HumRRO
HUMAN RESOURCES RESEARCH ORGANIZATION

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Evaluation of the Alabama Numeracy Act

Year 2 Annual Report: October 2023 – September 2024

Prepared for:	The Executive Committee of the Alabama STEM Council	**Date:**	January 30, 2025

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Alabama Numeracy Act Evaluation
Year 2 Annual Report: October 2023 – October 2024

Executive Summary

The Human Resources Research Organization (HumRRO), along with its partner Mathematica, was awarded a five-year contract in fall 2023 to conduct an evaluation of the Alabama Numeracy Act (ANA). Several meetings were held August through September 2023; however, most evaluation activities did not begin until HumRRO's contract with the STEM Council was fully executed in October 2023. HumRRO released a report describing activities completed August through September 2023. The current document reports on the ANA evaluation activities completed, along with related findings, during Year 2, which covers October 2023 through September 2024.

General Evaluation Activities

HumRRO's evaluation study includes several general evaluation activities, which primarily involved various meetings and developing an ANA data tracking system. HumRRO's evaluation study director met regularly with the STEM Council Executive Director, Office of Mathematics Improvement (OMI) Director, and ALSDE staff to discuss ANA evaluation activities. The evaluation study director and process and outcome evaluation leads conducted weekly meetings with Dr. Karen Anderson, OMI Director, and Mr. Srinivas Javangula, ALSDE's Director of Data and Research. The HumRRO-Mathematica evaluation team met monthly to discuss process and outcome evaluation and supplemental studies activities. Beginning in May 2024, the HumRRO-Mathematica evaluation team met biweekly with Dr. Anderson and designated OMI staff to discuss the evaluation's eight supplemental studies.

HumRRO designed and developed an ANA data tracking system to support the long-term collection, monitoring, and management of process and outcome evaluation data. The primary purpose of the ANA evaluation data tracking system is to maximize the efficiency of collecting and using various sources of evidence to support the study's multiple research questions.

Process Evaluation

HumRRO's ANA evaluation study includes a process evaluation component that involves three major data collection activities: in-person site visits, a survey, and virtual focus groups. Year 2 evaluation activities only included the survey and focus groups. Each activity was conducted with the five major stakeholders (i.e., regional coordinators, LEA staff, FS and LS school principals, math coaches, and math teachers).

Survey

HumRRO developed and administered a population-level survey that requested participation from all individuals occupying key stakeholder positions at all SY2023–24 designated FS and LS schools. Of the five key stakeholder types, 100% of the regional coordinators and 96% of math coaches responded to the ANA evaluation Year 2 survey. Because all regional coordinators and most math coaches responded to the survey, we consider their responses to be representative of these two stakeholder types. However, less than 30% of math teachers responded to the survey, making the results for this stakeholder type less generalizable to the

population of K–5 math teachers in Alabama's FS and LS schools. On average, the regional coordinators reported working less than a year in their current position, while the average tenure of the responding math teachers was slightly more than nine years.

Most regional coordinators reported understanding the key ANA tasks they needed to perform, they received training/professional development (PD) on how to perform most of their tasks, and they had access to the resources and supports they needed to fulfill their ANA responsibilities. The regional coordinators reported the least understanding, training, and access to their tasks related to monitoring MTSS implementation.

LEA staff who responded to the survey indicated they understand their designated key ANA and annual data reporting tasks. They also reported having received training/PD on most of the tasks and having access to the resources and support to successfully perform their ANA responsibilities. The responding LEA staff reported the least understanding, training, and access to resources and support related to the key task involving using a fractional reasoning screener to identify students in need of support for fractional reasoning. Regarding their annual data reporting tasks, they reported the least understanding, training, and access to resources and support to provide data involving screening for dyscalculia and the specific interventions provided to support this math deficiency.

A large percentage of FS and LS school principals reported understanding their ANA responsibilities, having received training/PD to perform their tasks, and having access to the resources and supports they need to perform their ANA responsibilities.

Most responding math coaches confirmed they understand their key ANA tasks, received training/PD to perform those tasks, and have access to the resources and support to perform their ANA responsibilities successfully. The task that many math coaches indicated not having received training on or for which they did not have access to the necessary resources or supports involved administering fractional reasoning screeners or diagnostic assessments to grades 4–5 students.

At least three-fourths of the responding math teachers reported understanding their key ANA tasks, being trained to perform their key tasks, and having access to the resources and support to perform their ANA tasks effectively. The exception was that about two-thirds indicated having the resources or support needed to provide reports to parents/legal guardians for the students who received a math intervention during the school year.

Virtual Focus Groups

The ANA evaluation includes conducting focus groups during every school year. The purposes of the focus groups are to (a) explore response patterns or themes that emerge from the survey and (b) obtain context or clarification for interpreting the survey responses.

We conducted the focus groups in May and June 2024, with regional coordinators, LEA staff, principals, math coaches, and math teachers from a potential pool of 65 FS or LS schools. Participants across these five stakeholder types generally reported ANA implementation was going well in their schools and they were observing positive impacts. Most focus group participants reported positive reception to the intentional and systematic emphasis on math instruction and achievement. The working relationship between teachers and coaches was generally perceived as positive, especially with coaching cycles.

In addition to sharing positive aspects, the focus group participants shared some challenges they or others in their school experienced when implementing the ANA. Some reported the rollout of ANA was too rapid, which resulted in some stakeholders becoming overwhelmed with their responsibilities. They also reported a lack of infrastructure within their schools to fully and effectively implement the ANA. Some examples included ambiguity in scheduling to allow teachers sufficient time for required tiered instruction, uncertainty in how to balance the implementation of multiple required initiatives, unclear guidance about student progress reports for parents, and the lack of a dedicated interventionist. Stakeholders in leadership positions (e.g., principals, LEAs, regional coordinators) discussed the need for better collaboration across departments to facilitate consistent and cohesive messaging to schools and teachers. This collaboration and communication may be especially needed given that several stakeholder groups noted that reading instruction/mandates either take precedence over math instruction or there is a conflict between prioritizing reading or math. Regarding training and material resource needs, focus group participants requested more hands-on materials like manipulatives, which both teachers and coaches cited as helpful teaching tools. Multiple stakeholders reported that additional training would be beneficial on (a) how to administer and use assessments (e.g., screeners, diagnostic assessments) to inform instructional decision-making, (b) math standards and proficiency scales for teachers, and (c) how to shift from traditional math instruction to ANA's requirements. However, they emphasized these training sessions should be administered at an appropriate pace and with targeted resources so that participants are not overwhelmed by the volume of information shared.

Outcome Evaluation

The most important evaluation criterion for ANA is student math performance and this is the focus of the outcome evaluation. HumRRO received the requested SY2022–23 outcome data (in four separate data files), along with a document explaining the contents of the data files, from ALSDE on June 13, 2024. HumRRO received the requested SY2023–24 outcome data (in four separate data files) on August 19, 2024. The SY2023–24 data file formats were the same as for SY2022–23. We encountered three major challenges with the SY2022–23 outcome data provided by the ALSDE. One challenge was not in the delivery structure of the files (separate files for student demographics, student assessment, teacher and school) per se, but rather with the extensive effort required to clean and manipulate (e.g., identifying and removing duplicate individuals and verifying the appropriate teacher certificate type) without clear data dictionaries and business rules for how to merge and validate the integrity of the data.

Another challenge involved data discrepancies among the data files we received. A hierarchical flow exists starting with the total number of active schools in the state, filtered to the total number of schools under which ANA applies (based on standardized rules), filtered to the classification of designated and non-designated schools. All schools should be present across all files, with teachers representing each school and students representing each teacher. Student and teacher mobility complicates these data records; however, state-level business rules for how to link students to teachers to schools is standard practice for maintaining large complex databases.

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Finally, some data elements that we requested from the ALSDE were not provided (e.g., student math proficiency ranking, MTSS implementation and impact data). It is unclear if this data will become available or shared in subsequent years. Assuming this data becomes available later, its utility for the evaluation will be minimal since no trends or comparisons of trends with other indicators (e.g. ACAP scores) will be available. Additionally, we were informed that certain data elements will not be shared, including performance rating data for teachers and coaches (e.g., Alabama Teacher Observation Tool [ATOT] data).

Alabama Comprehensive Assessment Program

The most consistent indicator, and the indicator used to assign schools to FS or LS status, is the Alabama Comprehensive Assessment Program (ACAP), which is administered in grades 2–5 to all students (except for those with the most significant cognitive disabilities who take the ACAP Alternate). Our analyses show that:

- Students in the FS and LS schools tended to score lower than students in non-designated schools. The data also show that these differences occurred for all student groups but that they varied somewhat in magnitude by student group and by grade.

- EL students in FS and LS schools, except for those in grade 2, tended to outperform students without EL status in those same schools. This trend was reversed in non-designated schools.

- In grades 4 and 5, fewer than 2% of students with an IEP who attended FS/LS schools scored Proficient or above (1.7% and 1.9%, respectively).

- Lower ACAP scores were associated with attending an FS or LS school and eligibility for free- or reduced-price lunch, and students in both categories scored substantially lower than their peers. For example, for grade 4, only 7.2% of students who were eligible for free- or reduced-price lunch and attended an FS or LS school in SY2023–24 scored Proficient or above. Roughly double that percentage (14.4%) of grade 4 students who were not eligible in the same schools scored Proficient or above. The number of grade 4 students with lunch status in non-designated schools who scored Proficient (29.3%) roughly doubled again. The percentage of grade 4 students in non-designated schools who were not eligible for free- or reduced-lunch was 60.3%.

Other Assessments

For students in grades K–1, Alabama relies on other district- or school-selected rather than statewide assessments to monitor student math achievement. Our analyses of the other assessments show:

- AIMSWeb Early Numeracy Assessment (administered to K–1 students): Students in non-designated schools had higher overall scores on the beginning of year assessment than those in FS/LS schools for kindergarten and grade 1. All groups' scores improved substantially on the middle of year assessment (MOY), but the differences between FS/LS and non-designated schools were larger for the MOY, indicating that students may be falling further behind their peers rather than catching up to them.

- AIMSWeb Formative Math Assessment (administered to grades 2–3 students): Students in FS and LS schools scored lower overall than students in non-designated schools.

Those differences were larger for the middle of year than for end-of year for SY2023–24, indicating that students tended not to improve as much in FS and LS schools between test administrations.

- STAR Renaissance Math Assessment: Scores improved from beginning to middle of year and continued to improve to the end of year. There were also improvements in mean scores overall from SY2022–23 to SY2023–24. Students in FS/LS schools scored lower than their peers and did not improve quite as much over the year. This pattern held true for both years.

- I-Ready Diagnostic Math Assessment: The FS and LS school population of students tended to score lower on all assessments across the grades. They also tended to gain less between the beginning and middle of the year and between the middle and end of year. Unlike the other assessments, the i-Ready Diagnostic Math assessment scores tended to drop between SY2022–23 and SY2023–24.

Supplemental Studies

HumRRO's ANA evaluation includes eight supplemental studies. We designed these studies not to be conducted in isolation but rather to coordinate with and support the process and outcome evaluations. Although SY2023–24 was the first year of ANA implementation, key processes were not yet in place for the collection of supplemental study data; data collection for most of the supplemental studies will begin in SY2024–25. The eight supplemental studies include:

- Comparison Study
- Cost Effectiveness Analysis Study
- Effectiveness of Screening Assessments Study
- Math Coach Performance Study
- Alabama Multi-Tier System of Support (AL-MTSS) Study
- Stakeholder Awareness and Satisfaction Study
- Teacher Math Content Knowledge and Pedagogy Study
- Unintended Consequences of the ANA Study

Looking Ahead to Year 3

Year 3 will continue to incorporate some general evaluation activities, including (a) continued separate meetings with the STEM Council Executive Director, OMI Director and ALSDE's Director of Data and Research, and OMI Director and staff; and (b) refining and updating the ANA evaluation data tracking system. Our Year 3 process evaluation activities include in-person site visits to a total of six FS and LS schools across the state; an annual online survey administered to the five key stakeholder groups; separate virtual focus groups with the five key stakeholder groups; and separate in-person site visits to six full- and limited-support schools, including focus groups with parents and students. Year 3 outcome evaluation activities will focus on identifying longitudinal trends and patterns, particularly related to student math proficiency.

Initial Considerations for Improvement

- **Develop processes and procedures for centralized ANA data collection, including standardizing what data needs to be collected and maintaining a central statewide database**. Currently, there are several data elements that are needed by the evaluation

study to effectively track the implementation of ANA requirements and evaluate their impacts. One example is the collection of MTSS data. We understand the MTSS data are currently collected and maintained by each LEA. As the ANA reaches full implementation, it will be important for the state to track and monitor data related to all its requirements to effectively track progress and identify trends and patterns related to student math achievement. We recommend that the ALSDE design and develop a system in which common data elements are collected across LEAs and maintained at the state level.

- **Review professional learning offerings and schedules**. Most stakeholders shared their enthusiasm about ANA and expressed a desire to help ensure its success. We learned from some stakeholders that numerous professional learning offerings are available as part of the ANA, but the timing limits or prevents them from participating. Other stakeholders described areas where they felt unprepared and that professional learning is needed but not yet available (e.g., procedures for administering screening assessments). We recommend that the ALSDE and OMI review all the ANA-related professional learning offerings and schedules with a focus on ensuring that the timing and sequence of professional learning is appropriate, and that professional learning offerings cover the content most needed by stakeholders.

- **Provide guidance for the simultaneous implementation of multiple high priority initiatives**. One of the biggest challenges individuals faced in completing their key ANA tasks was the need to implement multiple high priority initiatives simultaneously, specifically their work related to the Literacy Act and their work related to the Numeracy Act. We heard from individuals about the conflicts that they encountered when trying to complete the required work related to both initiatives. We recommend that ALSDE, OMI, and appropriate others provide guidance for how individuals can complete their work related to multiple high priority initiatives.

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Background

The Alabama Numeracy Act (ANA)[1] addresses the urgent need to improve the math proficiency of grade K–5 students and ensure those students are proficient in math at or above grade level at the end of grade 5. The ANA represents a comprehensive system of improvements designed to support educators in all aspects of instructing students in math. At the outset of the ANA implementation, schools among the lowest performing 5% were designated as full-support schools, and those performing in the bottom 6% to 25% were designated as limited-support schools. While both sets of schools receive support under the ANA, full-support schools receive more intensive support.

An important aspect of the ANA is the assignment of math coaches to support schools in improving numeracy in grades K–5. To be successful, it is imperative that effective coaches are identified, those coaches are provided with the tools to help teachers improve their math instruction, curricular supports are provided that enable effective instructional practices, teachers implement those practices with fidelity, student performance outcomes are monitored, and aspects of the system are adjusted based on clear, actionable evaluation data that reflects every step of this process. It is an ambitious but vital system that Alabama students depend on to succeed.

The Human Resources Research Organization (HumRRO), along with its partner Mathematica, was awarded a five-year contract in fall 2023 to conduct an evaluation of the ANA. Several meetings were held August through September 2023[2]; however, most evaluation activities did not begin until HumRRO's contract with the STEM Council was fully executed in October 2023. HumRRO released a report describing activities completed August through September 2023.[3] The current document reports on the ANA evaluation activities completed, along with related findings, during Year 2, which covers October 2023 through September 2024.

ANA Evaluation Research Questions

HumRRO's contract was awarded in response to a Request for Proposals (RFP) issued by the Alabama STEM Council, which outlined the requirements for the external evaluation.[4] The RFP included 17 research questions to be addressed, primarily by completing activities related to process and outcome evaluation components and eight supplemental studies. The compilation of research questions posed by the STEM Council form the basis of HumRRO's contract and, thus, the evaluation study.

[1] https://www.alabamaachieves.org/wp-content/uploads/2023/03/OMI_202338_ANA_v1.0.pdf
[2] Per the STEM Council's RFP, HumRRO's ANA evaluation Year 1 contract only covered August through September 2023.
[3] https://stemcouncil.alabama.gov/wp-content/uploads/2024/02/ANA-Evaluation_Year-1-Annual-Report_Final65.pdf
[4] https://www.aidt.edu/wp-content/uploads/2023/05/Evaluation-of-the-Alabama-Numeracy-Act-2023-3.pdf

The ANA evaluation study addresses the following 17 research questions, as specified by the STEM Council[5]:

A. Were all processes and activities required by the ANA implemented by stakeholders? What factors facilitated or impeded the implementation? How were barriers overcome?

B. To what extent did the implementation of the ANA improve mathematics proficiency of students in grades K–5? To what extent was the improvement consistent for all subgroups? What are the characteristics of FS and LS schools that make the greatest progress improving proficiency scores?

C. To what extent do FS and LS schools that are assigned a math coach yield better performance than such schools that do not have a coach?

D. To what extent is the Alabama Coaching Framework being implemented with fidelity in each FS and LS school?

E. To what extent do performance evaluations of math coaches by principals and regional coordinators in FS and LS schools relate to differences in math achievement?

F. To what extent is the Alabama Framework for Multi-Tiered Systems of Support (MTSS) implemented in grades K–5?

G. To what extent do ratings of implementation of MTSS (reported in F above) within schools relate to the distribution of students within tiered placements?

H. What are the status and gains in math knowledge and skills of K–5 teachers (e.g., as perceived by the math coach and/or principal)?

I. To what extent do principals' and regional coordinators' ratings of coaches explain variance in principal and coach evaluations of teachers?

J. To what extent do ratings of the math knowledge and skills of K–5 teachers within FS and LS schools (e.g., as made by coaches or principals) account for differences in student performance on formative and summative assessments in math?

K. To what extent do required screening and diagnostic assessments identify students who are subsequently identified as needing tiered services and/or receive diagnosis relating to math (e.g., specific learning disability or dyscalculia)?

L. What positive and negative outcomes emerged within schools, local education agencies (LEAs), the Alabama State Department of Education (ALSDE), and other stakeholder groups that were not anticipated as a result of the implementation of any component of the ANA?

M. What were the impacts of the School Turnaround Academy?

N. What were the impacts of the Instructional Leadership Framework?[6]

[5] While process and outcome data will be collected each year beginning in August 2023, some data will not be collected until certain systems have been developed and adopted; thus, research questions D, E, F, G, H, I, K, M, and N will not be addressed until SY2024–25.

[6] HumRRO was informed by Office of Mathematics staff that the Instructional Leadership Framework has been replaced by the Alabama Principal Leadership Development System, Senate Bill (SB) 300, ACT #2023-340, enacted in May 2023. The system includes the Principal Mentor Program, which launched in July 2024. More information about the system and program can be found at Advocacy Agenda: January 2024 | NASSP

O. To what extent were the relationships between process and outcomes achieved as expected based on logic models? What external factors impacted the anticipated accomplishments and relationships? Is the Alabama Coaching Framework being implemented with fidelity in each FS and LS school?

P. To what extent are stakeholders aware of and satisfied with the implementation of the ANA?

Q. What are the overall costs and actual or anticipated financial benefits of the ANA?

Each research question is addressed directly and indirectly across multiple evaluation components and studies, allowing HumRRO to triangulate findings to inform a rich evaluation and provide substantive recommendations. Table 1 summarizes how each of the 17 research questions will be addressed through the process and evaluation components and supplemental studies across all years of the evaluation study.

Table 1. Research Question by Evaluation Component and Supplemental Study

Evaluation Components and Studies	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Process Evaluation	♦	✓	✓	♦	✓	✓		✓		✓		✓	✓	✓	♦	✓	
Outcome Evaluation	✓	♦			✓		✓	✓	✓	✓			♦		♦		
Math Coach Comparison Study	✓		♦		✓												
Math Coaches and Student Achievement	✓	✓	✓	✓	♦			✓	♦	✓				✓			
MTSS	✓			✓		♦	♦				✓			✓			
Teacher Math Knowledge and Pedagogy	✓				✓			♦	✓	♦				♦			
Screening Assessments	✓						✓				♦						
Unintended Consequences	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	♦	✓	✓	✓	✓	✓
Stakeholders	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	♦	✓
Cost Effectiveness	✓						✓						✓	✓			♦

Note. Green ♦ diamond marks indicate a direct focus; black ✓ check marks indicate an indirect focus.

The ANA evaluation research questions address many, but not all, of the requirements outlined in the ANA statute. Table 2 identifies the ANA requirements that are addressed by the current evaluation study. It is important to note that some research questions address one or more ANA requirements more directly than others.

Table 2. Crosswalk of ANA Requirements to Evaluation Research Questions

Statute Section	Expected Start Date	Research Question(s)	Relevant Report Section(s)
1: Establishment of ANA	February 2022	NA	NA
2: Definitions Key ANA Terms	February 2022	NA	NA
3: Elementary Mathematics Task Force	May 2022	*	*
4: Office of Mathematics Improvement	May 2022	*	*

Statute Section	Expected Start Date	Research Question(s)	Relevant Report Section(s)
5: K-5 Teacher Responsibilities	Not stated	A, B, F	Process Evaluation Appendix C Appendix D
6: Identify Math Deficiencies	SY2023–24 early numeracy screener, fractional reasoning screener, intensive math intervention, and benchmark formative assessments	A, G, K	Process Evaluation Effectiveness of Screening Assessments Study Appendix C Appendix D
7: Allocate Math Coaches	Scale-up completed by SY2027–28	A, C, E, I	Process Evaluation Math Coach Comparison Study Math Coaches and Student Achievement Appendix C Appendix D
8: Identify Full- and Limited Support Schools	August 1, 2022; SY2023 – 24 LEAs begin reporting previous school year info	A, B, C	All
9: Alabama Mathematics Summer Achievement Program	Summer 2023	A	Appendix C Appendix D
10: Multi-Tiered System of Support (MTSS)	August 1, 2022	A, D, F, G. K. N	Process Evaluation Outcome Evaluation Alabama Multi-Tier System of Support (AL-MTSS) Study Appendix C Appendix D
11: Office of School Improvement Responsibilities	Not stated	NA	NA
12: State Academic Intervention Framework	Framework January 1, 2024; academic intervention August 1, 2026	A, B, F, G, M	Process Evaluation Outcome Evaluation Alabama Multi-Tier System of Support (AL-MTSS) Study Appendix C Appendix D
13: Postsecondary Mathematics Task Force	August 1, 2022; guidelines August 1, 2024	NA	NA
14: K-5 Mathematics Coach Endorsement	June 30, 2024	NA	NA
15: Alabama Instructional Leadership Framework (Replaced by Alabama Principal Leadership Development System)	October 1, 2022; July 2024	N	Teacher Math Content Knowledge and Pedagogy Study

Statute Section	Expected Start Date	Research Question(s)	Relevant Report Section(s)
16: School Turnaround Academy	January 1, 2023	B, M	Outcome Evaluation
17: External ANA Evaluation	January 15, 2023	All	All
18: Technical Support to LEAs	Not stated	A	Process Evaluation Appendix C Appendix D
19: Allocation of Funds to Support ANA	Not stated	A, C, Q	Process Evaluation Comparison Study Cost Effectiveness Analysis Study

Note. NA indicates the ANA requirement is beyond HumRRO's evaluation study, is not applicable to any of the study's research questions and is not covered in this evaluation. * indicates the ANA statute requirements are ancillary to the study's research questions and will only be indirectly addressed throughout the evaluation components.

