesson
Math Day 3	<p>Math Content: Addressing Gaps in Unfinished Learning Part I (Tracing Coherence) and Part II (Whole Group Instruction)</p> <ul style="list-style-type: none"> • Deepen understanding of the coherence across grade-levels • Analyze sample student work from the diagnostic assessment to determine where, specifically, students have unfinished learning • Learn and apply strategies for addressing these gaps through whole group instruction within the grade-level lesson • Application: Work in grade-level teams to unpack grade-level tasks and make a plan for how you could address unfinished learning through this grade-level task based on a sample data set
<p>Application: <i>Implement a lesson and bring back evidence of student learning to our next session.</i></p>	
Math Day 4	<p>Morning Math Content: Addressing Gaps in Unfinished Learning Part III (Small Group)</p> <ul style="list-style-type: none"> • Learn and apply strategies for how to address gaps through targeted small group instruction • Based on a sample data set, determine which students may require more intensive interventions and explore options for these students • Application: Work in grade-level teams to make a plan for how you could address unfinished learning through small group instruction based on the sample data set from the previous session <p>Differentiated Afternoon Sessions:</p> <ul style="list-style-type: none"> • <i>Teachers:</i> Preparing to Support Teachers in Effective Math Planning Practices • <i>Leaders:</i> Schoolwide Systems and Structures



Stacey's Story

During her time in kindergarten, first, and second grade, Stacey loved coming to school and arrived every day excited to learn, even though she performed below her peers in mastering foundational reading skills. While Stacey loved to read and quickly mastered print concepts, she struggled with phonemes and decoding. These issues became more apparent in 3rd grade. Noticing Stacey's reading challenges and wanting her to feel more successful, her 3rd and 4th grade teachers at Brightwood Elementary School made sure to give Stacey lower-Lexile versions of the texts being assigned in class and also provided her with additional time on the school's computer-based reading program during her literacy block. By fifth grade, Stacey had not improved her reading ability and continued to fall further behind her peers and below grade-level. She struggled to decode words and her reading became very choppy. Since she couldn't read with fluency, she also struggled to understand what she was reading.

From 5th to 8th grade, Stacey received two types of support: pull-out supports in the school's Title I room, where she also spent time reading texts at her reading level, and push-in supports during the literacy block, during which she worked on a computer-based reading program with a reading specialist teacher and also received modified versions or summaries of the texts the class was reading.

In her earliest years, Stacey loved math and excelled in spatial reasoning. However, she had a harder time working with numbers and by grade 2 she was falling behind her peers. By grade 4, these issues became increasingly problematic as students began multiplying and dividing multi-digit numbers. Her teachers identified that she struggled with her basic multiplication and division facts, so they placed her in a group with other students who also needed to work on these skills. During whole group instruction, Stacey and her group were able to work on their multiplication and division facts while other students moved on to multi-digit multiplication and division. Stacey also went to the pull-out Title 1 room twice a week during the math block, where she worked on a computer-based intervention program designed to reinforce foundational skills.

Stacey is now in eighth grade at Brightwood Middle School. She is trending towards earning Ds and Fs on her end of year report card and feels a sense of dread about the academic demands she will face as a high school freshman. She is reading at a 4th grade level according to the school's leveled reading program, and lacks the necessary math skills and knowledge she needs to be ready for Algebra. Although Stacey received intensive support from well-intentioned teachers over the last five years of her education, **why isn't she ready?**

Deficit Language Examples

- “You don’t know my kids.”
- “They can’t do that.”
- “She is never going to get it.”
- “He needs an easier task.”
- “They don’t have help at home.”
- “My kids aren’t motivated.”
- “She is an English Language Learner, so of course she can’t _____.”
- “I have all struggling students.”
- “Our IEP students can’t...”
- “That is my low group.”
- “He can’t focus for that long.”
- “These students are below grade level.”
- “Those kids have IEPs - the Special Ed teacher deals with them”

Louisiana’s Theory of Action

To support the success of every Louisiana student, we must work together to ensure the following things are true:

1. Every student has access to on-grade level instruction every day through a high-quality curriculum in the least restrictive environment.
2. Intervention should accelerate progress by preparing students for new learning, not remediating deficit areas.
 - a. For students who need additional support to achieve grade level standards, teachers should first employ the supports within the curriculum that scaffold learning during core instruction.
 - b. For students who persistently struggle, teachers should employ more intensive intervention; this should supplement, not replace the high-quality curriculum and embedded supports.
3. Educators who support struggling learners, including but not limited to general education, special education, English language, and reading interventionists, should be trained on the curriculum and should plan in a coordinated manner to ensure all students are prepared for Tier 1 content during core instruction and have support from their leadership in doing so.