Full- and Limited Support Schools

Per the STEM Council's evaluation requirements, this study focuses on implementation of the ANA and the impact it has in Alabama's full- and limited-support schools. Full-support (FS) schools are the lowest performing elementary schools, while the limited-support (LS) schools are the second lowest performing elementary schools, both as measured by mathematics proficiency on the state's summative assessment. Beginning August 1, 2022, the ANA requires that FS and LS schools be designated based on student proficiency at levels 3 and 4 on the state's summative assessment. Initially, FS schools consisted of the lowest 5% performing public elementary schools, along with any K–2 school in the feeder pattern of a grades 3–5 FS school. Thereafter, the number of FS schools will increase by an additional 1% every two years until the lowest 10% performing public elementary schools are included. The LS schools initially consisted of the lowest 6–25% performing public elementary schools, with the number decreasing by an additional 1% every two years until the lowest 11–25% performing public elementary schools are included. Table 3 presents the number of FS and LS schools designated for the 2022–23 and 2023–24 school years.

Table 3. Number of FS and LS Schools Designated in SY2022–23 and SY2023–24

SY	FS	LS	Total FS/LS	None	Total
2022–23	19	64	83	771	854
2023–24	40	65	105	745	850

Note. We understand that not all of the lowest performing schools were designated as FS (lowest 5%) or LS schools (lowest 6–25%) in SY2022–23 and SY2023–24. The numbers of FS and LS schools in this table are based on data files provided by the Alabama State Department of Education (ALSDE) in June (SY2022–23) and August (SY2023–24) 2024.

The Year 2 evaluation included numerous process and outcome component efforts and supplemental study activities. An outline of the Year 2 planned process and outcome evaluation activities is presented in Appendix A and an outline of the supplemental study activities is presented in Appendix B.

General Evaluation Activities

HumRRO's ANA evaluation study involved several general activities. We describe below the Year 2 general evaluation activities that were completed.

Meetings

HumRRO's evaluation study director met regularly with the STEM Council Executive Director, Office of Mathematics Improvement (OMI) Director, and ALSDE staff to discuss ANA evaluation activities. The meetings with the STEM Council Executive Director were held monthly. Dr. Lee Meadows participated in these meetings until he retired. Dr. Sheila Holt then participated in the meetings when she joined the STEM Council in July 2024. The primary purposes of these meetings were to discuss contract matters, share progress made on ANA evaluation activities, and brainstorm resolutions to potential challenges.

The evaluation study director and process and outcome evaluation leads conducted weekly meetings with Karen Anderson, OMI Director, and Srinivas Javangula, ALSDE's Director of Data and Research. Dr. Anderson provided valuable input by reviewing draft data collection instruments (e.g., annual survey, virtual focus group protocols) and identifying ALSDE and OMI staff to support and provide information for conducting the supplemental studies. Mr. Javangula coordinated the transfer of student, teacher, and school data to HumRRO in support of the outcome evaluation and several supplemental studies.

The HumRRO-Mathematica evaluation team met monthly to discuss process and outcome evaluation and supplemental studies activities. The team shared updates regarding progress in completing ongoing evaluation activities and discussed plans and timelines for (a) conducting process evaluation activities, including the annual survey and virtual focus group sessions; (b) extant data needed to support the evaluation, including the data sharing agreement and procedures for sharing data; (c) supplemental study activities; and (d) reporting on evaluation activities and progress. To ensure everyone was informed, the team emailed frequently between meetings and posted documents and files to a shared HumRRO-Mathematica folder on which various members worked together. Within each organization, HumRRO and Mathematica met frequently with their respective internal team members to continue planning and discussing ongoing evaluation and supplemental studies activities.

Beginning in May 2024, the HumRRO-Mathematica evaluation team met biweekly with Dr. Anderson and designated OMI staff to discuss the evaluation's eight supplemental studies. The purposes of these meetings were to discuss (a) the data collection plans and requirements of each study and (b) ways the designated OMI staff could provide information relevant to the various studies and support the coordination of select study activities. Dr. Anderson provided ongoing communications and connections among HumRRO and Mathematica researchers and the designated OMI staff.

Data Tracking System

HumRRO designed and developed an ANA data tracking system to support the long-term collection, monitoring, and management of process and outcome evaluation data. The primary purpose of the ANA evaluation data tracking system is to maximize the efficiency of collecting and using various sources of evidence to support the study's multiple research questions. HumRRO compiled a list of initial data requirements, including the criteria and metrics that will be used to address each research question. In general, the data system tracks and manages

ANA data availability, data acquisition or receipt, the source of evidence, and how the data will be used to support multiple research questions.

Project staff monitored OMI's and ALSDE's plans throughout the year to collect current and future ANA implementation data, paying particular attention to how these data inform the overall evaluation and supplemental study activities. HumRRO incorporated elements into the tracking system based on new data received from the ALSDE and OMI to support several supplemental studies (e.g., assignment, funding, and number of math coaches in each school; math coach proficiency/level of training). We also established formal procedures for receipt of data files (and transfer, as required). We continue to add additional fields as we learn about new data collection plans to ensure the system captures both current and newly identified variables.

Process Evaluation

The process evaluation activities primarily address three research questions:

A. Were all processes and activities required by the ANA implemented by stakeholders? What factors facilitated or impeded the implementation? How were barriers overcome?

D. To what extent is the Alabama Coaching Framework being implemented with fidelity in each FS and LS school?

O. To what extent were the relationships between process and outcomes achieved as expected based on logic models? What external factors impacted the anticipated accomplishments and relationships? Is the Alabama Coaching Framework being implemented with fidelity in each FS and LS school?

The Year 2 process evaluation involved two major data collection activities: a survey and virtual focus groups. Each activity was conducted with the five major stakeholders (i.e., regional coordinators, LEA staff, FS and LS school principals, math coaches, and math teachers).[7]

Survey

HumRRO developed an online survey to measure key stakeholders' baseline implementation of ANA processes and activities. The survey primarily included close-ended questions (e.g., yes/no, Likert scale). HumRRO and Mathematica project staff and the OMI Director conducted multiple reviews of the survey, with the survey revised accordingly after each review. The survey was also provided to the ALSDE for review and input. The survey was pilot-tested and finalized based on pilot test results. HumRRO's first administration of this survey occurred during the 2023–24 school year and focused on baseline implementation; subsequent years will focus on the quality and effectiveness of ANA implementation.

Following a landing page with an introduction that described the purpose of the survey and how response data will be used, the survey asked respondents to indicate their ANA-related role: regional coordinator, LEA staff, principal (FS school or LS school), math coach, or math teacher. Based on that role, respondents were then presented with numerous questions regarding their responsibilities. It is important to note that while the ANA provided information about the

[7] The original Year 2 process evaluation plan included fall in-person site visits as a third major activity; however, due to delays in executing the contract and data sharing agreement, in-person site visits were not conducted in fall 2023. The site visits conducted in October and November 2024 are part of Year 3, which covers October 2024 through September 2025, and will be included in the Year 3 report.

responsibilities and key tasks that should be completed by each stakeholder type, it did not provide guidance about the frequency of task completion.

We adhered closely to the language within the ANA to develop the survey questions regarding the responsibilities associated with each role. Before being directed to questions about their ANA responsibilities, respondents were asked several background questions (e.g., name of the school or district, length of time in the role, attendance at an ANA Overview Session). In general, the survey asked:

- ***Regional coordinators*** about their understanding, training, and access to resources and other supports related to their ANA responsibilities and how frequently they implement each of their stated ANA responsibilities.
- ***LEA staff*** about their understanding, training, and access to resources and other supports related to their ANA responsibilities; how frequently they implement each of their stated ANA responsibilities; the funding the LEA receives to implement the ANA during the current school year; and the amount of additional LEA funds expected to be spent in the current school year on implementing the ANA.
- ***Principals*** (FS school and LS school) about their understanding, training, and access to resources and other supports related to their ANA responsibilities; how frequently they implement each of their stated ANA responsibilities; the funding their school receives to implement the ANA during the current school year; and the amount of additional funds for their school they expect to be spent in the current school year on implementing the ANA.
- ***Math coaches*** about their understanding, training, and access to resources and other supporting tools related to their ANA responsibilities and how frequently they implement each of their stated ANA responsibilities.
- ***Math teachers*** about their understanding, training, and access to resources and other supports related to their ANA responsibilities; how frequently they implement each of their stated ANA responsibilities; the extent to which they feel confident in their content knowledge, instructional skills, and ability to teach various math concepts; if they serve as a member of their school's Problem Solving Team (PST); and if they have referred any students to the PST team during SY2023–24.

Survey Administration

HumRRO conducted a population-level survey that requested participation from all individuals occupying key stakeholder positions at all SY2023–24 designated FS and LS schools. HumRRO worked closely with the OMI Director to (a) obtain the names and email addresses of all respondents associated with each role described above and (b) notify the schools and their designated respondents about the survey and the need for completion. We also worked closely with the ALSDE Director of Data and Research to ensure each school that would receive the survey properly whitelisted the survey Uniform Resource Locator (URL) to avoid blockage.

HumRRO launched the survey on March 25, 2024, and closed it on April 16, 2024. The administration window was longer than originally planned because some schools were on spring break the first week and other schools were on spring break the second week; the extended administration window allowed for stakeholders in all schools to have at least 2 weeks to complete the survey. We sent two reminders during the administration window to encourage the designated respondents to complete the survey.

Summary of Year 2 Key Survey Results

As seen in Table 4, of the five key stakeholder types, 100% of the regional coordinators and 96% of math coaches responded to the ANA evaluation Year 2 survey. Because all regional coordinators and most math coaches responded to the survey, we consider their responses to be representative of these two stakeholder types. However, less than 30% of math teachers responded to the survey, making the results for this stakeholder type less generalizable to the population of K–5 math teachers in Alabama's FS and LS schools. On average, the regional coordinators reported working less than a year in their current position, while the average tenure of the responding math teachers was slightly more than nine years (see Table 5).

Table 4. Survey Response Rates by Key Stakeholder Type

Key Stakeholder Type	Total N	N Respondents	Response Rate
Regional Coordinator	24	24	100%
LEA Staff	45	35	78%
Principal – FS School	42	34	81%
Principal – LS School	75	45	60%
Math Coach	105	101	96%
Math Teacher	1,451	428	29.5%

Note. The numbers of FS and LS school principals in this table are based on information provided by OMI in February 2024.

Table 5. Mean Tenure by Key Stakeholder Type

Key Stakeholder Type	Mean Tenure
Regional Coordinator	0.9 years
LEA Staff	5.0 years
Principal – FS School	4.8 years
Principal – LS School	4.4 years
Math Coach	1.1 years
Math Teacher	9.3 years

A summary of Year 2 key survey findings is presented below. Detailed descriptions of the results, along with tables, are presented in Appendix C.

Regional Coordinators

Most regional coordinators reported understanding the key ANA tasks they needed to perform, they received training/professional development (PD) on how to perform most of their tasks, and they had access to the resources and supports they needed to fulfill their ANA responsibilities. The regional coordinators reported the least understanding, training, and access to their tasks

related to monitoring MTSS implementation. Across their ANA tasks, they reported having to implement most of them either once a week or once a month.

LEA Staff

LEA staff who responded to the survey indicated they understand their designated key ANA and annual data reporting tasks. They also reported having received training/PD on most of the tasks and having access to the resources and support to successfully perform their ANA responsibilities. The responding LEA staff reported the least understanding, training, and access to resources and support related to the key task involving using a fractional reasoning screener to identify students in need of support for fractional reasoning. Regarding their annual data reporting tasks, they reported the least understanding, training, and access to resources and support to provide data involving screening for dyscalculia and the specific interventions provided to support this math deficiency. The frequency with which the LEA respondents reported implementing each task varied.

FS and LS School Principals

A large percentage of FS and LS school principals reported understanding their ANA responsibilities, having received training/PD to perform their tasks, and having access to the resources and supports they need to perform their ANA responsibilities. Across their designated ANA tasks, FS school principals reported performing most on a daily, weekly, or monthly basis. Most LS school principals reported performing their ANA tasks weekly or daily. Additionally, nearly one-quarter of responding FS school principals reported not implementing approved math intervention programs or curricula for Tier 2 and Tier 3 interventions.[8]

Math Coaches

Most responding math coaches confirmed they understand their key ANA tasks, received training/PD to perform those tasks, and have access to the resources and support to perform their ANA responsibilities successfully. The task that many math coaches indicated not having received training on or for which they did not have access to the necessary resources or supports involved administering fractional reasoning screeners or diagnostic assessments to grades 4–5 students. Many math coaches indicated they perform most of their key ANA tasks every day or once a week, with a moderate percentage of math coaches indicating they perform certain key ANA tasks once a month. Almost three-fourths of the math coaches reported not helping teachers administer fractional reasoning or diagnostic assessments to grades 4–5 students.

Math Teachers

At least three-fourths of the responding math teachers reported understanding their key ANA tasks, being trained to perform their key tasks, and having access to the resources and support to perform their ANA tasks effectively. The exception was that about two-thirds indicated having the resources or support needed to provide reports to parents/legal guardians for the students who received a math intervention during the school year. Most math teachers indicated they perform their key ANA tasks every day, except for providing reports to parents/legal guardians.

[8] Approved formative benchmark assessments, early numeracy screeners, high-quality curricula, and professional learning are available here: https://www.alabamaachieves.org/wp-content/uploads/2024/06/StateSuperIn_Memos_20240611_FY24-2046-ANA-Recommendations-from-the-Elementary-Mathematics-Task-Force_V1.0.pdf.

Virtual Focus Groups

The ANA evaluation includes conducting focus groups during every school year. The purposes of the focus groups are to (a) explore response patterns or themes that emerge from the survey and (b) obtain context or clarification for interpreting the survey responses.

Focus Group Protocol Development

HumRRO developed separate protocols to understand and capture the unique experiences of the five key stakeholders (i.e., regional coordinators, LEA staff, FS and LS school principals, math coaches, and math teachers) regarding their ANA responsibilities. We designed the questions to elicit information about the experiences of the participants, the strengths and challenges associated with ANA implementation, how data are used to monitor and shape implementation, training and resource needs, and the schools' culture of coaching.

Recruitment of Focus Group Participants

We identified 65 FS and LS schools as the basis for recruiting key stakeholders to participate in the spring 2024 focus groups. These schools were selected based on stakeholders' survey response patterns and the potential for obtaining follow-up or clarifying information. Based on school calendars and their remaining year's scheduled activities, along with recommendations from OMI staff, we scheduled three sessions for each stakeholder group, approximately one per week over a three- to four-week period. This resulted in three sessions for each of the five stakeholder types, for a total of 15 focus groups.

Using the names and contact information from the survey administration, we emailed all individuals within each stakeholder type at the 65 identified schools. We provided these individuals with information about the focus group sessions, along with an invitation to participate. We requested those who were interested and available to respond with their preferred date/time. We followed up with invitations to all individuals who confirmed their interest and availability.

We conducted the focus groups in May and June 2024. Each session lasted approximately one hour and was conducted virtually via Microsoft Teams. One HumRRO staff facilitated each focus group while a second staff member took notes. HumRRO also audio-recorded the focus groups, with participant approval. HumRRO staff used the audio recordings to finalize the data for qualitative analysis. Table 6 presents the number of participants by stakeholder type who participated in each scheduled session, indicating that a total of 60 participants across the five stakeholder types participated in the focus group sessions.

Table 6. Number of Focus Group Participants by Stakeholder Type and Session

Stakeholder Type	Focus Group Participants Session 1	Focus Group Participants Session 2	Focus Group Participants Session 3	Total Participants
Regional Coordinator	10	10	3	23
LEA Staff	2	3	4	9
FS and LS School Principal	0	2	2	4
Math Coach	9	5	5	19
Math Teacher	4	1	0	5

Summary of Year 2 Key Focus Group Results

A summary of Year 2 key virtual focus group findings is presented below. Detailed descriptions of the results are presented in Appendix D.

Focus groups were held in spring 2024 with regional coordinators, LEA staff, principals, math coaches, and math teachers from a potential pool of 65 FS or LS schools. Participants across these five stakeholder types generally reported ANA implementation was going well in their schools and they were observing positive impacts. Most focus group participants reported positive reception to the intentional and systematic emphasis on math instruction and achievement. The working relationship between teachers and coaches was generally perceived as positive, especially with coaching cycles.

In addition to sharing positive aspects, the focus group participants shared some challenges they or others in their school experienced when implementing the ANA. Some reported the rollout of ANA was too rapid, which resulted in some stakeholders becoming overwhelmed with their responsibilities. They also reported a lack of infrastructure within their schools to fully and effectively implement the ANA. Some examples included ambiguity in scheduling to allow teachers sufficient time for required tiered instruction, uncertainty in how to balance the implementation of multiple required initiatives, unclear guidance about student progress reports for parents, and the lack of a dedicated interventionist. Stakeholders in leadership positions (e.g., principals, LEAs, regional coordinators) discussed the need for better collaboration across departments to facilitate consistent and cohesive messaging to schools and teachers. This collaboration and communication may be especially needed given that several stakeholder groups noted that reading instruction/mandates either take precedence over math instruction or there is a conflict between prioritizing reading or math. Regarding training and material resource needs, focus group participants requested more hands-on materials like manipulatives, which both teachers and coaches cited as helpful teaching tools. Multiple stakeholders reported that additional training would be beneficial on (a) how to administer and use assessments (e.g., screeners, diagnostic assessments) to inform instructional decision-making, (b) math standards and proficiency scales for teachers, and (c) how to shift from traditional math instruction to ANA's requirements. However, they emphasized these training sessions should be administered at an appropriate pace and with targeted resources so that participants are not overwhelmed by the volume of information shared.

Outcome Evaluation

The outcome evaluation activities primarily address three research questions:

B. To what extent did the implementation of the ANA improve mathematics proficiency of students in grades K–5? To what extent was the improvement consistent for all subgroups? What are the characteristics of FS and LS schools that make the greatest progress improving proficiency scores?

M. What were the impacts of the School Turnaround Academy?[9]

[9] The ALSDE will not begin collecting data related to the School Turnaround Academy until SY2024–25; we will address this research question once data are collected and shared.

O. To what extent were the relationships between process and outcomes achieved as expected based on logic models? What external factors impacted the anticipated accomplishments and relationships? Is the Alabama Coaching Framework being implemented with fidelity in each FS and LS school?

HumRRO established working relationships with OMI and ALSDE staff to obtain existing outcome data needed to address most of the outcome evaluation's research questions. HumRRO and the ALSDE worked together to execute a data sharing agreement (DSA), after which SY2022–23 and SY2023–24 outcome data were shared with HumRRO.

Data Sharing Agreement

HumRRO worked closely with ALSDE staff to prepare and execute a DSA to allow transmission of Alabama state testing and other outcome data. HumRRO referenced several documents (e.g., ANA evaluation Request for Proposals [RFP] released by the STEM Council; Senate Bill (SB) 171, ACT #2022-249) to prepare a draft list of data elements needed to address the outcome evaluation's research questions. We participated in several discussions with ALSDE staff to refine the list and ensure the requested data elements, including their labels, aligned to the data collected by the ALSDE.[10] We submitted a list of required data elements in November 2023, and a revised list in January 2024. We met again with ALSDE staff in early February 2024 to finalize the list of data elements. HumRRO was notified on February 26, 2024, that the DSA had been fully executed. The DSA indicates the student-, teacher-, and school-level elements that HumRRO needs for various aspects of its ANA evaluation; the DSA will be modified as the ALSDE collects additional data related to the research questions. The DSA also outlines procedures for transmitting data to HumRRO via an online secure file transfer established and maintained by ALSDE.

SY2022–23 and SY2023–24 Outcome Data

HumRRO received the requested SY2022–23 outcome data (in four separate data files), along with a document explaining the contents of the data files, from ALSDE on June 13, 2024. HumRRO received the requested SY2023–24 outcome data (in four separate data files) on August 19, 2024. The SY2023–24 data file formats were the same as for SY2022–23.

The Alabama Comprehensive Assessment Program (ACAP) summative tests in English language arts, math, and science are administered each spring to students in grades 2–5. The annual ACAP math test scores are used to identify the FS and LS schools. According to the ANA, OMI designated FS and LS schools beginning in August 2022, and limited implementation of the ANA began in SY2022–23. However, we understand that full implementation of the ANA did not begin until SY2023–24. We used SY2022–23 data to establish key baseline ANA metrics (e.g., ACAP math performance in grades 3–5), from which the focus in subsequent years will be to identify and monitor trendlines based on changes from the key baseline data elements. These initial findings allow us to define the key performance differences among students in FS and LS schools compared to those in non-designated schools. If the ANA program is successful, we expect students in FS and LS schools to improve and for those differences to be reduced over time. However, because the SY2023–24 data reflect early implementation of the ANA, we will be cautious when comparing findings across years.

[10] The ALSDE would only share data that matched exactly the data elements listed and were categorized using the same labels as those included in the DSA.

Additionally, when we present comparisons from SY2022–23 to SY2023–24, we do not compare individual student change, but rather the change in group means for each year.

Data Challenges

We encountered several challenges with the SY2022–23 and SY2023–24 outcome data provided by the ALSDE (see Appendix E for an overview).[11] One challenge was not in the delivery structure of the files (separate files for student demographics, student assessment, teacher and school) per se, but rather with the extensive effort required to clean and manipulate (e.g., identifying and removing duplicate individuals and verifying the appropriate teacher certificate type) without clear data dictionaries and business rules for how to merge and validate the integrity of the data. We had to recode several student and teacher variables, and we had to establish data handling rules to create one single record per student. We expect some level of challenge when working with complex state-level data; however, the structure of the ALSDE outcome data files led to ambiguity regarding which specific data elements to attribute to each student, teacher, and school. While it is common for data to be structured in a long format to reflect student-by-test or student-by-grade data, sufficient information is also needed to create business rules on how to handle duplicate records, of which there were many across multiple data files.

Another challenge involved data discrepancies among the data files we received. A hierarchical flow exists starting with the total number of active schools in the state, filtered to the total number of schools under which ANA applies (based on standardized rules), filtered to the classification of designated and non-designated schools. All schools should be present across all files, with teachers representing each school and students representing each teacher. Student and teacher mobility complicates these data records; however, state-level business rules for how to link students to teachers to schools is standard practice for maintaining large complex databases. For example, HumRRO requested that OMI provide certain school-level data (beyond the data that the ALSDE provided) to support certain ANA supplemental studies. Although some of the requested data was provided, the ALSDE stated that HumRRO could compute the school-level percent proficient data from the student level ACAP proficiency levels. The OMI provided school designation status and, for only the FS and LS schools, their associated ACAP percent proficiency rates for SY2023–24 and SY2024–25. HumRRO accessed the publicly available percent proficient data (from the ALSDE website) for all schools and, as a quality check, compared those rates to the OMI rates for the FS and LS schools and for the computed proficiency rates. We found several, mostly minor discrepancies; however, the data discrepancies required resolution to ensure the accuracy and integrity of our subsequent analyses. Because these percentages are used to create designations of FS and LS, it is potentially concerning that the publicly available percent proficient rates posted on the ALSDE website and the OMI-supplied rates do not completely match.

Finally, some data elements that we requested from the ALSDE were not provided (e.g., student math proficiency ranking, MTSS implementation and impact data). It is unclear if this data will become available or shared in subsequent years. Assuming this data becomes available later, its utility for the evaluation will be minimal since no trends or comparisons of trends with other indicators (e.g. ACAP scores) will be available. Additionally, we were informed that certain data elements will not be shared, including performance rating data for teachers and coaches (e.g.,

[11] Additional information about the data challenges we encountered, including examples, are described in the October 2024 quarterly memo and can be found at: https://stemcouncil.alabama.gov/wp-content/uploads/2024/11/ANA-Eval_Quarterly-Memo_October-2024.pdf.

Alabama Teacher Observation Tool [ATOT] data). The ATOT focuses on teacher behaviors and actions that are categorized across five performance dimensions. Alabama's school leaders use the tool to rate teachers' actions to help strengthen and sustain effective teaching practices. Based on the STEM Council's RFP, we understand that, beginning SY2024–25, Alabama will develop and train staff on measures for (a) evaluating perceptions of quality of math coaching behaviors and (b) determining fidelity of coaching behaviors within the Alabama Coaching Framework. We will be severely limited in our examination of any related research questions (e.g., Research Questions E, I, and J) without teacher and coach performance data.

The evaluation requires a vast and comprehensive set of integrated data that are stored and maintained from state-, program-, and school-level data systems. A well-designed data system with robust documentation that supports standardized data collection and entry guidelines will help ensure that the evaluation is based on sound and accurate data sources, on which meaningful interpretations can be made.

Overall Results

ACAP Results

The most consistent indicator, and the indicator used to assign schools to FS or LS status, is the ACAP, which is administered to all students in grades 2–5 (except for those with the most significant cognitive disabilities who take the ACAP Alternate). We expect FS and LS schools' ACAP scores to be lower than the scores in non-designated schools, so our focus in these early years of ANA implementation is to characterize the magnitude of the differences so we can monitor improvements over time.

Table 7 presents descriptive data related to ACAP performance for students in FS, LS, and non-designated schools. Data are aggregated at the student level; for example, all students in FS schools were combined to generate the means and percent proficient by grade and year. The table includes rows identifying the grade level of students, their school designation, the number (N) of students in each group, the mean ACAP score, and the percentage of students who scored proficient (at or above grade level). Results for SY2022-23 and SY2023-24 are presented side-by-side to facilitate comparisons.

Several important findings may be ascertained from Table 7. First, the number of students in FS schools nearly doubled from SY2022–23 to SY2023–24. While a specific percentage of schools are intended to be designated as FS, some scale-up was necessary to reach the intended percentage of schools by SY2023–24. Roughly 2% of students attended FS schools in SY2022–23, compared to about 4% in SY2023–24. Comparisons of FS and LS schools between SY2022–23 and SY2023–24 must therefore be made with caution. For example, it may be that earlier identification focused on schools with the most need, so we might expect means and percent proficient to be higher for FS school students in SY2023–24 (i.e., identifying more students will likely include higher performing students). This seems to be the case for higher grades but not for lower grades.

Our outcome evaluation will track student performance from SY2022–23, treating data from that year as a "baseline." However, because implementation was scaling up in SY2022–23, the more useful "system-level" data was likely to begin in SY2023-24, after the full group of FS and LS schools were identified and support services were deployed. However, because we have individual student data, we can track student performance based on the number of years they attended the designated schools. This will allow us to monitor ANA from SY2022–23 forward albeit with some limitations for making system-level attributions until the program has matured.

Table 7. Math Mean ACAP Scores and Percent Proficient by Grade, School Designation, and School Year

Grade	School Designation	N SY2022–23	N SY2023–24	Mean ACAP Score SY2022–23	Mean ACAP Score SY2023–24	% Proficient SY2022–23	% Proficient SY2023–24
2	FS	1,002	1,928	466	462	15.2%	10.9%
2	LS	4,253	3,974	475	472	18.0%	15.8%
2	None	48,837	50,756	517	517	50.6%	44.8%
3	FS	924	1,705	463	469	11.2%	10.9%
3	LS	4,094	3,826	477	477	16.3%	14.1%
3	None	47,662	48,352	521	523	47.1%	44.0%
4	FS	980	1,734	454	465	4.4%	5.1%
4	LS	4,002	3,972	472	473	8.6%	9.2%
4	None	47,502	46,996	520	526	38.1%	40.5%
5	FS	959	1,832	458	464	3.4%	6.8%
5	LS	4,082	4,058	473	476	9.9%	10.9%
5	None	48,166	46,586	518	523	36.8%	38.9%

If we examine the FS and LS categories combined, the numbers are more stable across the two years. The combined percentage of students in the FS and LS schools in SY2022–23 was roughly 9–10% by grade. That percentage only increased to about 10–11% for SY2023–24. However, aggregating data across the FS and LS designations should be done with extreme care. The schools in each group received differing levels of support, and program effectiveness across the groups may be attenuated compared to examining FS schools in isolation. Ideally, trends (changes from year to year) should compare the three designations of schools to provide the best information on how the ANA program is functioning for both FS and LS schools. Specific trends for each designation should be possible for ACAP scores, but FS and LS schools may need to be combined for other assessments (i.e., district selected rather than statewide administration).

The performance of schools by categories follows the expected pattern, where students in non-designated schools perform better on average than those in LS schools, who, in turn, perform better than those in FS schools. The differences in mean performance for students in non-designated schools and those in FS schools range from 54–61 scale score points by grade for SY2023–24. The percent proficient differences range from 32% to 36%. Perhaps even more telling is the overall percentage of students attending FS schools who score proficient on the ACAP, which ranged from only about 5% to 11% by grade in SY2023–24.

While the data provided in Table 7 illustrates the substantial performance differences among students in FS and LS schools compared to those in non-designated schools generally, there is still considerable variance among individual students in each group. It would not be correct to assume that a student will be low-performing simply because that student attends an FS school, nor could we predict that a student will be high-performing by virtue of attending a non-designated school.

Figures 1 and 2 (Appendix Table F-1) illustrate the variance among students attending the different designated schools. Figure 1 summarizes ACAP data from SY2022–23, and Figure 2 summarizes data from SY2023–24. Each figure presents separate boxplots for each ACAP

grade. Briefly, each boxplot shows the number of students in each group (*n* =), the mean (or average, represented by the horizontal line in each box), the median (or middle score in the distribution, represented by the yellow diamond shape), and the distribution by quartiles. The middle quartiles are contained within the box (from the 25th to the 75th percentile), and the outer quartiles are represented by the vertical lines extending from the box (the 1st through the 25th below the box, the 75th through the 99th above the box). Outlier scores are provided as dots above or below the vertical lines.

Figure 1. Boxplots of SY2022–23 ACAP Math Scale Score Distributions for Grades 2–5 Students in FS, LS, and Non-Designated Schools

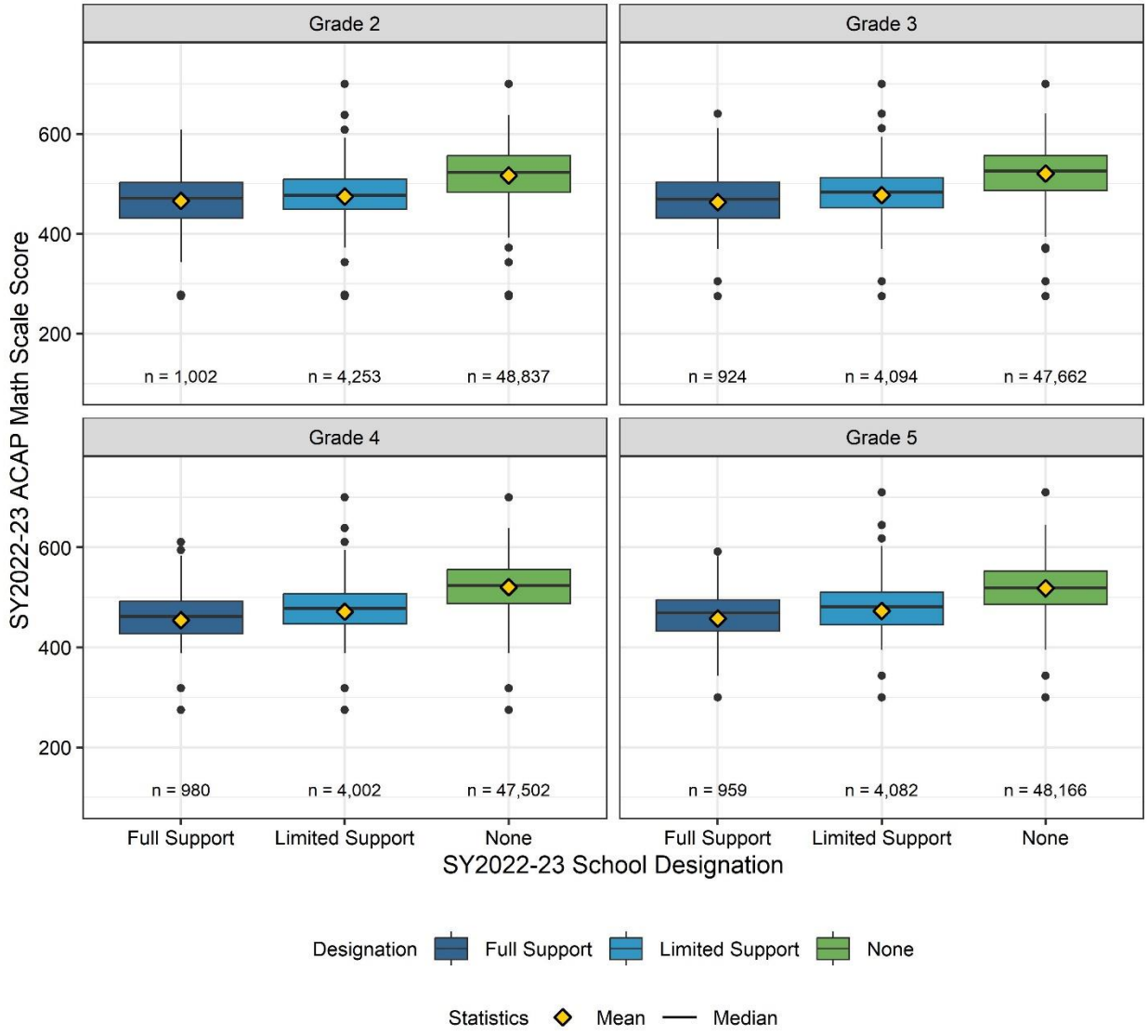
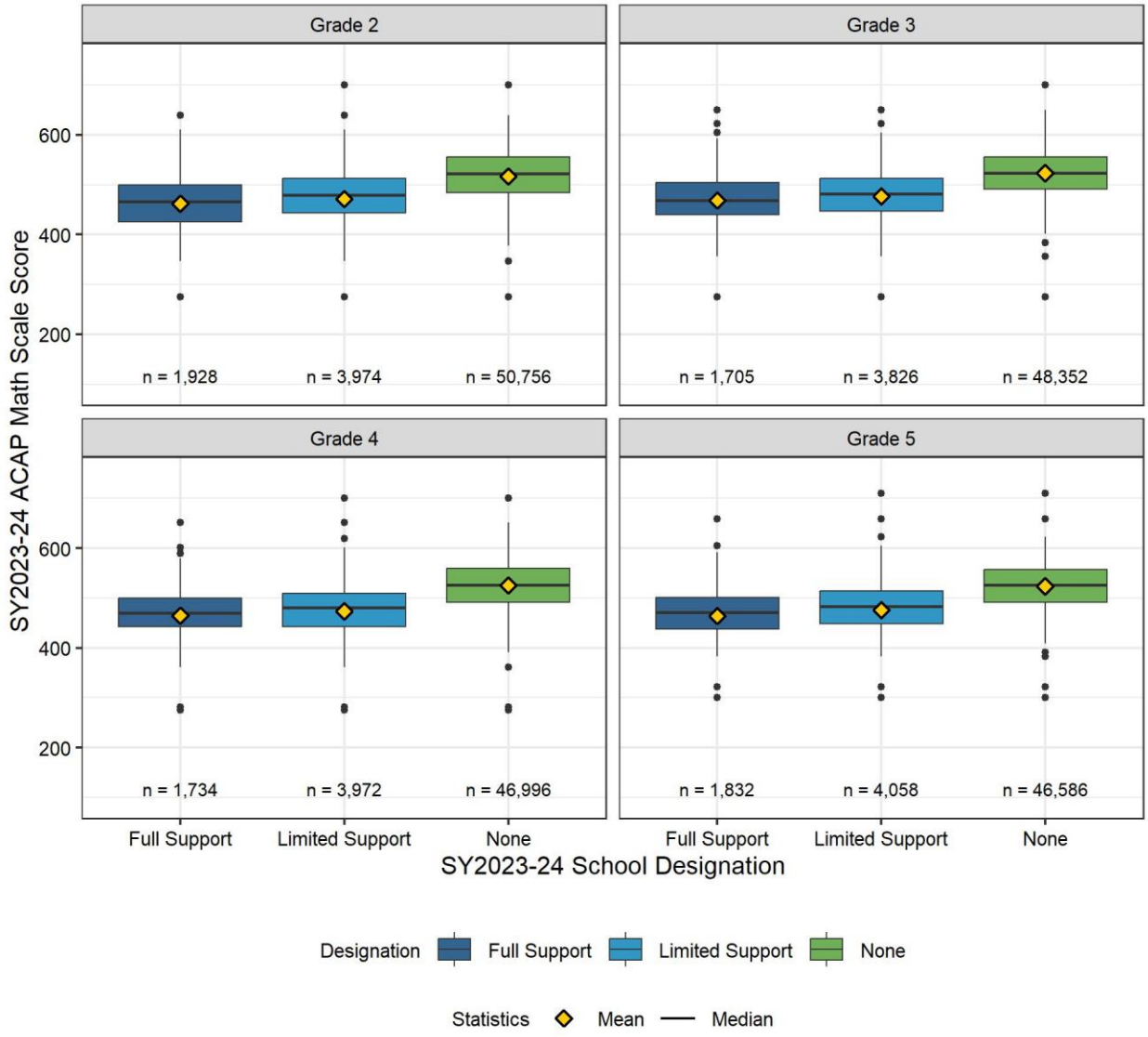


Figure 2. Boxplots of SY2034–24 ACAP Math Scale Score Distributions for Grades 2–5 Students in FS, LS, and Non-Designated Schools



These plots are similar for FS, LS, and non-designated groups. This indicates a similar distribution for each group, but shifted along the ACAP scale, with students in FS schools on average scoring lower than those in other groups. The overlap among the boxplots shows that there are many high- and low-performing students in all groups. Tables with data that support these and all other figures depicting outcome evaluation findings are presented in Appendix F.

Other Assessments

The state-required ACAP is administered to students in grades 2–5. For students in grades K–1, we must rely on other district- or school-selected rather than statewide assessments. For this report, we focus on math assessments, but for future reports, we will include reading (or similar) assessments to examine differences in trends by subject. We caution the reader when interpreting all data presented in this section, as the assessments are self-selected, and the

samples are unlikely to be representative of Alabama as a whole, of FS or LS schools, or of non-designated schools. Also, schools or districts may choose to adopt new assessments and sunset prior assessments at any time, so changes in performance from one year to the next may vary due to shifts in tested populations rather than changes in the overall performance of students. However, it is rare for a school or district to abandon a testing program mid-year, so within-year trends should be interpretable.

AIMSWeb Early Numeracy Assessment

The AIMSWeb Early Numeracy Assessment is administered to K–1 students at the Beginning (BOY) and Middle of the Year (MOY). Data were provided for both BOY and MOY for SY2023–24 but only for BOY for SY2022–23 (see Table 8). Mean BOY scores improved somewhat from one school year to the next, but the within-year pattern for SY2023–24 is more informative. As expected, students in non-designated schools had higher overall scores on the BOY than those in FS/LS schools for kindergarten and grade 1. All groups' scores improved substantially on the MOY, but the differences between FS/LS and non-designated schools were larger for the MOY, indicating that students may be falling further behind their peers rather than catching up to them.

Table 8. SY2022–23 and SY2023–24 AIMSWeb Early Numeracy Assessment Results for Grades K–1 Students by BOY and MOY

Grade	School Designation	N SY2022–23 BOY	Mean Score SY2022–23 BOY	N SY2023–24 BOY	Mean Score SY2023–24 BOY	N SY2023–24 MOY	Mean Score SY2023–24 MOY
K	FS/LS	159	21.0	146	25.6	131	38.6
K	None	3,826	27.6	3,192	29.8	2,193	45.6
1	FS/LS	152	33.0	151	36.6	148	52.9
1	None	4,068	39.3	3,177	42.4	2,166	61.4

Note. Data were not provided for SY2022–23 MOY.

AIMSWeb Formative Math Assessment

The AIMSWeb Formative Math Assessment, a follow on to the AIMSWeb Early Numeracy Assessment, is administered to grades 2–3 students. Data were provided for BOY for SY2022–23 and for BOY and MOY for SY2023–24. Table 9 presents summary results for the Formative Math Assessment.

Table 9. SY2022–23 and SY2023–24 AIMSWeb Formative Math Assessment Results for Grades 2–3 Students by BOY and MOY

Grade	School Designation	N SY2022–23 BOY	Mean Score SY2022–23 BOY	N SY2023–24 BOY	Mean Score SY2023–24 BOY	N SY2023–24 MOY	Mean Score SY2023–24 MOY
2	FS/LS	167	127.4	153	133.8	140	149.3
2	None	3,705	147.5	3,104	157.0	2,519	186.5
3	FS/LS	150	152.7	116	154.1	125	167.9
3	None	3,608	177.2	2,958	189.2	2,439	213.8

Note. Data were not provided for the SY2022–23 MOY.

The results for the AIMSWeb Formative Math Assessment follow the same pattern as those for the AIMSWeb Early Numeracy Assessment. Students in FS and LS schools scored lower overall than students in non-designated schools. Those differences were larger for the MOY than for the BOY for SY2023–24, indicating that students tended not to improve as much in FS and LS schools between BOY and MOY test administrations. Also, like the AIMSWeb Early Literacy Assessment, the mean scores for the BOY improved from SY2022–23 to SY2023–24 for all groups.

STAR Renaissance Math

STAR Renaissance Math Assessment data were provided for grades K–3, which may be administered BOY, MOY, or End of Year (EOY). Like the other non-ACAP assessments, STAR Renaissance Math is selected by schools or districts and is not administered statewide. Summary results for STAR Renaissance Math are provided for SY2022–23 and SY2023–24 in Tables 10 and 11, respectively.

Table 10. SY2022–23 STAR Renaissance Math Assessment Results for Grades K–3 Students by BOY, MOY, and EOY

Grade	School Designation	N BOY	Mean Score BOY	N MOY	Mean Score MOY	N EOY	Mean Score EOY
K	FS/LS	5	*	244	734.4	1,713	762.3
K	None	1,034	710.2	1,523	746.0	7,876	783.2
1	FS/LS	617	752.9	1,041	794.2	1,913	819.9
1	None	13,553	778.4	15,892	828.9	16,796	862.8
2	FS/LS	1,877	818.0	1,959	846.8	1,934	878.3
2	None	15,544	857.7	15,239	896.1	15,809	927.8
3	FS/LS	1,775	874.0	1,925	905.5	1,802	926.0
3	None	15,209	919.5	14,962	953.5	15,298	979.3

Note. Mean data are provided only for n > 100 students.

Table 11. SY2023–24 STAR Renaissance Math Assessment Results for Grades K–3 Students by BOY, MOY, and EOY

Grade	School Designation	N BOY	Mean Score BOY	N MOY	Mean Score MOY	N EOY	Mean Score EOY
K	FS/LS	291	707.2	494	743.2	285	778.8
K	None	5,892	715.6	10,334	750.2	10,744	784.1
1	FS/LS	446	774.5	575	809.5	531	839.6
1	None	13,988	784.9	15,898	829.3	15,692	861.5
2	FS/LS	449	833.1	546	861.8	467	883.3
2	None	14,764	862.5	15,738	896.3	15,399	927.2
3	FS/LS	454	888.6	543	911.7	495	933.1
3	None	14,054	927.4	14,929	957.0	14,603	980.5

Much like the data from the Early Numeracy and Formative Math assessments, the STAR Renaissance Math scores improved from BOY to MOY and continued to improve on the EOY. There were also improvements in mean scores overall from SY2022–23 to SY2023–24. Students in FS/LS schools scored lower than their peers and did not improve quite as much over the year (from BOY to MOY to EOY). This pattern held true for both years. There also was a reduction in the use of STAR Renaissance Math Assessments from SY2022–23 to SY2023–24 (except for kindergarten, which increased substantially).

i-Ready Diagnostic Math

More students participated in i-Ready Diagnostic Math than in the Early Numeracy, Formative Math, or STAR Renaissance Math assessments. Roughly half of the Alabama student population took i-Ready Diagnostic Math assessments. Tables 12 and 13 provide summary results for the i-Ready Diagnostic Math assessments for SY2022–23 and SY2023–24, respectively.