About Catalyzing Change

In April 2018, NCTM published *Catalyzing Change in High School Mathematics: Initiating Critical Conversations*. Developed by high school teachers, district leaders, university faculty, and mathematicians, *Catalyzing Change* identifies the vexing issues that have long plagued high school mathematics education. The focus on high school mathematics education stems from the flat high school mathematics achievement over the last 30 years as compared to the progress made at the elementary and middle school levels. The mathematical learning opportunities students have—the content, the learning experiences and the support they receive—need to be examined and changed.

NCTM Makes Key Recommendations in *Catalyzing Change*:

Eliminate student and teacher tracking*

Teach all Essential Concepts in mathematics

Provide engaging and empowering mathematics instruction for every student*

Offer high school students continuous and meaningful four-year mathematics instruction

*Louisiana is implementing these recommendations.

Intensive Algebra 1 Pilot

Jill Cowart, Assistant Superintendent of Academic Content at the Louisiana Department of Education, and Chanda Johnson, Chief of Staff of Academic Content, talk about Louisiana's work to increase the number of ninth-grade students who successfully complete Algebra 1.

Challenge

A significant percentage of Louisiana's students were struggling in math, leading to less than 60 percent of ninth-grade students successfully completing Algebra 1 in ninth grade. More than 7,000 of the ninth-grade students, about 13 percent, were not enrolled in Algebra 1 or a higher math course in 2016–2017, preventing them from having the opportunity to even attempt on-grade-level work.

Algebra 1 is a gateway course that not only leads to higher level math courses but also has been shown to predict the probability of students graduating on time. The California Dropout Research Project found that controlling for all other variables, students who passed Algebra 1 by the end of their freshman year increased the odds of graduating on time by more than 75 percent (Silver et al. 2008). Louisiana studied its own graduation data and found similar trends. Recognizing this reality, Louisiana set out to improve the opportunities for its students.

Opportunity

The challenge for Louisiana was to increase the number of ninth graders who successfully completed Algebra 1. In 2017, Louisiana began the development of the Intensive Algebra 1 Pilot. The state determined three elements that were essential for the pilot to be successful:

- High-quality Algebra 1 curriculum with intensive resources that aligned to appropriate prerequisite math work and given to students “just in time” for on-grade-level learning
- Extended time for students
- Teacher support and collaboration

Louisiana worked for more than a year with schools and vendors to develop and implement high-quality curricula with appropriate, aligned supports and wrap-around training. The curriculum options all embody a standards-aligned Algebra 1 curriculum with a robust set of foundational materials.

To accommodate the need for connected prerequisite math work, all piloting schools provided extended time, typically in the form of a two-period time

Intensive Algebra 1 Pilot

block. Some schools did two periods back-to-back, and others split them throughout the day. Schools were required to have the same teacher for the two periods. In a few instances, the schools were able to place all the students in the first hour for prerequisite work and then spread them throughout the day in Algebra 1 so that they were engaging in the on-grade-level work with peers who had not historically struggled with mathematics. In all schools, the extended time was seen as a key component of a successful math experience for these students.

Another key element in the pilot was the ongoing support of the teachers as they learned to use a new curriculum and worked to keep a classroom of students engaged in math for two full periods. Most students had struggled for years in math class, and many exhibited disruptive, defeatist behavior in an effort to avoid doing math. Teachers needed strategic support to manage this behavior and to provide students with opportunities for short-term successes, increasing their willingness to engage in harder math.

Because of the nature of this pilot program, Louisiana requested applications from schools to participate. The Department of Education received tremendous interest in the pilot—applications were submitted for 110 teachers from 50 school systems. This signaled to the state both awareness of the issue and interest in trying creative solutions to help students succeed in Algebra 1.

Results

The results of the initial pilot were overwhelmingly positive. Approximately 2300 students participated in the pilot. The number of pilot students that scored proficient (defined as scoring Basic, Mastery, or Advanced) on the end-of-year exam increased from 33 percent in eighth grade to 65 percent in Algebra 1. For comparison purposes, the percentage of students scoring proficient state-wide from eighth grade to Algebra 1 increased 18 percent. Every school that originally piloted the program determined to continue with Intensive Algebra 1 in 2018–2019. Louisiana is currently working to make Intensive Algebra 1 available across the state to all students who demonstrate significant gaps in mathematical understanding in middle school. Furthermore, the state is taking the positive lessons learned from the Intensive Algebra 1 approach and working with math educators and schools to provide similar supports in earlier grades.

For more information about *Catalyzing Change*, visit www.nctm.org/change or contact David Barnes at dbarnes@nctm.org.