Table 12. SY2022–23 i-Ready Diagnostic Math Assessment Results for Grades K–3 Students by BOY, MOY, and EOY

Grade	School Designation	N BOY	Mean Score BOY	N MOY	Mean Score MOY	N EOY	Mean Score EOY
K	FS/LS	2,423	329.3	2,764	343.3	2,719	358.9
K	None	21,096	336.8	20,906	354.2	21,066	371.0
1	FS/LS	2,545	358.7	2,848	371.9	2,779	384.5
1	None	22,993	370.0	22,346	386.4	22,531	400.5
2	FS/LS	2,491	381.8	2,718	394.7	2,683	406.0
2	None	21,598	396.2	21,017	410.7	21,197	423.4
3	FS/LS	2,384	401.0	2,646	412.5	2,579	424.0
3	None	21,303	421.0	20,737	433.4	20,768	447.0

Table 13. SY2023–24 i-Ready Diagnostic Math Assessment Results for Grades K–3 Students by BOY, MOY, and EOY

Grade	School Designation	N BOY	Mean Score BOY	N MOY	Mean Score MOY	N EOY	Mean Score EOY
K	FS/LS	3,665	327.1	3,884	345.3	3,879	358.9
K	None	24,142	334.5	28,910	354.0	28,899	369.6
1	FS/LS	4,053	355.3	4,180	371.5	4,180	382.4
1	None	27,757	367.8	30,846	385.7	30,674	399.6
2	FS/LS	3,994	378.8	4,116	392.2	4,126	401.7
2	None	27,759	394.6	30,993	410.2	30,787	423.0
3	FS/LS	3,830	400.9	3,947	414.4	3,920	424.4
3	None	26,359	419.9	29,421	434.3	29,322	447.0

The i-Ready Diagnostic Math assessments follow a similar pattern as the STAR Renaissance Math tests and other early-grade assessments. The FS and LS school population of students

tended to score lower on all assessments across the grades. They also tended to gain less between BOY and MOY and between MOY and EOY on the assessments. Unlike the other assessments, the i-Ready Diagnostic Math assessment scores tended to drop between SY2022–23 and SY2023–24. This may be due to more lower performing schools adopting i-Ready in SY2023–24. The number of students in FS and LS schools taking the i-Ready Diagnostic Math assessments increased substantially from SY2022–23 to SY2023–24.

Student Demographics

To better understand the context in which ANA exists, it is important to consider the demographic composition of students in FS and LS schools compared to students in non-designated schools. Understanding the complex social and economic factors that shape educational outcomes can help make interpretations of the evaluation more meaningful. For this study, we examined the numbers of students in the FS and LS population compared to the non-designated population by race and ethnicity, English learner (EL) status, Individual Education Plan (IEP) status (a proxy for Students with Disabilities [SWD]), and free- or reduced-lunch status (a proxy for economic disadvantage). These demographic factors have been associated with student performance on other assessments (i.e., the National Assessment of Educational Progress [NAEP], also referred to as the Nation's Report Card[12]).

First, we examined how students are dispersed by FS and LS compared to non-designated schools. Note we combined FS and LS for these analyses to preserve student anonymity for small groups. Similarly, results are presented for the FS/LS schools overall but are not disaggregated by grade level for the same reason.

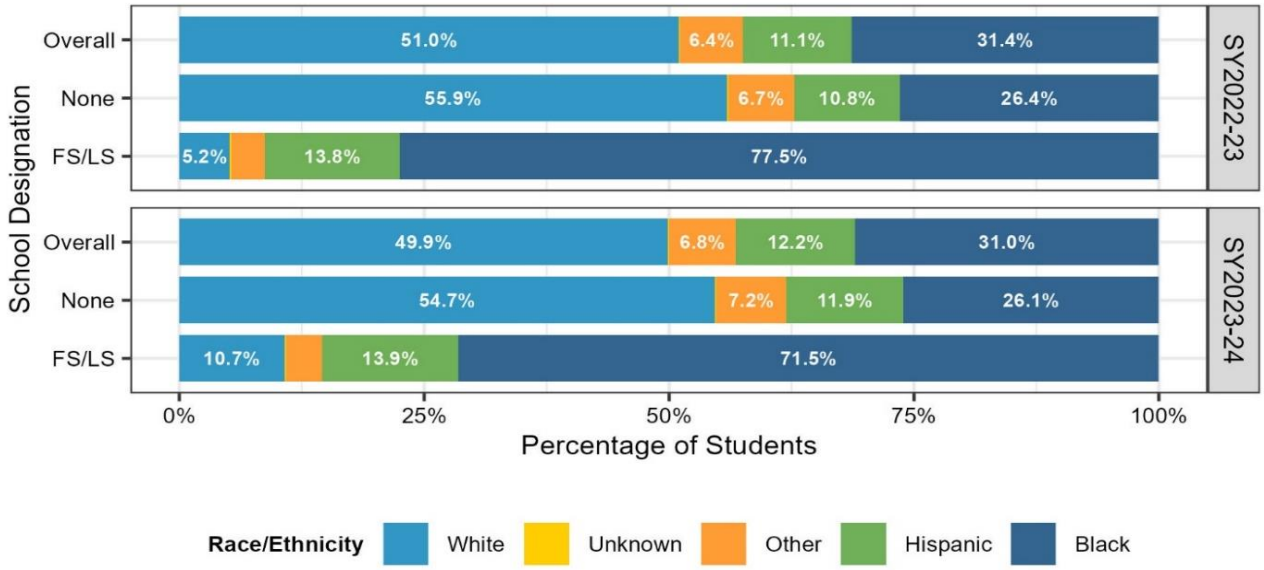
Race and Ethnicity

Figure 3 (Appendix Tables F-2 and F-3) includes the school designation, an indicator of racial and ethnic group (note that all student groups with fewer than 100 students were included in the "other" category), and the frequency of students. Referencing Appendix Table F-2 shows that there were 25,671 (77.5%) Black students in FS and LS schools in SY2022–23.

The figures show that the makeup of the student population between SY2022–23 and SY2023–24 was reasonably stable. About 50% of the students in the state were White, 31% Black, 11% Hispanic, and other races or ethnicities account for about 7% of students (indicated in the top bar for each school year), and those proportions changed only slightly from one year to the next. It is not surprising that the proportions of students in the non-designated schools were similar to the overall population (comparing the first and second bars in each chart). Non-designated students made up about 90% of the state population. However, when we look at the proportions of the students who attended FS/LS schools, we see a dramatic shift in the representation of students by race and ethnicity. Black students were much more likely to attend FS/LS schools than any other group, accounting for more than 70% of the FS/LS population. Hispanic students were somewhat more likely to attend FS/LS schools than non-designated schools, and White students were much less likely to attend FS/LS schools.

[12] See The Nation's Report Card | NAEP.

Figure 3. SY2022–23 and SY2023-24 Student Race/Ethnicity by School Designation



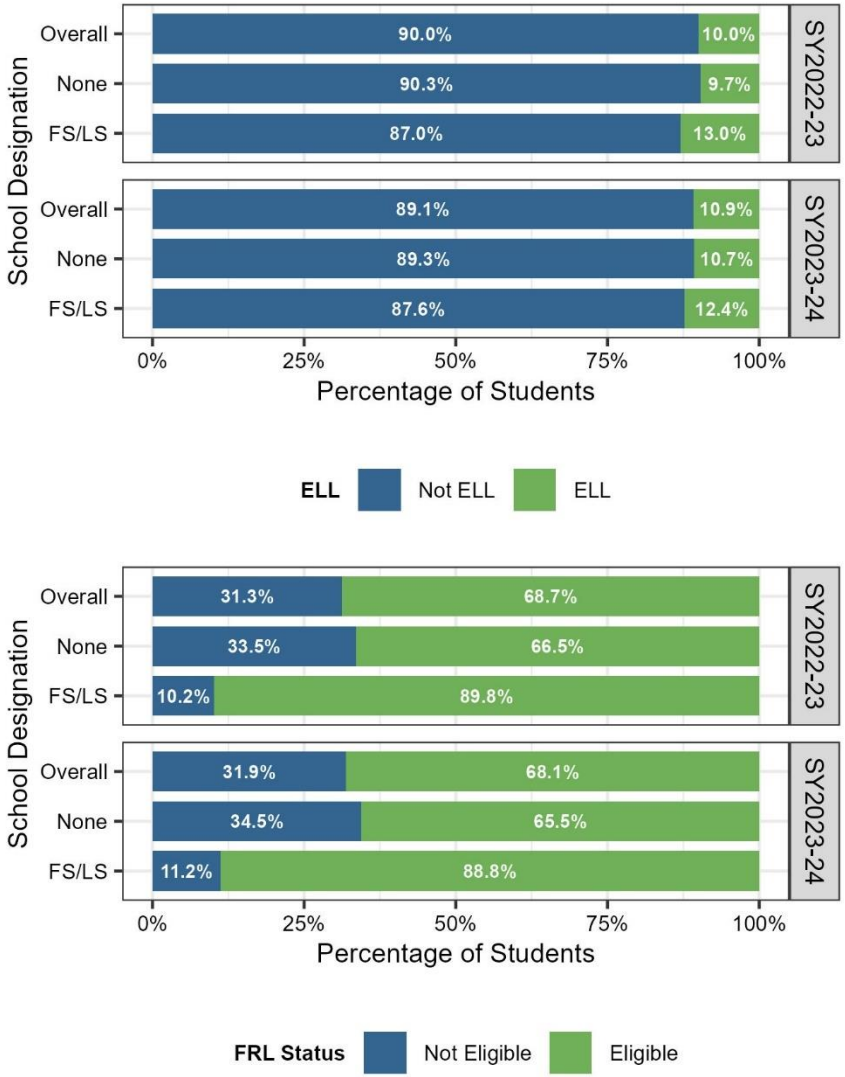
English Learner Status, IEP Status, and Economic Disadvantage

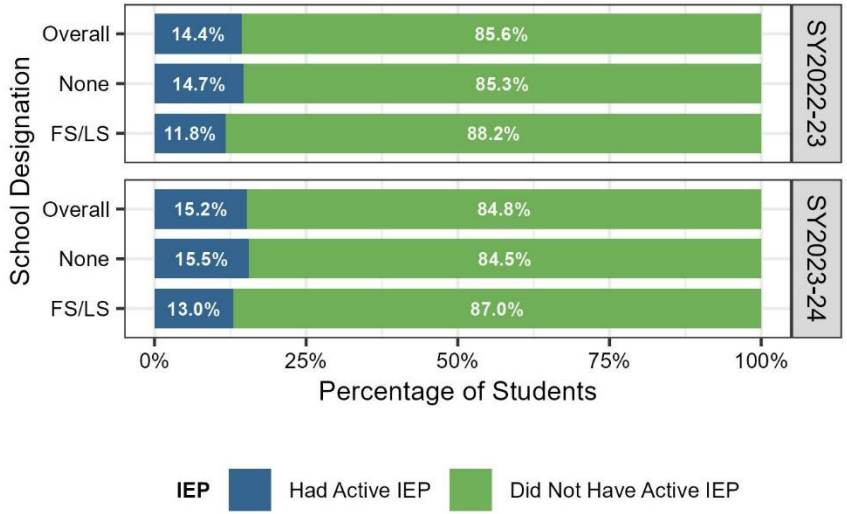
Figure 4 (Appendix Tables F-4 and F-5) shows the student distributions of EL, IEP, and economic disadvantage status by school designation compared to the overall state population. EL status was simplified to a "yes/no (Y/N)" for these analyses (students were classified as English learners if they ever received EL services).

For this study, we use IEP status as a proxy for SWD. We understand that some students with no disability may have an Individualized Education Plan (IEP), and that it is possible that a student with a disability may not have an IEP. However, IEP- and SWD-status are highly related. We also group all IEP students together for this study, even though we know students' disabilities vary greatly in their nature, severity, and the impact they have on math performance. IEP status was simplified to a "yes/no (Y/N)" for these analyses. All students identified as having active IEPs were included in that group (see Figure 4 and Appendix Tables F-6 and F-7).

We used student lunch status (free- or reduced-price lunch) as a proxy for economic disadvantage. Students were grouped into "yes/no (Y/N)" groups based on whether they were eligible for free- or reduced-price lunch (Y indicates the student was eligible for free- or reduced-price lunch; see Figure 4 and Appendix Tables F-8 and F-9). We recognize that lunch status is a limited proxy for economic disadvantage, and that students' economic hardship can include extremely varying circumstances (i.e., temporary loss of income between jobs versus long-term homelessness). The data do not allow for creating more nuanced student groupings based on economics.

Figure 4. SY2022–23 and SY2023-24 Student EL, IEP, and Economic Disadvantage Status by School Designation





EL students were slightly more likely than non-EL students to attend FS and LS schools. In SY2022–23, 13% of students in FS/LS schools were designated as EL, compared to 10% of students designated EL overall. The same pattern held for SY2023–24.

Students with disabilities were slightly less likely than students without a disability to attend FS and LS schools. In SY2022–23, Students with an IEP accounted for 11.8% of the FS/LS population of students, compared to 14.4% in the total state population. The same pattern held for SY2023–24.

Figure 4 shows that students eligible for free- or reduced-price lunch were much more likely to attend FS and LS schools than students who were not eligible. In SY2022–23, 68.7% of students were eligible for free- or reduced-price lunch, compared to 89.8% of the students attending FS/LS schools. The pattern held for SY2023–24 as well. This indicates that the FS/LS schools represented a substantially more economically disadvantaged student population than non-designated schools.

Caveats about Student Demographic Analyses and FS/LS School Enrollment

Students are not isolated in their demographic groups. Students may simultaneously identify with several demographic groups. For example, a student may be Hispanic, have an IEP, not qualify for EL status, and be economically disadvantaged. We examined student groups in isolation by category because the number of students per group becomes very small if we try to account for all possible combinations of categories, making those analyses impractical for any but the largest and most diverse data sets. Interactions among student group membership and enrollment in FS and LS schools may exist but are beyond the scope of this study to investigate.

Subgroup Results

ACAP Results by Student Group

Earlier, we reported ACAP results for FS/LS schools and presented distributions of student groups attending FS/LS schools compared to non-designated schools. We focus in this section on reporting ACAP scores by student group. Because the ANA program experienced rapid expansion and the number of designated FS schools nearly doubled between SY2022–23 and SY2023–24, these analyses include only SY2023–24 ACAP results.

ACAP Results by Race and Ethnicity

Figure 5 (Appendix Table F-10) summarizes SY2023–24 ACAP results (percent proficient and mean scale scores) by race and ethnicity for grades 2–5 students who attended FS/LS and non-designated schools. Several students in each grade had ACAP scores but had an “unknown” or missing race or ethnicity categorization. There were never more than 100 students per grade categorized as unknown, so we do not include those results. We combined FS and LS school designations to allow for analyses of more student groups (if FS and LS are reported separately, several cells fall below the minimum *n* size for the reporting of at least 100 students).

Figure 5. SY2023–24 ACAP Results for Grades 2–5 Students by Race/Ethnicity and School Designation

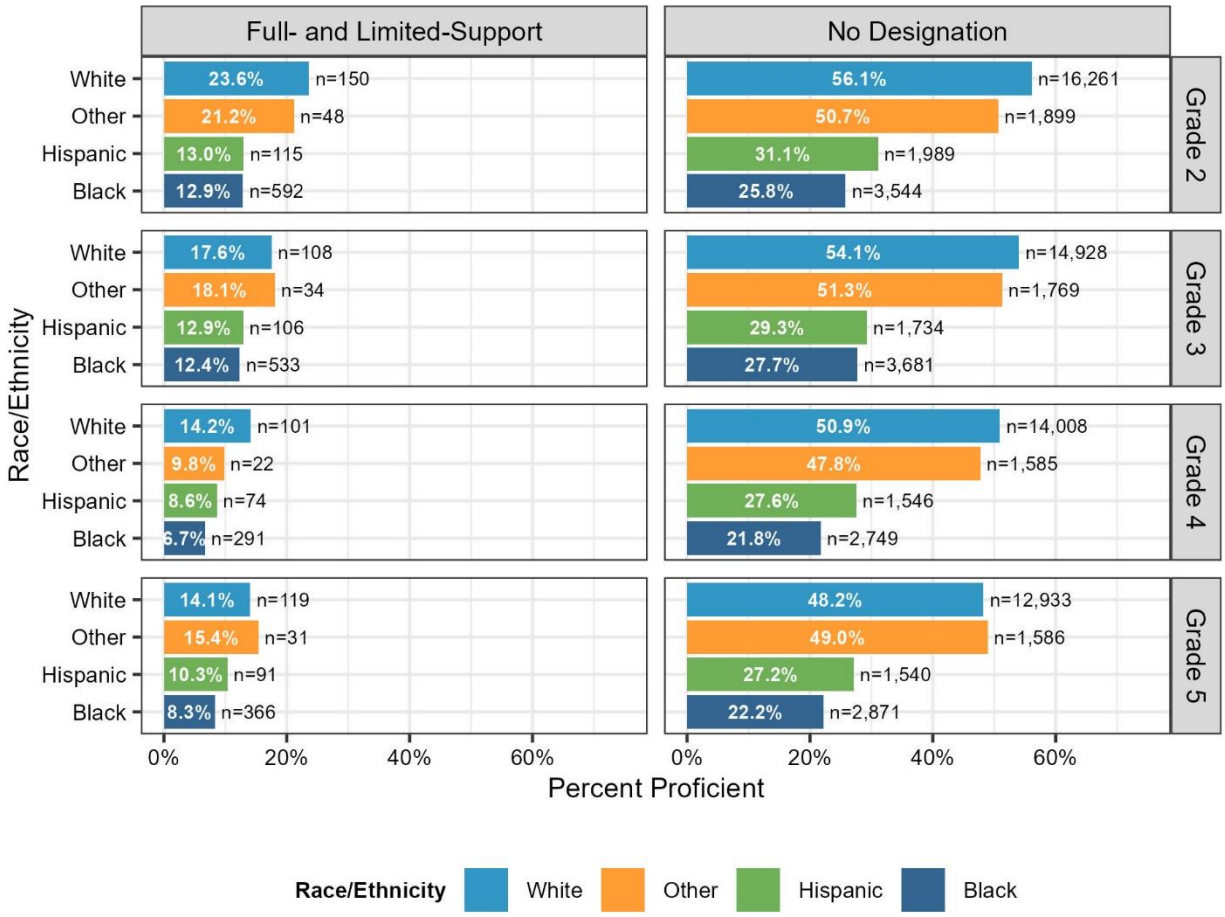
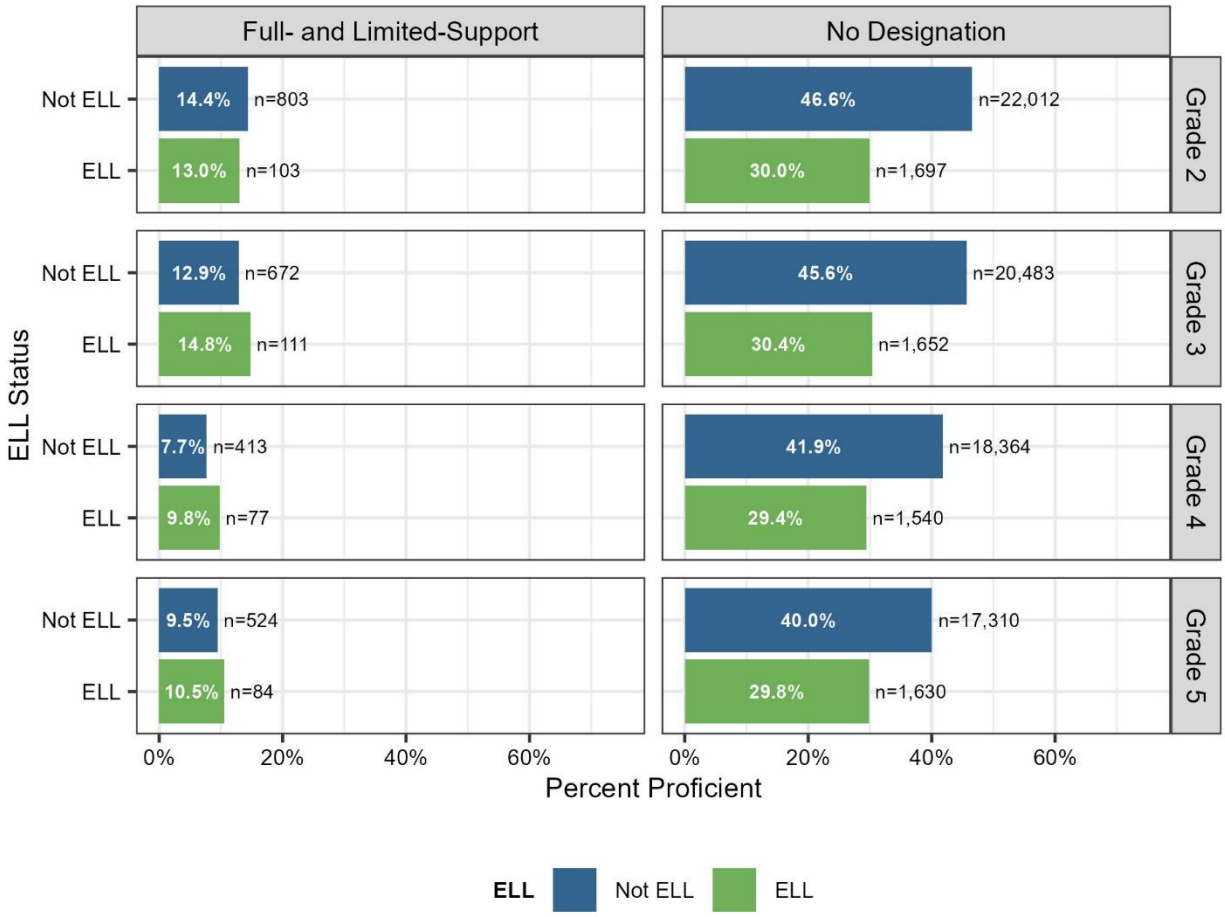


Figure 5 reiterates that students in the FS and LS schools tended to score lower than students in non-designated schools. The data also show that these differences occurred for all student groups but that they varied somewhat in magnitude by student group and by grade. It is important to remember that the location of the cut score for proficiency (the minimum scale score necessary to be classified proficient) can obscure differences that may show up in the mean scores. Future analyses will compare these data to ACAP scores in subsequent years, which will allow us to examine trends in the data by student group.

ACAP Results by EL Status

Figure 6 (Appendix Table E-11) summarizes SY2023–24 ACAP results (percent proficient and mean scale scores) for grades 2–5 students by EL status and school designation. We combined school designations to allow comparisons to race and ethnicity data (see Appendix Table F-11).

Figure 6. SY2023–24 ACAP Results for Grades 2–5 Students by EL Status and School Designation



We see from Figure 6 that the students in non-designated schools tended to outperform students who attended FS and LS schools. This table also shows that EL students in FS and LS schools, except for those in grade 2, tended to outperform students without EL status in those same schools. This trend was reversed in non-designated schools.

ACAP Results by IEP Status

Figure 7 (Appendix Table F-12) summarizes SY2023–24 ACAP results (percent proficient and mean scale scores) for grades 2–5 students by IEP status and school designation.

Figure 7. SY2023–24 ACAP Results for Grades 2–5 Students by IEP Status and School Designation

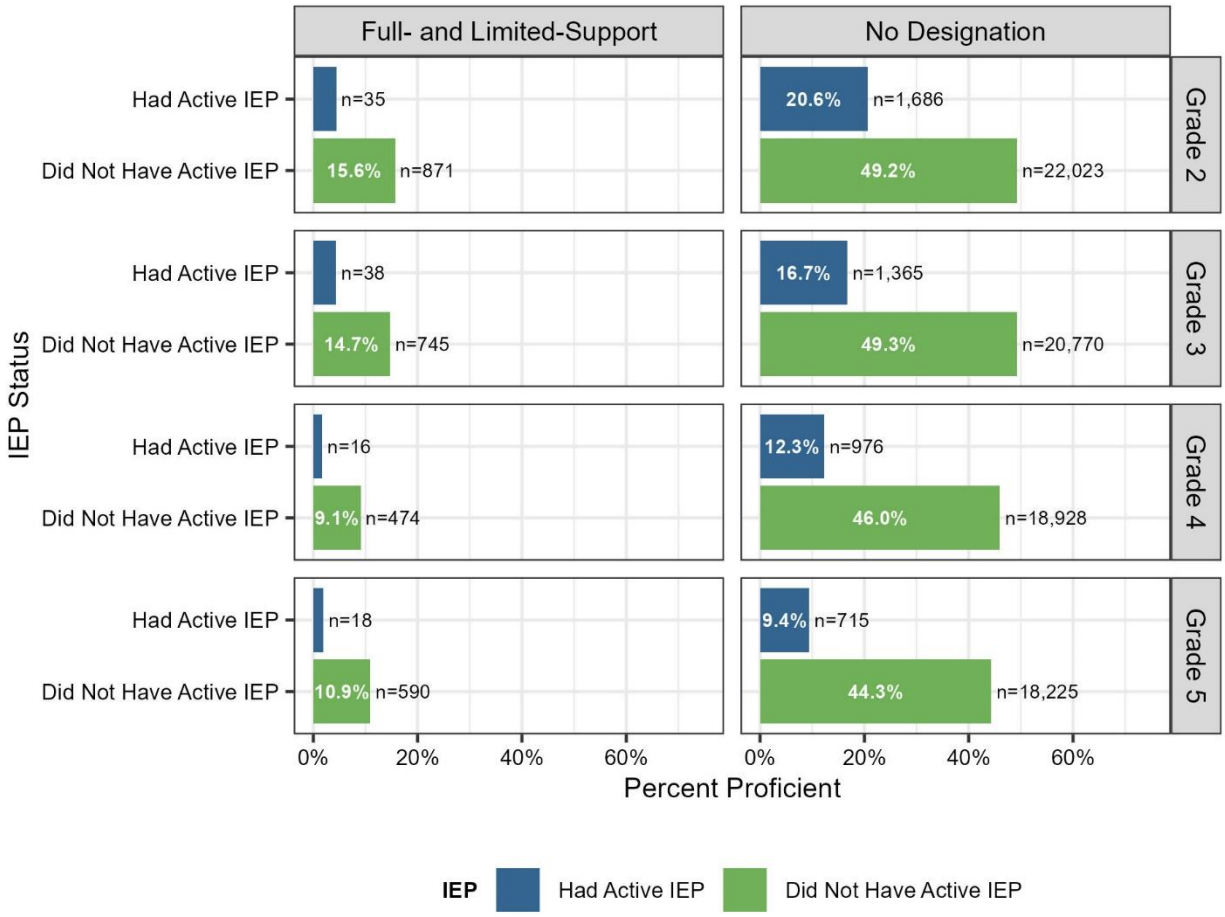


Figure 7 shows that students in non-designated schools outperformed those in FS/LS schools. It also shows the sharp contrast between IEP students and non-IEP students. In grades 4 and 5, fewer than 2% of students with an IEP who attended FS/LS schools scored Proficient or above (1.7% and 1.9%, respectively).

ACAP Results by Economic Disadvantage (Lunch Status)

Figure 8 (Appendix Table F-13) summarizes SY2023–24 ACAP results (percent proficient and mean scale scores) for grades 2–5 students by free- or reduced-price lunch status, which we used as a proxy for economic disadvantage. We combined FS and LS school designations to allow comparisons to other performance data by student demographics. Students who were eligible for free- or reduced-price lunch were coded as "Y" while those who were not eligible were coded as "N."

Figure 8. SY2023–24 ACAP Results for Grades 2–5 Students by Economically Disadvantaged Status and School Designation

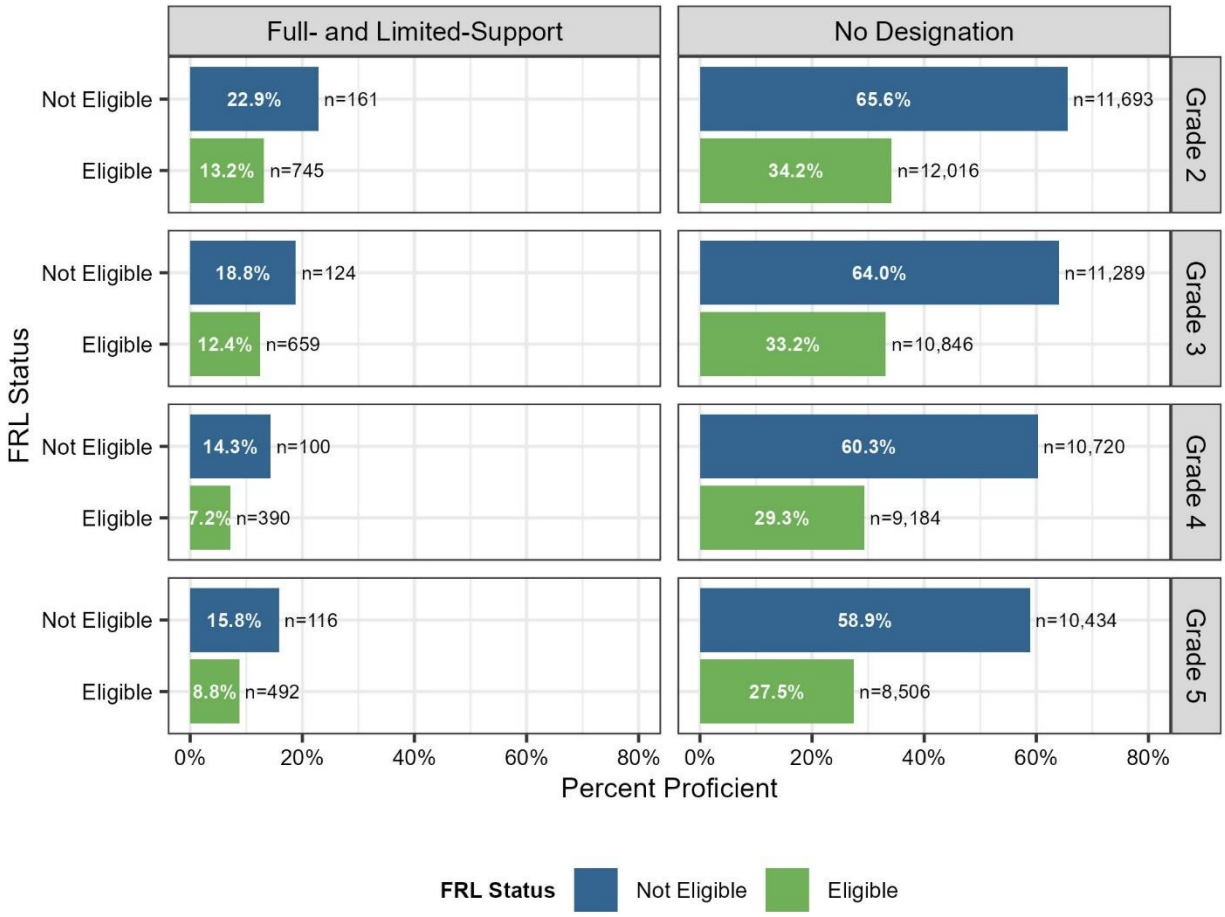


Figure 8 shows that lower ACAP scores were associated with attending an FS or LS school and eligible for free- or reduced-price lunch, and students in both categories scored substantially lower than their peers. For example, for grade 4, only 7.2% of students who were eligible for free- or reduced-price lunch and attended an FS or LS school in SY2023–24 scored Proficient or above. Roughly double that percentage, or 14.4% of grade 4 students who were not eligible in the same schools, scored Proficient or above. The number of grade 4 students with lunch status in non-designated schools who scored Proficient (29.3%) roughly doubled again. The percentage of grade 4 students in non-designated schools who were not eligible for free- or reduced-lunch was 60.3%.

ACAP Results by Student Groups Summary

ACAP results largely follow expected patterns, where students in FS and LS schools tended to score lower than those in non-designated schools. Most of the demographic patterns are also as expected, given the ACAP patterns for the state. There were substantial ACAP performance differences by student race and ethnicity, EL status, IEP status, and lunch status. These results follow expected patterns except for EL status, where EL students in FS and LS schools tended to score better than non-EL students in those same schools. The data for lunch status, our

proxy for economic disadvantage, combined with FS and LS status and ACAP scores, demonstrates that the combination of being economically disadvantaged and attending a lower-performing school yielded much lower overall scores than either of these statuses on their own.

Assessment Results for Grades K–1 Students by Student Demographics

We did not receive complete data for FS and LS or non-designated schools because assessments other than ACAP are adopted at the school or district level and not administered statewide. Students are very unlikely to be distributed in a generalizable way by group when schools self-select the tests they administer. For that reason, we did not produce and report assessment results by student demographic groups for these assessments. For subsequent reports, we will create common reporting metrics and report on data trends for these assessments (e.g., effect size statistics to indicate changes in performance over time and by student groups). We will also produce these standardized results for ACAP to allow for direct comparison.

Supplemental Studies

HumRRO's ANA evaluation includes eight supplemental studies. We designed these studies not to be conducted in isolation but rather to coordinate with and support the (a) process evaluation in determining the extent to which required ANA elements are conducted as expected and (b) outcome evaluation in documenting the achievement of designated outcomes. Although SY2023–24 was the first year of ANA implementation, key processes were not yet in place for the collection of supplemental study data; data collection for most of the supplemental studies will begin in SY2024–25. We describe the eight supplemental studies below, along with the Year 2 activities we completed for those studies.

Comparison Study

The overall ANA evaluation includes a quasi-experimental design (QED), or comparison, study to assess the impact that math coaches have on student math performance in FS and LS schools. This study examines the extent to which FS and LS schools that are assigned a math coach yield higher student math achievement than designated schools that do not have a coach. Because of the acceleration of placing math coaches in as many schools as possible, we are working through a potential concern that there may not be sufficient FS and LS schools without a math coach to serve as comparison schools.

We worked with OMI staff to obtain a list of schools that OMI designated as FS and LS for SY2022–23 and SY2023–24, along with information about those schools' sources of math coach funding and hiring status. We also examined the math coach data provided by OMI to explore the extent to which there may be sufficient treatment schools (FS and LS schools that had a math coach) and comparison schools (schools of similar proficiency as the treatment group that did not have a math coach). We are currently discussing the potential covariates that we might include in our analyses to explain the impact that a coach may have on school math achievement (e.g., coach proficiency).

Cost Effectiveness Analysis Study

The cost-effectiveness analysis study examines the overall costs and actual or anticipated financial benefits of the ANA. The study is designed to provide information about the effective allocation of state resources to inform future policy improvements, the sustainability of education

initiatives, and potential efficiencies related to ANA implementation. We will examine (a) cost and resource allocation data related to specific ANA components (including math coaches and other personnel), screening and diagnostic assessments, professional development, administrative and logistical activities, and SY2022–23 summer programs and onward; (b) budget information from state legislature for SY2022–23 onward; (c) student time on math versus other activities for SY2024–25 onward; and (d) benefit data associated with the outcome evaluation and select supplemental studies. We are collecting cost information over the course of the evaluation, beginning with SY2022–23; however, the study plan indicates that analyses and reporting of the costs and benefits will be completed only in the final evaluation year, SY2027–28.

Effectiveness of Screening Assessments Study

The effectiveness of screening assessments study examines the extent to which required screening and diagnostic assessments identify students who are subsequently found to need tiered services and/or receive a math deficiency diagnosis. We learned in Year 2 that a fractional reasoning screener was not yet available for schools to administer in SY2023–24. OMI published two Requests for Information (RFI), one in 2023 and another in early 2024, with no success. The final RFI in November 2024 yielded a fractional reasoning screener which will be made available to LEAs for SY2025–2026.

We learned from the Year 2 survey and virtual focus groups that, before they are required to administer it, staff want to be trained on the specific procedures they should use to administer the fractional reasoning screening assessment, along with guidance for interpreting and using the screener data for student placement and intervention. OMI will use the remainder of SY2024–25 to develop a plan, in collaboration with the vendor, to train LEAs to effectively implement the fractional reasoning screener.

OMI staff indicated that current plans are to administer all math deficiency screening assessments, including the fractional reasoning assessment, during SY2024–25. Upon receipt, we will analyze the screening assessment data that the ALSDE and OMI staff collect from measures they develop or adopt. Our analyses will serve to document the sensitivity (i.e., true positive, or the test's ability to identify the presence of a condition/deficiency) and specificity (i.e., true negative, or the test's ability to identify the absence of a condition/deficiency) of screening assessments administered at the beginning of each grade.

Math Coach Performance Study

HumRRO understands that (a) principals and regional coordinators in each FS and LS school will make some type of rating of the math coaches and (b) principals and math coaches in each FS and LS school will perform some type of evaluation of teachers. The math coach performance study examines the extent to which (a) evaluations of math coaches by principals and regional coordinators in FS and LS schools relate to differences in student math achievement and (b) principals' and regional coordinators' ratings of coaches explain variance in principal and coach evaluations of teachers' ANA implementation.

We will examine the math coach performance and teacher ANA implementation ratings that the ALSDE and OMI gather from measures they develop or adopt. We understand these measures will be administered in SY2024–25 by principals and regional coordinators serving FS and LS schools to evaluate the math coaches' performance of their ANA responsibilities and by principals and math coaches to evaluate the teachers' performance of their ANA responsibilities.

Upon receipt, we will analyze the data to ascertain the extent to which math coaches' performance (a) is related to differences in student math achievement and (b) explains differences in the principals' and math coaches' evaluations of teachers' ANA implementation. The extent to which we can examine the research questions related to this study will be severely limited if the math coach and teacher performance ratings gathered by the ALSDE and OMI are not provided to HumRRO.

Alabama Multi-Tier System of Support (AL-MTSS) Study

The AL-MTSS study examines the extent to which (a) the Alabama Framework for MTSS is being implemented in grades K–5 and (b) ratings of MTSS implementation within schools relate to the distribution of students within tiered placements. We will draw on the following four data sources to address these two research questions:

- ***AL-MTSS Full Alignment Status.*** This designation by the AL-MTSS office indicates whether a school has received services to support AL-MTSS implementation and whether implementation has occurred.
- ***AIR MTSS Fidelity of Implementation Rubric.*** The ALSDE uses the American Institutes for Research (AIR) Multi-Tiered System of Supports Fidelity of Implementation Rubric to monitor AL-MTSS implementation (American Institutes for Research, 2024).
- ***Depth of Tiered Instruction (DOI) Implementation Rubric.*** Beginning in SY2024–25, regional coordinators will assess classroom implementation of Tiers 1, 2, and 3 instruction. We will aggregate the instruction data by tier at the school level.
- ***PowerSchool Unified Insights Data Dashboard.*** The PowerSchool Unified Insights Data Dashboard integrates with ALSDE's student information system to track student interventions and placements related to AL-MTSS. For SY2024–25, schools track whether a student received Tier 3 services for math in student plans under designated interventions. The ALSDE plans to begin tracking Tier 2 services in SY2025–26.

We discussed with the ALSDE the recent reduction in state MTSS staff and how it impacts MTSS implementation and monitoring across the state. Study plans include gathering data from multiple sources to address limitations of data collection from any one source that may have been affected by staff reductions. We will examine how MTSS implementation relates to tiered placements (i.e., receipt of interventions) and students' math performance, including growth. The study does not explicitly evaluate how schools determine or address interventions nor does the study examine specific interventions. When reporting study findings in subsequent years, we will include relevant cautions regarding MTSS implementation and their generalizability.

Stakeholder Awareness and Satisfaction Study

The stakeholder awareness and satisfaction study examines the extent to which stakeholders are aware of the ANA and satisfied with its implementation. We addressed this research question in SY2023–24 by soliciting feedback from the key stakeholders during a series of focus group sessions; subsequent years will address this research question based on stakeholders' responses to the annual survey and focus group discussions.

We asked the various stakeholders during the spring 2024 virtual focus groups how much they knew about the ANA and how satisfied they were with its first year of implementation (during

SY2022–23).[13] Stakeholder perceptions of the ANA were generally positive, with some concerns raised by the various stakeholders. Regional coordinators who participated in the virtual focus groups indicated that training was minimal and hastily conducted before SY2023–24 began, and access to materials after training was limited. They also noted a lack of consistency and collaboration in ANA implementation among departments. The LEA staff agreed that more training is needed, and that district and school infrastructure must be created or enhanced to effectively implement the ANA. While noting an abundance of materials are available, principals requested that the highest quality resources be prioritized for teachers and staff to use. The math coaches and math teachers separately agreed that additional training is needed, along with hands-on resources, to fully understand and teach the standards and align them to instructional lessons.

Teacher Math Content Knowledge and Pedagogy Study

The teacher math content knowledge and pedagogy study examines the (a) status and gains in math knowledge and skills of K–5 teachers and (b) extent to which ratings and gains in math knowledge and skills of K–5 teachers within FS and LS schools account for differences in student performance on formative and summative math assessments.

We identified a validated measure of teaching math knowledge, the Mathematical Knowledge for Teaching (MKT) assessment (Ball et al., 2008; Hill et al., 2004), to gather the necessary study data. We will administer the MKT for the first time in fall 2024 as part of the Year 3 evaluation activities, and those methods and results will be reported in the Year 3 report. In addition to the MKT data, we asked for but were told by ALSDE that they would not share teacher performance data, including Alabama Teacher Observation Tool (ATOT) data. We will analyze the MKT data, along with any additional data that the ALSDE and OMI collect and share from measures they develop or adopt, to address the research questions regarding the math knowledge and pedagogical performance of K–5 math teachers.

It is important to note that we asked for and received teacher certification data; however, having earned a specific certification does not guarantee effective performance. The extent to which we can fully examine the research questions related to this study, especially those that focus on how performance relates to changes in student math achievement, will be severely limited if the ALSDE does not provide the teacher performance data they collect.

Unintended Consequences of the ANA Study

The unintended consequences of the ANA study examines both positive and negative outcomes that emerge from its implementation but were not anticipated. During the spring 2024 focus groups, we asked stakeholders to share their perceptions of the positive and negative outcomes of the ANA's first year of implementation.[14] While we received feedback on short-term positive (e.g., coaching cycles) and negative (e.g., lack of sufficient staffing) aspects of the ANA, we did not see evidence of any unexpected factors given the initial implementation of the large-scale ANA intervention. We heard from some LEA staff about the challenges of implementing multiple state initiatives concurrently (e.g., Alabama Literacy Act and ANA). We also learned from school principals that, given the positive changes already seen, consideration should be given to expanding ANA implementation beyond grade 5; however, they also indicated that additional

[13] A summary of key findings from the spring 2024 focus groups is presented in the Process Evaluation section of this report while detailed findings are presented in Appendix D.
[14] A summary of key findings from the spring 2024 focus groups is presented in the Process Evaluation section of this report while detailed findings are presented in Appendix D.

staff (e.g., interventionists) are needed for schools to implement the ANA effectively. Additional questions targeting the consequences of the ANA will be added to future versions of the annual survey and focus group protocols.

Looking Ahead to Year 3

Completion of the Year 2 evaluation activities helped to establish a better and more comprehensive understanding of the ANA's initial implementation. This understanding was facilitated by reviewing ANA-related documents, conducting process evaluation data collection and analysis activities, analyzing the SY2022–23 outcome data to determine a baseline of student achievement, and examining the SY2023–24 outcome data to begin identifying patterns and trends in student math achievement over time. The five key stakeholder groups responsible for ANA implementation generally reported engaging in their required activities, though a few activities proved more challenging to initiate. Our Year 3 evaluation activities will continue to document how and what ANA-related tasks and activities the key stakeholders complete, with the focus turning to implementation quality and interim impacts. The planned Year 3 general, process, and outcome evaluation activities, along with their proposed timing for completion, are presented in Appendix F. The planned Year 3 supplemental studies activities and timing for their completion are presented in Appendix G.

Year 3 will continue to incorporate some general evaluation activities, including (a) continued separate meetings with the STEM Council Executive Director, OMI Director and ALSDE's Director of Data and Research, and OMI Director and staff; and (b) refining and updating the ANA evaluation data tracking system. As the ALSDE and OMI broaden the infrastructure to support ANA implementation, we will expand the tracking system to include new data elements and refinements to others, all of which will facilitate monitoring the various activities and inform potential recommendations for improvement.

Our Year 3 process evaluation activities include in-person site visits to a total of six FS and LS schools across the state; an annual online survey administered to the five key stakeholder groups; separate virtual focus groups with the five key stakeholder groups; and separate in-person focus groups with parents and students. The Year 3 annual survey will include questions from the Year 2 survey, along with additional questions regarding the fidelity of implementation of key ANA activities and questions about perceived challenges, benefits, and consequences. The Year 3 survey will also include questions that target specific aspects related to one or more supplemental studies. For example, as appropriate, select stakeholder groups will be asked questions about costs related to ANA implementation.

Year 3 outcome evaluation activities will focus on identifying longitudinal trends and patterns, particularly related to student math proficiency. We will analyze these patterns overall and by student demographic groups (when sample sizes permit). The patterns for math will be compared to those for other subjects to help us isolate the impact of the ANA. We plan to create data visualizations to help readers quickly understand important findings related to student performance as the ANA program matures. We will also use FS and LS designation and other school-level characteristics to understand the factors that promote gains in math proficiency. We anticipate several data sources for the various supplemental studies will become available during Year 3, enabling us to begin analyzing those data and examining their associated research questions.

Initial Considerations for Improvement

Overall, ANA implementation from October 2023 through September 2024 seemed reasonable, given the breadth and depth of implementing the ANA requirements across the state. From October 2023 through September 2024, ANA was in its early stages of implementation, with some aspects underway as scheduled and other aspects still in planning and development phases. In some cases, planned implementation timelines were impacted by the availability of necessary resources. For example, the lack of an existing fractional screening assessment required OMI to procure a vendor to develop this instrument. Implementation of other activities faced different challenges such as time to build an infrastructure, along with systems and processes, to successfully implement one or more ANA requirements. Most of the information or data that we gathered during Year 2 occurred during the ANA's early stages before systems and processes were finalized, before all ANA requirements were scheduled to be implemented, or from only a small sample of stakeholders. Thus, it is either premature or, in cases when only a small sample of stakeholders provided data, it would be irresponsible if we offered concrete recommendations for improvement. However, we believe there are a couple of changes that would enhance current and future implementation of ANA requirements and help ensure it can be successfully sustained:

- **Develop processes and procedures for centralized ANA data collection, including standardizing what data needs to be collected and maintaining a central statewide database**. Currently, there are several data elements that are needed by the evaluation study to effectively track the implementation of ANA requirements and evaluate their impacts. One example is the collection of MTSS data. We understand the MTSS data are currently collected and maintained by each LEA. As the ANA reaches full implementation, it will be important for the state to track and monitor data related to all its requirements to effectively track progress and identify trends and patterns related to student math achievement. We recommend that the ALSDE design and develop a system in which common data elements are collected across LEAs and maintained at the state level.

- **Review professional learning offerings and schedules**. Most stakeholders shared their enthusiasm about ANA and expressed a desire to help ensure its success. We learned from some stakeholders that numerous professional learning offerings are available as part of the ANA, but the timing limits or prevents them from participating. Other stakeholders described areas where they felt unprepared and that professional learning is needed but not yet available (e.g., procedures for administering screening assessments). We recommend that the ALSDE and OMI review all the ANA-related professional learning offerings and schedules with a focus on ensuring that the timing and sequence of professional learning is appropriate, and that professional learning offerings cover the content most needed by stakeholders.

- **Provide guidance for the simultaneous implementation of multiple high priority initiatives**. One of the biggest challenges individuals faced in completing their key ANA tasks was the need to implement multiple high priority initiatives simultaneously, specifically their work related to the Literacy Act and their work related to the Numeracy Act. We heard from individuals about the conflicts that they encountered when trying to complete the required work related to both initiatives. We recommend that ALSDE, OMI, and appropriate others provide guidance for how individuals can complete their work related to multiple high priority initiatives.

References

American Institutes for Research. (2024). *Multi-Tiered System of Supports (MTSS) Fidelity of Implementation Rubric*. Center on Multi-Tiered System of Supports. Retrieved July 2024. https://mtss4success.org/resource/essential-components-mtss-rubric.

Ball, D. L., Thames, M. H., & Phelps, G. C. (2008). Content knowledge for teaching: What makes it special? *Journal of Teacher Education, 59*(5), 389–407.

Hill, H. C., Schilling, S. G., & Ball, D. L. (2004). Developing measures of teachers' mathematics knowledge for teaching. *Elementary School Journal, 105*, 11–30.

Appendix A: Year 2 Process and Outcome Evaluation Activities[15]

Year 2 Timing	Process Evaluation[16]	Outcome Evaluation[17]
Data Sharing Agreement *Jan 2024 – COMPLETED*	Work with OMI/ALSDE to establish data sharing agreement(s)	Work with OMI/ALSDE to establish data sharing agreement(s)
Information Gathering *Jan–Feb 2024 – COMPLETED*	Conduct information gathering interviews or Focus Groups (FGs) to build understanding and inform data collection instruments	Obtain reports used by OMI/ALSDE for use as potential templates for reporting ANA outcome data
Planning *Feb–Apr 2024 – COMPLETED*	Identify the ANA components to be implemented in Year 1 Identify indicators of successful implementation of ANA components Develop criteria/metrics to evaluate the quality of implementation of various ANA components; efforts will focus on Year 1, but also consider implementation criteria for Years 2–5 Identify stakeholders within each FS and LS school/district to receive a survey Determine procedures and materials for administering annual surveys Determine procedures and materials for conducting spring FGs Determine procedures and materials for conducting fall Site Visits (SVs)	Identify sources for outcome data (student formative and summative performance data, ranking on NAEP math tests, math coach performance data [including collection of tools used to monitor math coach performance], student percentages [scoring at/above grade level, math deficiency, fractional reasoning deficiency, retained]) Determine process and establish procedures for OMI/ALSDE to share outcome data Establish outcome data baseline metrics Determine data visualization templates

[15] Shaded text indicates completed activities.
[16] The process evaluation fall 2024 in-person SVs were completed the weeks of October 7 and 21, and November 4, 2024.
[17] Outstanding Year 2 outcome evaluation activities will be completed during the first few months of Year 3.

Year 2 Timing	Process Evaluation[16]	Outcome Evaluation[17]
Design & Data Collection *Mar–Sept 2024 – PARTIALLY COMPLETE*	Identify the sample of schools in which to conduct spring 2024 virtual FGs; one FS and one LS school in each OMI region Identify the sample of schools in which to conduct in-person SVs; sample to include three FS and three LS schools across the state Develop spring 2024 first annual (baseline) survey to measure the implementation of ANA processes and activities; the survey to include parallel versions for specific stakeholder groups (regional coordinators, district staff, principals [FS and LS schools], math coaches, math teachers) Administer spring 2024 first annual (baseline) survey to stakeholders (regional coordinators, district staff, principals [FS and LS schools], math coaches, math teachers) Develop protocols for spring 2024 virtual FGs with specific stakeholder groups (regional coordinators, district staff, principals [FS and LS schools], math coaches, math teachers); these sessions will be held to elaborate on and/or clarify survey findings Conduct spring 2024 virtual FGs with stakeholders (regional coordinators, district staff, principals [FS and LS schools], math coaches, math teachers) Develop protocols for fall 2024 in-person SVs at three FS and three LS schools; the purpose of these SV sessions will be to gather information to cross-validate patterns from the spring 2024 baseline survey and provide additional information about implementation of required ANA processes Conduct fall 2024 in-person SVs at the identified sample of FS and LS schools	Receive data and data file layouts from OMI/ALSDE Review the quality of data for meeting assumptions of proposed analyses (e.g., normality, linearity)
Data Analysis *July–Sept 2024 – PARTIALLY COMPLETE*	Analyze spring 2024 annual (baseline) survey data separately by stakeholder group Analyze spring 2024 virtual FG data separately by stakeholder group	Analyze outcome data separately by metric Prepare draft data visualizations of baseline outcome data

Appendix B: Year 2 Supplemental Studies Activities[18]

Year 2 Timing	Math Coach Evaluation and Student Math Achievement	MTSS and Student Math Achievement	Teacher Math Pedagogy and Student Math Achievement	Effectiveness of Screening Assessments	Unintended Consequences of the ANA	Stakeholder Awareness and Satisfaction
Information Gathering *Jan–Feb 2024 – COMPLETED*	Piggyback on process evaluation information gathering interviews/FGs	Review existing measures and data collection systems covering MTSS implementation, tiered placements, student math achievement, and other student and teacher characteristics	Review existing measures and data collection systems covering measures of teacher math knowledge and skills, measures of student math achievement, and other student and teacher background characteristics	Review process used by FS and LS schools to administer math screening and diagnostic assessments	Piggyback on process evaluation information gathering interviews/FGs	Piggyback on process evaluation information gathering interviews/FGs
Planning *Mar–Apr 2024 – COMPLETED*	Provide support and consult with OMI/ALSDE to develop tools for regional coordinators and principals to measure math coaches' behavior during Years 2–5	Work with OMI/ALSDE to recommend refinements to existing measures, draft new measures, refine data collection systems, and refine study design	Work with OMI/ALSDE to recommend refinements to existing measures, draft new measures, refine data collection systems, and refine study design	Work with OMI/ALSDE to determine what screening and diagnostic data are collected and not collected/ maintained by the state	Piggyback on process evaluation to determine school characteristics and identify the sample of schools for in-person SVs	Piggyback on process evaluation in-person site visits to determine procedures and materials for conducting focus group sessions with parents/students

[18] Shaded text indicates completed activities.

Year 2 Timing	Math Coach Evaluation and Student Math Achievement	MTSS and Student Math Achievement	Teacher Math Pedagogy and Student Math Achievement	Effectiveness of Screening Assessments	Unintended Consequences of the ANA	Stakeholder Awareness and Satisfaction
Design & Data Collection *May–June 2024 – COMPLETED*	Provide support and consult with OMI to develop tools for regional coordinators and principals to use to measure math coaches' behavior during Years 2–5	Prepare draft measures, data sources, and study design Prepare data collection timeline	Prepare draft measures, data sources, and study design Prepare data collection timeline	Learn about current math screening and diagnostic assessments used by FS and LS support schools Work with OMI/ALSDE to obtain list of approved math screening and diagnostic assessments used by FS and LS schools	Piggyback on process evaluation site visits to conduct observations/focus group sessions with parents/students	Piggyback on process evaluation site visits to conduct focus group sessions with parents/students
Data Analysis *July–Sept 2024 – COMPLETE*	No SY2023–24 data to analyze Provide support and consult with OMI to develop tools for regional coordinators and principals to use to measure math coaches' behavior during Years 2–5	No SY2023–24 data to analyze Finalize measures, data sources, and study design Finalize data collection timeline	No SY2023–24 data to analyze Finalize measures, data sources, and study design Finalize data collection timeline	No SY2023–24 data to analyze	No SY2023–24 data to analyze	No SY2023–24 data to analyze

Appendix C: Year 2 Survey Results

Regional Coordinators

The ANA describes 11 key tasks that regional coordinators must perform. Across their ANA responsibilities, at least 19 of the 24 (79.2%) regional coordinators indicated they understood all the key tasks they need to complete to be successful (see Table C-1). The task that regional coordinators indicated understanding the least was monitoring implementation of MTSS, including response to intervention, continually evaluating the effectiveness of instruction, and making informed instruction decisions (79.2%). In response to whether they received training or professional development (PD), slightly less than three-quarters (70.8%) of the regional coordinators reported having received training on nine of their 11 major tasks. The two tasks that regional coordinators most lacked training included (a) monitoring implementation of MTSS, including response to intervention, continually evaluating the effectiveness of instruction, and making informed instruction decisions (62.5%); and (b) monitoring progress of Alabama Summer Mathematics Achievement Program (58.3%). Most regional coordinators (70.8%) indicated they have access to the resources and support needed to perform their key ANA tasks. The tasks that regional coordinators indicated having the least access to resources and supports include (a) monitor implementation of MTSS, including response to intervention, continually evaluating the effectiveness of instruction, and making informed instruction decisions (66.7%); (b) support OMI in monitoring implementation of approved assessments, screeners, and diagnostic assessments (62.5%); and (c) monitor implementation of core math curricula and interventions/programs (58.3%).

Table C-1 presents results from the survey question: Please indicate your understanding of, training received, and access to resources/supports for each key regional coordinator ANA task.

Table C-1. Regional Coordinators' Understanding, Training/Professional Development Received, and Resources/Support Access for Key ANA Tasks

Regional Coordinator Key ANA Tasks (n=24)	Understanding	Received Training/PD	Access Resources/Support
Supporting implementation of core math curricula and intervention programs.	95.8%	75.0%	70.8%
Monitoring implementation of core math curricula and interventions/programs.	100%	75.0%	58.3%
Supporting implementation of MTSS, including response to intervention, continually evaluating the effectiveness of instruction, and making informed instructional decisions.	91.7%	83.3%	87.5%
Monitoring implementation of MTSS, including response to intervention, continually evaluating the effectiveness of instruction, and making informed instructional decisions.	79.2%	62.5%	66.7%
Supporting implementation of the intensive professional development series on foundational math content knowledge.	95.8%	91.7%	95.8%
Monitoring implementation of the intensive professional development series on foundational math content knowledge.	100%	95.8%	87.5%

Regional Coordinator Key ANA Tasks (n=24)	Understanding	Received Training/PD	Access Resources/Support
Supporting OMI in monitoring implementation of approved assessments, screeners, and diagnostic assessments.	95.8%	75.0%	62.5%
Monitoring data collected by AMSTI and LEAs to ensure coaching aligns with school needs and make recommendations for improvement for math coaches.	87.5%	79.2%	79.2%
Evaluating data collected by AMSTI and LEAs to ensure coaching aligns with school needs and make recommendations for improvement for math coaches.	83.3%	75.0%	75.0%
Monitoring implementation of Alabama Summer Mathematics Achievement Program.	95.8%	70.8%	79.2%
Monitoring progress of Alabama Summer Mathematics Achievement Program.	95.8%	58.3%	70.8%

Across most tasks, the regional coordinators reported completing their key ANA tasks every week or once a month. Table C-2 shows that only a few regional coordinators reported completing some of their key tasks every day (0.0%–16.7%). Up to slightly more than one-third (12.5%–37.5%) of respondents reported completing some key ANA tasks every week, while about one-third to slightly more than half (37.5%–54.2%) reported completing some tasks once a month. The majority (70.8%) of regional coordinators indicated they complete two tasks related to monitoring implementation and progress of the Alabama Summer Mathematics Achievement Program less than once a month. Most (45.8%) respondents reported supporting OMI less than once a month by monitoring implementation of approved assessments, screeners, and diagnostic assessments.

Table C-2 presents results from the survey question: Please rate the frequency of implementing each regional coordinator key ANA task.

Table C-2. Frequency of Regional Coordinators' Implementation of Key ANA Tasks

Regional Coordinator Key ANA Tasks (n=24)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
Supporting implementation of core math curricula and intervention programs.	4.2%	8.3%	41.7%	29.2%	16.7%
Monitoring implementation of core math curricula and interventions/programs.	4.2%	16.7%	41.7%	33.3%	4.2%
Supporting implementation of MTSS, including response to intervention, continually evaluating the effectiveness of instruction, and making informed instructional decisions.	4.2%	12.5%	54.2%	25.0%	4.2%
Monitoring implementation of MTSS, including response to intervention, continually evaluating the effectiveness of instruction, and making informed instructional decisions.	8.3%	8.3%	54.2%	29.2%	0.0%
Supporting implementation of the intensive professional development series on foundational math content knowledge.	0.0%	20.8%	41.7%	29.2%	8.3%
Monitoring implementation of the intensive professional development series on foundational math content knowledge.	0.0%	29.2%	37.5%	33.3%	0.0%
Supporting OMI in monitoring implementation of approved assessments, screeners, and diagnostic assessments.	4.2%	45.8%	37.5%	12.5%	0.0%
Monitoring data collected by AMSTI and LEAs to ensure coaching aligns with school needs and make recommendations for improvement for math coaches.	0.0%	12.5%	45.8%	37.5%	4.2%

Regional Coordinator Key ANA Tasks (n=24)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
Evaluating data collected by AMSTI and LEAs to ensure coaching aligns with school needs and make recommendations for improvement for math coaches.	4.2%	12.5%	54.2%	29.2%	0.0%
Monitoring implementation of Alabama Summer Mathematics Achievement Program.	12.5%	70.8%	8.3%	8.3%	0.0%
Monitoring progress of Alabama Summer Mathematics Achievement Program.	12.5%	70.8%	8.3%	8.3%	0.0%

LEA Staff

The ANA describes 21 key tasks that LEA staff must complete, with 10 of those tasks related to annual data reporting. At least three-fourths (77.1%–100%) of these respondents reported understanding their key tasks, and at least two-thirds (63.6%–90.9%) reported understanding their ANA annual reporting tasks (see Table C-3). Most (82.9%–97.1%) respondents reported having received training/PD for nine key tasks. Only slightly more than half (57.1%) reported they received the training/PD to use a fractional reasoning screener to assess incoming 4th and 5th grade students to identify those in need of support for fractional reasoning. About two-thirds (62.9%) indicated they received the training/PD to use the diagnostic assessment to identify misconceptions and gaps in math knowledge and skills for grades 4–5 students identified as having a math deficiency. At least two-thirds (68.6%–97.1%) indicated they have access to the resources and support needed to effectively perform their key ANA tasks.

Table C-3 presents results from the survey question: Please indicate your understanding of, training received, and access to resources/supports for each LEA staff key ANA task.

Table C-3. LEA Staff's Understanding, Training/Professional Development Received, and Resources/Support Access for Key ANA Tasks

LEA Staff Key ANA Tasks (n=35)	Understanding	Received Training/PD	Access Resources/Support
K–5 students are working with an effective or highly effective math teacher, as demonstrated by student math performance data and teacher performance evaluations.	94.3%	94.3%	97.1%
K–5 students are provided effective instructional strategies to accelerate student progress provided by a highly qualified teacher who has training and experience in implementing teaching math through problem solving; providing an environment for students to make sense of cognitively demanding tasks; providing justifications for strategies and solutions; making connections with math; and receiving feedback about math ideas.	91.4%	82.9%	94.3%
K–5 students receive math intervention services and supports to improve any identified area of math deficiency	91.4%	82.9%	80.0%
Kindergarten students are assessed by November using an early numeracy screener recommended by the Elementary Mathematics Task Force to identify those students in need of support for key numeracy concepts.	88.6%	85.7%	88.6%
Kindergarten students identified by the screener as having a math deficiency are assessed using the diagnostic assessments to identify student misconceptions and gaps in math knowledge or skills.	94.3%	88.6%	94.3%
Incoming 1st and 2nd grade students are assessed using an early numeracy screener recommended by the Elementary Mathematics Task Force a minimum of 2 times a year to identify those students in need of support for key numeracy concepts.	94.3%	85.7%	91.4%
1st or 2nd grade students identified by the screener as having a math deficiency are assessed using the diagnostic assessment to identify student misconceptions and gaps in math knowledge or skills.	94.3%	82.9%	94.3%
Incoming 4th and 5th grade students are assessed using a fractional reasoning screener approved by the Elementary	77.1%	57.1%	68.6%

LEA Staff Key ANA Tasks (n=35)	Understanding	Received Training/PD	Access Resources/Support
Mathematics Task Force a minimum of 2 times a year to identify those students in need of support for fractional reasoning.			
4th or 5th grade students identified by the screener as having a math deficiency are assessed using the diagnostic assessment to identify student misconceptions and gaps in math knowledge or skills.	82.9%	62.9%	71.4%
K–5 students identified with a math deficiency through screeners, diagnostics, or formative assessments shall be provided intensive math interventions recommended by the Elementary Mathematics Task Force to address his or her specific needs.	97.1%	82.9%	88.6%
Providing a summer math camp for students in grades K–5 who are identified with a math deficiency. For students in grades K–3, the summer math camp shall be embedded in the summer reading camp.	100%	97.1%	97.1%

Table C-4 shows that most (63.6%–90.9%) LEA respondents reported they generally understand their annual reporting tasks. At least two-thirds (69.7%–84.8%) reported they received the training/PD needed to successfully perform seven of the annual data reporting tasks. Slightly less than half (48.5%) reported they received the training/PD to effectively report the number and percentage of students screened for dyscalculia characteristics, the number and percentage of students identified as demonstrating the characteristics of dyscalculia and receiving dyscalculia specific intervention, and the name of the dyscalculia-specific intervention being provided. Less than two-thirds of respondents indicated they received the training/PD to report the number and percentage of incoming grades 4–5 students identified as having a fractional reasoning deficiency (57.6%) and the number of teachers who have earned the K–5 math coach endorsement (60.6%).

Table C-4 presents results from the survey question: Please indicate your understanding of, training received, and access to resources/supports for each LEA staff key ANA annual data reporting task.

Table C-4. LEA Staff's Understanding, Training/Professional Development Received, and Resources/Support Access to LEA Staff ANA Annual Data Reporting Tasks

LEA Staff ANA Annual Data Reporting Tasks (n=33)	Understanding	Received Training/PD	Access Resources/Support
Number and percentage of all K–5 students, by grade, identified with a math deficiency on an Elementary Mathematics Task Force recommended math assessment.	87.9%	78.8%	84.8%
By grade, number and percentage of students screened for dyscalculia characteristics, the number and percentage of students identified as demonstrating the characteristics of dyscalculia and receiving dyscalculia specific intervention, and the name of the dyscalculia specific intervention being provided.	66.7%	48.5%	57.6%
Number and percentage of all K–5 students, by grade, performing on grade level or above grade level, which is defined as scoring level 3 or level 4 on the Alabama Comprehensive Assessment Program, or any derivation thereof.	90.9%	84.8%	90.9%
Number and percentage of students starting 5th grade with a math score below grade level, which is defined as scoring level 1 or level 2 on the Alabama Comprehensive Assessment Program, or any derivation thereof.	87.9%	78.8%	90.9%
Number and percentage of 5th grade students who started 3rd grade with a math deficiency and completed 5th grade on grade level, which is defined as scoring level 3 or level 4 on the Alabama Comprehensive Assessment Program, or any derivation thereof.	87.9%	72.7%	87.9%
By grade, number and percentage of eligible students in grades 4 and 5 who attended the Alabama Summer Mathematics Achievement Program in full support schools, that included intensive math instruction.	84.8%	78.8%	87.9%
By grade, number and percentage of all students retained in grades K–5 based on math deficiencies.	81.8%	69.7%	78.8%
By school, number of teachers who have earned the K–5 math coach endorsement.	63.6%	60.6%	69.7%
By school, number and percentage of incoming students in grades 1 and 2 identified as having a math deficiency.	87.9%	75.8%	90.9%
By school, number and percentage of incoming students in grades 4 and 5 identified as having a fractional reasoning deficiency.	75.8%	57.6%	63.6%

As seen in Table C-5, slightly more than half the LEA respondents reported they ensure K–5 students (a) work every day with an effective math teacher (59.4%) and (b) are provided effective instructional strategies every day to accelerate student progress provided by a highly qualified teacher who has training and experience implementing teacher math through problem solving, providing an environment for students to make sense of cognitively demanding tasks, providing justifications for strategies and solutions, making connections with math, and receiving feedback about math ideas (53.1%). The frequency with which the LEA respondents reported implementing their remaining key ANA tasks varied and was often split across several of the stated frequencies. For example, more than one-third of LEA respondents reported ensuring K–5 students receive math intervention services and support every day (40.6%) or once a week (34.4%). At least one-quarter indicated providing intensive math intervention every day (25.8%), once a week (25.8%), or once a month (25.8%) to K–5 students identified with a math deficiency through screeners, diagnostics, or formative assessments. At least one-quarter reported (a) completing the summer math camp task for grades K–5 students every day (22.6%), once a week (22.6%), or once a month (32.3%); and (b) using an early numeracy screener once a month (32.3%) or less than once a month (32.3%) to identify grades 1–2 students in need of support for key numeracy concepts. Some LEA staff reported using the diagnostic assessments once a week (25.8%) or monthly (35.5%) to identify misconceptions and gaps in math knowledge or skills of kindergarten students; and monthly (32.3%) or less than monthly (29.0) for grades 1–2 students. Slightly more than one-third (35.5%) of LEA staff reported not using a fractional reasoning screener to identify grades 4–5 students in need of support for fractional reasoning; and slightly more than one quarter (29.0%) reported not using the diagnostic assessment to identify grades 4–5 students' misconceptions and gaps in math knowledge and skills.

Table C-5 presents results from the survey question: Please rate the frequency of implementing each LEA staff key ANA task.

Table C-5. Frequency of LEA Staff's Implementation of Key ANA Tasks

LEA Staff Key ANA Tasks (n=27–32)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
K–5 students are working with an effective or highly effective math teachers, as demonstrated by student math performance data and teacher performance evaluations.	0%	9.4%	15.6%	15.6%	59.4%
K–5 students are provided effective instructional strategies to accelerate student progress provided by a highly qualified teacher who has training and experience in implementing teaching math through problem solving; providing an environment for students to make sense of cognitively demanding tasks; providing justifications for strategies and solutions; making connections with math; and receiving feedback about math ideas.	0%	6.3%	18.8%	21.9%	53.1%

LEA Staff Key ANA Tasks (n=27–32)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
K–5 students receive math intervention services and supports to improve any identified area of math deficiency.	9.4%	3.1%	12.5%	34.4%	40.6%
Kindergarten students are assessed by November using an early numeracy screener recommended by the Elementary Mathematics Task Force to identify those students in need of support for key numeracy concepts.	22.6%	25.8%	25.8%	19.4%	6.5%
Kindergarten students identified by the screener as having a math deficiency are assessed using the diagnostic assessments to identify student misconceptions and gaps in math knowledge or skills.	16.1%	16.1%	35.5%	25.8%	6.5%
Incoming 1st and 2nd grade students are assessed using an early numeracy screener recommended by the Elementary Mathematics Task Force a minimum of 2 times a year to identify those students in need of support for key numeracy concepts.	12.9%	32.3%	32.3%	16.1%	6.5%
1st or 2nd grade students identified by the screener as having a math deficiency are assessed using the diagnostic assessment to identify student misconceptions and gaps in math knowledge or skills.	12.9%	29.0%	32.3%	19.4%	6.5%
Incoming 4th and 5th grade students are assessed using a fractional reasoning screener approved by the Elementary Mathematics Task Force a minimum of 2 times a year to identify those students in need of support for fractional reasoning.	35.5%	19.4%	19.4%	19.4%	6.5%
4th or 5th grade students identified by the screener as having a math deficiency are assessed using the diagnostic assessment to identify student misconceptions and gaps in math knowledge or skills.	29.0%	22.6%	22.6%	19.4%	6.5%

LEA Staff Key ANA Tasks (n=27–32)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
K–5 students identified with a math deficiency through screeners, diagnostics, or formative assessments shall be provided intensive math interventions recommended by the Elementary Mathematics Task Force to address his or her specific needs.	9.7%	12.9%	25.8%	25.8%	25.8%
Providing a summer math camp for students in grades K – 5 who are identified with a math deficiency. For students in grades K – 3, the summer math camp shall be embedded in the summer reading camp.	3.2%	19.4%	32.3%	22.6%	22.6%

LEA respondents also reported on the frequency of implementing various ANA intervention services and supports for students with an identified area of math deficiency. As seen in Table C-6, most indicated they implement intervention services and supports to students with an identified math deficiency every day (31.0%–62.1%) or once a week (13.8%–37.9%), with one exception. LEA staff reporting providing a home-based mathematics plan, including participation in family training workshops or regular family-guided home mathematics activities, either once a month (30.8%) or less than monthly (38.5%).

Table C-6 presents results from the survey question: Please rate the frequency of implementing each ANA intervention service and support.

Table C-6. LEA Staff's Implementation of ANA Intervention Services and Supports

ANA Intervention Services and Supports (n=27–32)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
Additional instructional time devoted to evidence-based mathematics instruction and interventions recommended by the Elementary Mathematics Task Force, including engaging, high quality, and rigorous supplemental sessions.	0.0%	6.9%	20.7%	20.7%	51.7%
Providing daily targeted small group mathematics intervention based on student needs.	0.0%	0.0%	17.2%	20.7%	62.1%
Providing supplemental, evidence-based mathematics interventions before or after school, or both, delivered by a highly qualified teacher of mathematics or trained tutor.	6.9%	10.3%	13.8%	37.9%	31.0%

ANA Intervention Services and Supports (n=27–32)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
Frequently monitoring the progress of the mathematics skills of each student throughout the school year and adjusting instruction according to student need.	0.0%	10.3%	31.0%	20.7%	37.9%
Incorporating material from a previous grade to link understanding to grade level curriculum.	0.0%	17.9%	21.4%	28.6%	32.1%
Incorporating a concrete, semi-concrete, abstract approach.	3.6%	10.7%	14.3%	25.0%	46.4%
Incorporating explicit systematic strategy instruction, including summarizing key points and reviewing vocabulary prior to the lesson.	0.0%	0.0%	20.7%	24.1%	55.2%
Utilizing mathematics strategies or programs, grounded in the science of learning, that accelerate student mathematics achievement.	2.9%	2.9%	20.7%	13.8%	58.6%
Attending to conceptual understanding as well as procedural fluency.	0.0%	7.4%	14.8%	22.2%	55.6%
Providing a home-based mathematics plan, including participation in family training workshops or regular family-guided home mathematics activities.	3.8%	38.5%	30.8%	7.7%	19.2%

Principals – FS Schools

FS school principals reported understanding the 13 key ANA tasks they need to complete to facilitate students in their schools becoming high math achievers. Across these principals' key tasks, 100% indicated understanding eight key tasks, while most (88.2%–97.1%) indicated understanding the remaining five key tasks (see Table C-7). At least two-thirds reported they (a) received the requisite training/PD (70.6%–97.1%), and (b) have access to the necessary resources and supports (67.6%–97.1%) to complete those tasks successfully.

Table C-7 presents results from the survey question: Please indicate your understanding of, training received, and access to resources/supports for each FS school principal key ANA task.

Table C-7. FS School Principals' Understanding, Training/Professional Development Received, and Resources/Support Access for Key ANA Tasks

FS School Principal Key ANA Tasks (n=30–34)	Understanding	Received Training/PD	Access Resources/Support
Ensuring all school leaders and staff actively participate in any OMI or OSI support.	100%	88.2%	91.2%
Engaging in and implementing OMI and OSI professional learning.	100%	94.1%	94.1%
Using approved math curricula for core instruction.	100%	91.2%	91.2%
Using approved math intervention programs or curricula for Tier 2 and Tier 3 interventions.	91.2%	70.6%	67.6%
Requiring math teachers to engage in and implement OMI and OSI professional learning.	100%	91.2%	94.1%
Using approved formative assessments, screeners, and diagnostic assessments.	100%	88.2%	88.2%
Implementing MTSS to monitor student progress, evaluate the effectiveness of instruction, and improve instructional decisions.	100%	97.1%	88.2%
Supporting and responding to OMI and OSI requests.	97.1%	97.1%	97.1%
Providing the Alabama Math Summer Achievement Program to all grades 4–5 students identified with a math deficiency.	88.2%	76.5%	82.4%
Staffing the program with highly effective math teachers.	100%	90.0%	86.7%
Including not less than 40 hours, nor more than 70 hours of time spent in math problem solving, based on the severity of student need.	100%	93.3%	90.0%
Incorporating an Elementary Mathematics Task Force recommended math assessment system, that shall be administered both at the beginning and end of each Alabama Summer Mathematics Achievement Program, to measure student progress.	96.7%	80.0%	90.0%
Coordinating with existing summer programs conducted by the local education agency or in partnership with community-based summer programs for students similarly situated.	96.7%	90.0%	93.3%

The frequency with which the FS school principals implement their key ANA tasks varied. Table C-8 shows that most principal respondents reported implementing five key ANA tasks every day, including using approved math curricular for core instruction (82.4%); using approved math intervention programs or curricula for Tier 2 and Tier 3 interventions (64.7%); including not less than 40 hours, nor more than 70 hours of time spent in math problem solving, based on the severity of student need (45.8%); supporting and responding to OMI and OSI requests (38.2%); and staffing the program with highly effective math teachers (37.5%). They reported implementing three key ANA tasks once a week, including using approved formative assessments, screeners, and diagnostic assessments (50.0%); ensuring all school leaders and staff actively participate in any OMI or OSI support (44.1%); and requiring math teachers to engage in and implement OMI and OSI professional learning (34.4%). They reported implementing two tasks once a month, including engaging in and implementing OMI and OSI professional learning (44.1%) and implementing MTSS to monitor student progress, evaluate the effectiveness of instruction, and improve instructional decisions (44.1%). They reported incorporating the recommended math assessment system less than once a month to measure student progress from the beginning to the end of the Alabama Summer Mathematics Achievement Program (30.4%). In addition, an equal number of respondents (30.4%) reported coordinating every day and less than once a month with existing summer programs conducted by the LEA or in partnership with community-based summer programs. More than one-quarter (29.4%) of FS school principals reported not providing the Alabama Math Summer Achievement Program to all grades 4–5 students identified with a math deficiency.

Table C-8 presents results from the survey question: Please rate the frequency of implementing each FS school principal key ANA task.

Table C-8. Frequency of FS School Principals' Implementation of Key ANA Tasks

FS School Principal Key Tasks (n=23–34)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
Ensuring all school leaders and staff actively participate in any OMI or OSI support.	0.0%	0.0%	35.3%	44.1%	20.6%
Engaging in and implementing OMI and OSI professional learning.	0.0%	8.8%	44.1%	41.2%	5.9%
Using approved math curricula for core instruction.	5.9%	0.0%	2.9%	8.8%	82.4%
Using approved math intervention programs or curricula for Tier 2 and Tier 3 interventions.	14.7%	0.0%	2.9%	17.6%	64.7%
Requiring math teachers to engage in and implement OMI and OSI professional learning.	2.9%	8.8%	29.4%	32.4%	26.5%
Using approved formative assessments, screeners, and diagnostic assessments.	8.8%	5.9%	17.6%	50.0%	17.6%

FS School Principal Key Tasks (n=23–34)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
Implementing MTSS to monitor student progress, evaluate the effectiveness of instruction, and improve instructional decisions.	2.9%	2.9%	44.1%	23.5%	26.5%
Supporting and responding to OMI and OSI requests.	0.0%	5.9%	23.5%	32.4%	38.2%
Providing the Alabama Math Summer Achievement Program to all grades 4–5 students identified with a math deficiency.	29.4%	26.5%	14.7%	8.8%	20.6%
Staffing the program with highly effective math teachers.	4.2%	29.2%	16.7%	12.5%	37.5%
Including not less than 40 hours, nor more than 70 hours of time spent in math problem solving, based on the severity of student need.	4.2%	20.8%	8.3%	20.8%	45.8%
Incorporating an Elementary Mathematics Task Force recommended math assessment system, that shall be administered both at the beginning and end of each Alabama Summer Mathematics Achievement Program, to measure student progress.	8.7%	30.4%	26.1%	8.7%	26.1%
Coordinating with existing summer programs conducted by the local education agency or in partnership with community-based summer programs for students similarly situated.	8.7%	30.4%	17.4%	13.0%	30.4%

Principals – LS Schools

There are six key tasks outlined in the ANA that LS school principals must perform.[19] As seen in Table C-9, almost all (93.3%–97.8%) respondents indicated they understand all their required key ANA tasks. Across these key tasks, at least two-thirds (68.9%–88.9%) reported they received the training/PD, and at least approximately three-fourths (73.3%–95.6%) indicated they have access to the resources and supports needed to successfully perform their key ANA tasks.

[19] The ANA indicates two fewer key tasks for LS principals than FS school principals: (a) ensuring all school leaders and staff actively participate in any OMI or OSI support and (b) engaging in and implementing OMI and OSI professional learning. LS school principals also are not required to provide the Alabama Mathematics Summer Achievement Program and the tasks associated with its implementation.

Table C-9 presents results from the survey question: Please indicate your understanding of, training received, and access to resources/supports for each LS principal key ANA task.

Table C-9. LS School Principals' Understanding, Training/Professional Development Received, and Resources/Support Access for Key ANA Tasks

LS School Principal Key ANA Tasks (n=45)	Understanding	Received Training/PD	Access Resources/Support
Using approved math curricula for core instruction.	97.8%	88.9%	95.6%
Using approved math intervention programs or curricula for Tier 2 and Tier 3 interventions.	93.3%	68.9%	73.3%
Requiring math teachers to engage in and implement OMI and OSI professional learning.	97.8%	88.9%	95.6%
Using approved formative assessments, screeners, and diagnostic assessments.	95.6%	86.7%	93.3%
Implementing MTSS to monitor student progress, evaluate the effectiveness of instruction, and improve instructional decisions.	97.8%	88.9%	91.1%
Supporting and responding to OMI and OSI requests.	97.8%	84.4%	88.9%

Table C-10 shows the LS school principals generally reported implementing their key ANA tasks every day (35.6%–93.3%). Slightly more than one-third (35.6%) reported using approved formative assessments, screeners, and diagnostic assessments once a week. Although most (35.6%) LS school principals reported supporting and responding to OMI and OSI requests every day, approximately one-quarter indicated they implemented this same task once a week (26.7%) or once a month (26.7%). Most (40.0%) also reported implementing MTSS to monitor student progress, evaluate the effectiveness of instruction, and improve instructional decisions every day; however, one-third (33.3%) of the respondents indicated they only performed this task once a month. Approximately one-quarter (24.4%) indicated not using approved math intervention programs or curricula for Tier 2 and Tier 3 interventions.

Table C-10 presents results from the survey question: Please rate the frequency for implementing each LS school principal key ANA task.

Table C-10. Frequency of LS School Principals' Implementation of Key ANA Tasks

LS School Principal Key ANA Tasks (n=45)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
Using approved math curricula for core instruction.	2.2%	2.2%	0.0%	2.2%	93.3%
Using approved math intervention programs or curricula for Tier 2 and Tier 3 interventions.	24.4%	2.2%	2.2%	11.1%	60.0%
Requiring math teachers to engage in and implement OMI and OSI professional learning.	2.2%	13.3%	20.0%	20.0%	44.4%
Using approved formative assessments, screeners, and diagnostic assessments.	2.2%	6.7%	11.1%	35.6%	44.4%
Implementing MTSS to monitor student progress, evaluate the effectiveness of instruction, and improve instructional decisions.	0.0%	11.1%	33.3%	15.6%	40.0%
Supporting and responding to OMI and OSI requests.	4.4%	6.7%	26.7%	26.7%	35.6%

Math Coaches

Across the 20 key tasks outlined in the ANA, most (77.0%–100%) math coaches indicated they understood their required responsibilities (see Table C-11). The two tasks that received the lowest ratings of understanding included (a) assisting teachers with administering fractional reasoning screeners or diagnostic assessments to grades 4–5 students (77.0%) and (b) supporting teachers in the integration of computer science and computational thinking concepts into math classrooms (82.0%). Although most (63.0%–99.9%) indicated they received training/PD on how to perform their key ANA tasks, only 20.0% of math coaches reported they had been trained on how to assist teachers with administering fractional reasoning screeners or diagnostic assessments to grades 4–5 students. In addition, less than one-third (31.0%) indicated they have access to the resources and support needed to perform that task. Most (68.0%–100%) of the responding math coaches indicated they have access to the resources and support needed to perform their other key ANA tasks.

Table C-11 presents results from the survey question: Please indicate your understanding of, training received, and access to resources/supports for each math coach key ANA task.

Table C-11. Math Coach Understanding, Training/Professional Development Received, and Resources/Support Access for Key ANA Tasks

Math Coach Key ANA Tasks (n=100–101)	Understanding	Received Training/PD	Access Resources/Support
Supporting instructional improvements with an emphasis on Tier 1 math instruction.	100%	96.0%	98.0%
Collaborating with the principal and faculty to implement a strategic plan for coaching and math instruction.	100%	91.1%	90.1%
Facilitating schoolwide math professional learning that includes job-embedded assistance, joint preplanning, modeling lessons, co-teaching lessons, targeted observations, and debriefings.	99.0%	96.0%	95.0%
Modeling evidence-based math instruction and intervention strategies.	100%	91.1%	90.1%
Continually mentoring and coaching math teachers.	100%	99.9%	99.0%
Assisting teachers in using data to differentiate math instruction and identify students with dyscalculia and other exceptionalities.	93.1%	66.3%	71.3%
Monitoring student progress through formative assessments at least 3 times per year and making recommendations for modifying instruction based on student's need and trends.	99.9%	91.1%	100%
Focusing solely on my role as math coach at the elementary level.	100%	98.0%	96.0%
Collaborating with math teachers and grade-level teams of math teachers to foster use of appropriate instructional materials.	100%	97.0%	96.0%
Collaborating with grade-level teams to develop rigorous tasks, lessons, and assessments aligned to math content standards, analyze student work, and provide real-time feedback and make next-step instructional decisions based on student evidence.	99.0%	97.0%	93.1%
Assisting math teachers with using formative assessments and analyzing student work to identify students with misconceptions, students exhibiting dyscalculia, and students needing acceleration.	98.0%	77.0%	83.0%
Assisting teachers in administering early numeracy screeners or diagnostic assessments to grades K–2 students.	91.0%	63.0%	73.0%
Assisting teachers with administering fractional reasoning screeners or diagnostic assessments to grades 4–5 students.	77.0%	20.0%	31.0%

Math Coach Key ANA Tasks (n=100–101)	Understanding	Received Training/PD	Access Resources/Support
Advocating, planning, and coordinating opportunities for school-based family and community engagement in math.	97.0%	84.0%	92.0%
Participating actively in OMI and AMSTI visits and professional learning to meet personal outcomes and school, district, and state math goals.	100%	98.0%	98.0%
Engaging in ongoing math learning opportunities.	100%	99.0%	100%
Facilitating use of assessment data at all levels of math instruction to assist in decision making that moves students to higher levels of math performance.	100%	96.0%	99.0%
Planning/facilitating professional learning opportunities that assist teachers in targeting student deficits, facilitate professional conversations, foster student engagement, assess student learning, reflect on professional practices, and identify next learning steps to achieve state, district, and school math goals.	98.0%	90.0%	94.0%
Tracking/reporting time spent with math teachers.	100%	98.0%	98.0%
Supporting teachers in the integration of computer science and computational thinking concepts into math classrooms.	82.0%	69.0%	68.0%

As seen in Table C-12, almost all (91.8%) responding math coaches reported they track/report time spent with math teachers every day. Four additional key tasks that most math coaches reported completing every day include focusing solely on the role of math coach at the elementary level (89.0%); continually mentoring and coaching math teachers (81.0%); supporting instructional improvements with an emphasis on Tier 1 math instruction (77.0%); and modeling evidence-based math instruction and intervention strategies (60.0%). The math coaches reported completing five key tasks once a week, including collaborating with the principal and faculty to implement a strategic plan for coaching and math instruction (75.0%); collaborating with grade level teams to develop rigorous tasks, lessons, and assessments aligned to math content standards, analyze student work, and provide real-time feedback and make next-step instructional decisions based on student evidence (59.0%); facilitating use of assessment data at all levels of math instruction to assist in decision making that moves students to higher levels of math performance (54.1%); assisting math teachers with using formative assessments and analyzing student work to identify students with misconceptions, students exhibiting dyscalculia, and students needing acceleration (53.1%); and assisting teachers in using data to differentiate math instruction and identify students with dyscalculia and other exceptionalities (45.0%). About half the math coaches reported that once a month they (a) help teachers administer early numeracy screeners or diagnostic assessments to grades K–2 students (57.1%) and (b) advocate, plan, and coordinate math opportunities for school-based family and community engagement (50.0%). There were several key tasks that the math coaches reported not completing. Almost three-fourths (72.4%) reported not helping teachers administer fractional reasoning screeners or diagnostic assessments to grades 4–5 students.

About one-quarter (26.5%) reported they did not (a) support teachers in the integration of computer science and computational thinking concepts into math classrooms and (b) help teachers administer early numeracy screeners or diagnostic assessments to grades K–2 students (23.5%).

Table C-12 presents results from the survey question: Please rate the frequency of implementing each math coach key ANA task.

Table C-12. Frequency of Math Coaches' Implementation of Key ANA Tasks

Math Coach Key ANA Tasks (n=98–100)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
Supporting instructional improvements with an emphasis on Tier 1 math instruction.	0%	1.0%	4.0%	18.0%	77.0%
Collaborating with the principal and faculty to implement a strategic plan for coaching and math instruction.	2.0%	7.0%	8.0%	75.0%	8.0%
Facilitating schoolwide math professional learning that includes job-embedded assistance, joint preplanning, modeling lessons, co-teaching lessons, targeted observations, and debriefings.	5.0%	8.0%	19.0%	31.0%	37.0%
Modeling evidence-based math instruction and intervention strategies.	1.0%	1.0%	5.0%	33.0%	60.0%
Continually mentoring and coaching math teachers.	0.0%	0.0%	1.0%	18.0%	81.0%
Assisting teachers in using data to differentiate math instruction and identify students with dyscalculia and other exceptionalities.	9.0%	12.0%	20.0%	45.0%	14.0%
Monitoring student progress through formative assessments at least 3 times per year and making recommendations for modifying instruction based on student's need and trends.	0.0%	25.0%	42.0%	27.0%	6.0%
Focusing solely on my role as math coach at the elementary level.	0.0%	0.0%	1.0%	10.0%	89.0%
Collaborating with math teachers and grade-level teams of math teachers to foster use of appropriate instructional materials.	0.0%	3.0%	11.0%	40.0%	46.0%

Math Coach Key ANA Tasks (n=98–100)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
Collaborating with grade-level teams to develop rigorous tasks, lessons, and assessments aligned to math content standards, analyze student work, and provide real-time feedback and make next-step instructional decisions based on student evidence.	2.0%	5.0%	24.0%	59.0%	10.0%
Assisting math teachers with using formative assessments and analyzing student work to identify students with misconceptions, students exhibiting dyscalculia, and students needing acceleration.	1.0%	10.2%	21.4%	53.1%	14.3%
Assisting teachers in administering early numeracy screeners or diagnostic assessments to grades K–2 students.	23.5%	57.1%	12.2%	6.1%	1.0%
Assisting teachers with administering fractional reasoning screeners or diagnostic assessments to grades 4–5 students.	72.4%	17.3%	5.1%	4.1%	1.0%
Advocating, planning, and coordinating opportunities for school-based family and community engagement in math.	6.1%	50.0%	35.7%	5.1%	3.1%
Participating actively in OMI and AMSTI visits and professional learning to meet personal outcomes and school, district, and state math goals.	0.0%	1.0%	73.5%	22.4%	3.1%
Engaging in ongoing math learning opportunities.	0.0%	3.1%	60.2%	18.4%	18.4%
Facilitating use of assessment data at all levels of math instruction to assist in decision making that moves students to higher levels of math performance.	0.0%	5.1%	24.5%	54.1%	16.3%

Math Coach Key ANA Tasks (n=98–100)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
Planning/facilitating professional learning opportunities that assist teachers in targeting student deficits, facilitate professional conversations, foster student engagement, assess student learning, reflect on professional practices, and identify next learning steps to achieve state, district, and school math goals.	4.1%	20.4%	35.7%	29.6%	10.2%
Tracking/reporting time spent with math teachers.	1.0%	0.0%	0.0%	7.1%	91.8%
Supporting teachers in the integration of computer science and computational thinking concepts into math classrooms.	26.5%	15.3%	11.2%	20.4%	26.5%

Math Teachers

There are 11 key ANA tasks that K–5 math teachers are required to complete. Of the math teachers who responded to the survey, most (91.1%–98.1%) reported understanding what was needed to provide effective math instruction so their students could become high math achievers (see Table C-13). Most (88.3%–91.8%) reported they received training/PD to perform all their key ANA tasks. These respondents generally agreed that they have access to the resources and support to complete their tasks; 92.3%–95.3% indicated they can access the resources and support needed for eight of their key ANA tasks. Approximately three-fourths (74.2%) indicated they have the resources or support to (a) provide descriptive and timely feedback to students and (b) avoid practices that minimize sense making and understating math concepts. About two-thirds (68.7%) indicated they have the resources or support to effectively provide reports to parents/legal guardians that detail the strengths, deficiencies, and progress of students who received math intervention during the school year.

Table C-13 presents results from the survey question: Please indicate your understanding of, training received, and access to resources/supports for each math teacher key ANA task.

Table C-13. Math Teachers' Understanding, Training/Professional Development Received, and Resources/Support Access for Key ANA Tasks

Math Teacher Key ANA Tasks (n=428)	Understanding	Received Training/PD	Access Resources/Support
Providing an average of 60 min per day of Tier 1 math instruction.	97.7%	90.9%	94.2%
Using only Elementary Math Task Force-approved mathematics curricula and quality print and online resources.	96.5%	89.3%	92.3%
Planning and developing units and lessons based on grade-level math content standards.	98.1%	90.7%	92.8%
Building students' fluency with math procedures based on conceptual understanding, strategic reasoning, and problem solving.	97.7%	90.0%	92.3%
Providing access to tools/technology that support mathematical thinking.	95.3%	88.3%	92.3%
Providing a learning environment that promotes student reasoning, student discourse, and student questioning and critiquing the reasoning of their peers.	97.7%	92.3%	95.3%
Implementing evidence-based teaching practices.	97.2%	92.5%	94.2%
Using evidence of student understanding to support planning next instructional steps.	97.2%	91.6%	93.7%
Providing descriptive and timely feedback to students that includes strengths, deficiencies, and next steps for progress toward learning targets.	96.5%	91.8%	74.2%
Avoiding practices that minimize sense making and understanding math concepts.	93.9%	89.5%	74.7%
Providing reports to parents/legal guardians that detail the strengths, deficiencies, and progress of students who received math intervention during the school year.	91.1%	88.8%	68.7%

As seen in Table C-14, most (71.0%–88.8%) responding math teachers reported completing eight of the 11 key ANA tasks every day. Approximately one-third (37.3%) of the math teachers reported providing reports to parents/legal guardians that detail the strengths, deficiencies, and progress of students who received intervention during the school year once a month. The math teachers reported planning and developing units and lessons based on grade level math content standards every day (53.2%) or once a week (44.2%). They also reported providing descriptive and timely feedback to students every day (58.0%) or once a week (31.8%).

Table C-14 presents results from the survey question: Please rate the frequency of implementing each math teacher key ANA task.

Table C-14. Frequency of Math Teachers' Implementation of Key ANA Tasks

Math Teacher Key ANA Tasks (n=421)	Not Implementing	Implement Longer than Monthly	Implement Monthly	Implement Weekly	Implement Daily
Providing an average of 60 min per day of Tier 1 math instruction.	1.2%	0.5%	0.7%	8.8%	88.8%
Using only Elementary Math Task Force-approved mathematics curricula and quality print and online resources.	1.0%	0.2%	1.4%	11.6%	85.7%
Planning and developing units and lessons based on grade-level math content standards.	0.7%	0.9%	1.4%	44.2%	53.2%
Building students' fluency with math procedures based on conceptual understanding, strategic reasoning, and problem solving.	0.5%	0.0%	0.7%	14.7%	84.1%
Providing access to tools/technology that support mathematical thinking.	1.0%	0.7%	2.4%	15.9%	80.0%
Providing a learning environment that promotes student reasoning, student discourse, and student questioning and critiquing the reasoning of their peers.	0.2%	0.5%	1.2%	10.0%	88.1%
Implementing evidence-based teaching practices.	0.7%	0.2%	0.5%	14.0%	84.6%
Using evidence of student understanding to support planning next instructional steps.	0.7%	0.5%	1.9%	25.9%	71.0%
Providing descriptive and timely feedback to students that includes strengths, deficiencies, and next steps for progress toward learning targets.	1.7%	1.4%	7.1%	31.8%	58.0%
Avoiding practices that minimize sense making and understanding math concepts.	3.1%	1.4%	2.9%	14.5%	78.1%
Providing reports to parents/legal guardians that detail the strengths, deficiencies, and progress of students who received math intervention during the school year.	4.8%	12.6%	37.3%	15.7%	29.7%

Appendix D: Year 2 Virtual Focus Group Results

Regional Coordinators

ANA Implementation

The participating regional coordinators shared what has helped them the most with monitoring and supporting implementation of ANA. Participants emphasized the importance of building relationships and authentic collaboration with the schools they serve, learning what each school needs (e.g., working with school improvement teams), and striving to meet principals and staff where they are. Participants also mentioned using data from *Monday.com* to monitor coaching activity, conduct learning walks[20], and collaborate with Alabama Math, Science, and Technology Initiative (AMSTI) staff.

The participating regional coordinators also shared the challenges they have encountered so far in supporting and monitoring ANA implementation. Participants new to their role as regional coordinator mentioned that building relationships, while important, has been difficult. Some reported not feeling welcome when conducting their school site visits or meeting with district staff; these participants felt that administrators and school leaders did not view them as partners. Participants acknowledged that each school district is unique, and they are not always perceived to be part of the school's team. They indicated learning each school's system and providing tailored support takes time, and can be difficult to obtain buy-in from school leadership and staff. Other participants reported observing school administrators overwhelmed by the number of initiatives and policy mandates they need to implement. Several mentioned the need for improved collaboration across departments at the state level to decrease the extent to which schools are pulled in different directions. Participants also mentioned that some schools struggle with the lack of sufficient staff or time to accommodate all ANA activities (e.g., walk-throughs). Other regional coordinators noted that schools have not had enough time to establish effective infrastructures to implement ANA, making it difficult to hold schools accountable in a fair and equitable manner. Many participants cited data access as the main barrier to implementing formative, screening, and diagnostic assessments. They indicated they have access to view school and district assessment data; however, if they have not yet established a positive relationship with the school or district, they have difficulty accessing those data. Finally, communication about and training on the assessments need improvement, with some participants citing inconsistent messaging about screener administration and selection. Regional coordinators expressed a need for a better pipeline of communication with schools about how screening assessment data are used, as information on this may have been filtered from the top down.

Data Alignment

Regional coordinator participants discussed the effectiveness of the process they use to align data from AMSTI and LEAs to the (a) needs of the schools they serve and (b) recommendations they make to their math coaches. Responses varied, with some participants noting that it is too early to tell how effective their processes are. The participating regional coordinators indicated they are still trying out different processes with some of their schools, so they do not yet have a definite process that they know works. They noted a desire to achieve a consistent process, at least as a starting point. Participants generally reported using coaching cycle data, Alabama

[20] Learning walks are short and informal classroom visits to focus on and observe what is happening in classrooms and offer detailed feedback.

Comprehensive Assessment Program (ACAP) data, start/middle/end-of-year data, and learning walks to inform their decisions. A few participants noted that having effective, collaborative relationships with AMSTI and the LEA is necessary for success while also acknowledging that the level of open communication and collaboration varies with AMSTI staff and staff within each LEA.

Alabama Summer Mathematics Achievement Program

A few participating regional coordinators noted that K–3 students are embedded into the Summer Literacy Camp, and this causes confusion and some tension between the Alabama Reading Initiative (ARI) and the Alabama Summer Mathematics Achievement Program. Other participants noted that monitoring this program is challenging because of the inconsistent and varied schedules (e.g., whole days, half days). A few participants reported that some of their districts host a site- or district-based camp, which makes it difficult to track whether students come from FS or LS schools. One participant noted that another challenge involves summer camps that are run by third parties. These third-party companies want to use ANA's resources, but they do not use them in the intended way. As a result, student learning gains are not as pronounced, and it is difficult to ensure that the quality of the camp meets ANA standards.

Measuring Coaching Effectiveness

Participating regional coordinators shared some ways in which they measure the effectiveness of the coaching the math coaches provide to the math teachers. They indicated the results-based coaching tool found through *Monday.com* is helpful, as are pre- and post-assessments, discussions with mentoring specialists, monthly monitoring meetings with AMSTI, and site visits. One participant discussed comparing benchmark data and percentage growth between teachers who were coaching within and outside a coaching cycle. Another participant noted that it will be important to work with AMSTI next year to review and discuss the coaching proficiency scale.[21]

Areas for Improvement

The participating regional coordinators shared some suggestions for how ANA implementation might be improved. Some participants noted that their training was minimal and hasty, resulting in a lack of readiness and unity across regional coordinators in how to interpret their responsibilities and conduct their key ANA tasks. One participant noted that the volume of training components (e.g., benchmarks, interventions, curricula) is overwhelming, making it difficult to become an expert in all aspects of the ANA. A few participants noted that, while there are a lot of training opportunities available, they do not always have full access to the materials used and shared during the training sessions. One participant suggested that their training occur ahead of that provided to administrators. They suggested this sequence will allow them to provide more effective support and help clarify or provide explanation to the administrators, especially when they have questions or are unclear about an activity or information. Overall, participants felt that enhanced consistency, collaboration among departments, and communication and messaging could improve ANA implementation.

[21] The Alabama Coaching Framework can be found at The Alabama Coaching Framework.

LEA Staff

ANA Implementation

LEA participants discussed various activities that helped them effectively implement the ANA. A few participants discussed the importance of being able to have evidence- and data-based conversations about students' learning. They noted it is helpful to have real-time data to guide next steps, especially when a deficiency has been identified or an intervention has been recommended. Several participants noted the screener and diagnostic assessment data they receive through i-Ready are helpful in identifying the domains where students need additional math instruction. Another LEA participant indicated their math coaches are well-versed in the screeners and know which to administer and when. One participant mentioned leaning heavily on their state-based coach (e.g., AMSTI coach, OMI coach) for guidance about the various screeners and when to administer them. Another participant commented that the ANA training sessions have been helpful overall. For example, professional development sessions helped their teachers understand what ANA expects of them when teaching math standards. Coach training sessions helped coaches implement their coaching cycles with teachers.

Several LEA staff discussed implementation challenges they have encountered with the ANA due to staffing issues. Not having enough interventionists or faculty members who can dedicate themselves to providing Tier 3 instruction has been a major problem for ensuring math intervention services are consistently provided. One participant mentioned that, although there is an interventionist, the school is behind in implementing various ANA components because they have difficulty finding enough time to implement ANA. They also noted tension within the school in finding a balance between focusing on math and reading (e.g., alternating between reading days and math days). Another participant noted that finding uninterrupted math time is a challenge. A substantive amount of time is needed to collaborate within the FS school to interpret data, place students appropriately, examine the screening data, and provide an intervention. One participant recalled that a school missed the window for administering one of the screeners and suggested a building-level reminder from school staff or the math coach would have helped them stay on track. A few participants mentioned challenges in the concurrent implementation of the Alabama Literacy Act, Computer Science Act, and the ANA. For example, some LEA participants found it difficult to onboard their teachers to a new assessment at the same time they were collecting longitudinal data using their previous assessment. Participants also mentioned the need for better communication and collaboration among departments to increase transparency and facilitate smooth implementation across these different initiatives.

Schools' Use of Math Performance Data

One LEA participant shared that schools are seeing benefits from their use of math performance data. This person described how two district specialists visit the schools and work with staff during their team meetings to guide teachers on how to make informed decisions (e.g., selecting teaching strategies) based on performance data. One participant reported that their schools administer three diagnostic assessments, and they review the data with the teacher after each diagnostic assessment is administered. Another participant noted that math coaches and teachers in their schools examine student data, after which they determine a plan together for acting on the data findings.

Teachers' Use of Classroom Instruction Feedback

One LEA participant reported that their teachers initially were not open to receiving feedback about their math instruction. They noted it took the teachers some time to acclimate to a new mindset and approach to teaching math. Another participant noted that their coaches effectively use their coaching cycles to facilitate teacher's changes in classroom instruction. When teachers realize the intervention works, it helps to gain their buy-in for continuing its use. Another participant noted that leadership buy-in drives teacher buy-in, noting positive rapport and collaboration between math coach and principal are critical to gaining teacher buy-in and their willingness to receive instruction feedback.

Teachers' Use of ANA Instructional Strategies

One LEA participant noted that some students are below grade level by one or more grades, making it challenging for teachers to use instructional strategies to accelerate students' math progress. Another participant noted that understanding the rigor of the ANA and shifting instruction from traditional math instruction to instruction based on the approaches and methods required by the ANA has been difficult. Several participants cited a lack of time and/or scheduling issues as creating instructional challenges for teachers. They reported some teachers find it difficult to meet the ANA time requirements for tiered instruction.

Intervention Services and Supports

Participants noted that the screening assessments (e.g., i-Ready screeners and diagnostics) are effective tools to identify students' math deficiencies. The screening assessments allow schools to identify a student's deficiency so they can apply the most appropriate and effective intervention. The screening assessments also help teachers identify appropriate instructional math strategies to use. Because the screening and diagnostic assessments allow teachers to receive results quickly, they can adjust or quickly change their intervention as needed. Most participants use i-Ready screening assessments at their schools, but schools have the option of using other screeners. For example, one LEA participant discussed how their school uses i-Ready for their K–2 screener but felt it has too many components and may be too burdensome for teachers to have to administer six different tests based on a student's i-Ready diagnostic score. To help lighten teachers' load, they plan to use a different screening assessment for the coming year. Aside from the screening assessments, other participants cited additional effective intervention services and supports, which include using small groups for Tier 2 instruction, creating learning paths for students and explaining them to parents, and examining student work samples to identify gaps in learning or instruction.

Areas for Improvement

Overall, participants spoke positively about the ANA and its implementation across their LEAs. One participant lauded their regional coordinator, stating they ensure LEA staff have what they need to implement the ANA. Another participant expressed satisfaction with the resources and support provided to facilitate effective ANA implementation. Although generally satisfied, the LEA participants shared some ways that ANA implementation could be improved. Some participants reported the need for more training on what effective implementation looks like for ANA. For example, additional training on i-Ready and other screening assessments would provide them with beneficial background about math deficiencies and potential interventions or instructional strategies. They also expressed interest in learning more about how to shift from traditional math instruction to the instructional math practices required under the ANA. They

indicated this could be useful information to help them gain school and teacher buy-in when providing feedback and suggestions for improvement. Some participants recommended having a more targeted and sequential approach to training so that teachers do not become overwhelmed with having to master too many components at once. Additionally, other participants suggested that certain teachers may need additional coaching beyond what the math coaches can provide. Aside from additional training, LEA participants expressed a lack of infrastructure, with one LEA participant describing ANA implementation as "building the plane while they are flying it." They conveyed that implementation felt hasty, and they would have liked more time to solidify all the ANA components. LEA participants felt that there were so many changes regarding the program and communicated that they were hesitant to share with teachers for fear that they would have to retract it later and cause confusion. Several comments were also made indicating insufficient time to effectively implement both the Literacy Act and the ANA, citing tension is sometimes created among departments, schools, staff, and teachers to find a balance between them. Some participants suggested the roles and responsibilities be made clear regarding the training and professional development required by AMSTI and OMI.

FS and LS School Principals

ANA Implementation

Staffing needs were a common challenge cited by the principal participants. Finding enough staff to differentiate tiered instruction has been difficult, especially for small schools. Some schools have had teachers assume multiple roles (e.g., a Science, Technology, Engineering, Arts, and Mathematics [STEAM] teacher who also does math interventions) or they have used other personnel such as paraprofessionals or retired teachers to support ANA-related activities. Some principals reported that implementation of the ANA has identified their school's need for an interventionist.

Culture and Fidelity of Coaching

The principal participants shared several ways that they create a culture of coaching within their school and ensure coaching is implemented with fidelity. Some participants reported they encourage an environment within their building where staff and teachers are open to coaching. Other participants stated they hold weekly school-wide shoutouts to all teachers who complete coaching cycles. One participant mentioned that creating a climate shift where veteran teachers perceive coaching as positive and beneficial is taking some time.

Conducting weekly meetings with their coach was cited as the approach most principal participants use to monitor the coaching process to ensure it is implemented with fidelity within their school. During these check-in meetings, participants discuss the progress made and the effectiveness of the coaching cycles, debrief on their classroom observations, examine student data, and collaborate with their math coaches regarding decisions based on math performance data.

Staff and Teacher Buy-in

Several principal participants stated that they have had to work with their veteran teachers, especially to engage in ANA-required professional learning and obtain general buy-in of the ANA. In contrast, participants whose faculty and staff are newer to teaching indicated that those teachers are hungry for new knowledge and engaged with the ANA professional learning quickly. One participant mentioned attending training with their teachers so that they can be a

united front with them. They also ensure that training is provided multiple times to accommodate teachers who are absent or have conflicts in their schedules.

Use of Approved Math Curricula and Intervention Programs

Principal participants perceived several positive impacts resulting from their schools using ANA-approved math curricula and intervention programs. As an example, one participant described a decrease in the number of students requiring Tier 3 instruction. Another participant noted progress in aligning their i-Ready curriculum to the Alabama course of study; this was evident through practice ACAP score data. Participants also reported that the screening assessments were effective tools for teachers in helping them detect with more specificity the math-related strengths and difficulties their students encounter. One participant indicated the teachers are using math performance data more frequently and appropriately. As an example, these teachers share the student's assessment data with the parents, noting both progress and the specific interventions they are using to close identified learning gaps. Assessment data has also informed the creation of small groups when implementing certain math interventions.

Areas for Improvement

Principal participants reported that the number and types of resources provided to implement the ANA are plentiful. Some participants suggested there may be too many resources, making it difficult for teachers and staff to prioritize those most important or relevant to use. A few participants recommended that it may be beneficial to review the resources and identify the few judged to be of the highest quality. Several participants indicated they would like additional training on effective questioning techniques to better engage their students in higher-order thinking. Participants also recommended that funds be provided under the ANA for schools to hire a math interventionist and expand ANA implementation to the middle school level.

Math Coaches

ANA Implementation

The participating math coaches generally reported that the coaching cycles played a vital role in how they supported improvement of students' math performance. By observing student growth through pre- and post-assessments, coaches identified areas where students need additional support and provided targeted resources, such as manipulatives and activities, to promote learning. In addition to the coaching cycles, several math coaches credited the training and professional development opportunities offered through AMSTI as effective in helping them provide instructional strategies for the teachers to use in their classrooms. Modeling lessons and co-teaching with teachers were reported as instrumental in boosting student math confidence and understanding. Collaboration with teachers was cited as a crucial factor, with many coaches noting that regular professional learning communities with teachers were beneficial in supporting student learning. Number talks were highlighted as a key contributor to their success.[22]

Many participating math coaches indicated managing multiple responsibilities was a significant challenge. In addition to their coaching duties, they were also responsible for administrative and

[22] Number talks are short, whole-class discussions designed to build number sense. They are generally focused on one problem or a series of related problems that students complete individually and then discuss as a class. The focus of the discussion is on all the many ways to solve the problem, rather than on the answer.

building tasks, which often competed for their time and attention. The math coaches highlighted scheduling challenges that made it difficult for them to find time to work with students and teachers. In particular, the math coaches noted that schools often prioritized reading over math, making it difficult for them to schedule their math coaching sessions. In some cases, entire grade levels went without coaching for months due to lack of time and scheduling conflicts. Coaches also found it challenging to allocate time to meet with teachers and plan lessons that meet the standards. One participating math coach noted the importance of the coaching sessions but also expressed guilt over the time they spend with the teachers because they know they are extremely busy. Participants reported challenges using *Monday.com*. Coaches felt it required an excessive amount of information and separate entries for each teacher, making it time-consuming and inefficient. They specifically noted the restriction in logging only time spent in the classroom without accounting for the time spent on planning and preparing.

Relationships with Math Teachers

The participating math coaches reported employing a range of strategies to establish relationships with their math teachers, including introductions at the beginning of the school year, conducting regular check-ins, and holding office hours. The coaches cited open communication and a positive attitude were essential in promoting trust and collaboration with the math teachers. Math coaches reported clearly communicating their roles to teachers and asked how they could best provide support, emphasizing their goal was to assist, not evaluate the teachers' approaches. Several math coaches recognized and celebrated teachers' achievements through weekly or monthly shoutouts in newsletters to highlight their hard work and growth. They reported these activities helped establish them as peers rather than administrators and facilitated a safe and supportive environment to collaborate with the teachers.

Providing Feedback

The math coaches indicated the debrief and interview time following the coaching cycles were valuable opportunities for them to provide constructive feedback to teachers. By focusing on both strengths (or "glows") and areas for growth, coaches could acknowledge the teachers' accomplishments while also encouraging their reflection and improvement. Rather than telling teachers what they could do better, many math coaches stated they asked open-ended questions that prompted teachers to think critically about their own practice and identify potential areas for improvement. The math coaches also indicated they often shared data-driven insights, based on student performance and standards, during these conversations to suggest a direction for growth. One participant noted that they took a personalized approach to providing feedback, tailoring their delivery to each teacher's unique personality and learning style. Some math coaches reported their teachers found direct, real-time feedback during the lesson to be most effective, while other coaches stated their teachers benefited from a more reflective debrief session that included a discussion of areas for improvement.

Measuring Coaching Effectiveness

Several participating math coaches highlighted the pre- and post-assessment associated with each coaching cycle, citing use of those assessments as the most effective strategy they use to measure the effectiveness of the coaching they provide to the math teachers.

Professional Learning

The participating math coaches indicated they expand their knowledge of professional learning through the AMSTI trainings, coaching labs, Ongoing Assessment Project (OGAP) training, and professional learning workshops. They also reported the resources provided to them by AMSTI are comprehensive and support their growth. One participant noted they have weekly meetings with an AMSTI mentor and other virtual coaches. They stated these meetings are beneficial for them to share resources and strategies that they implement within their schools.

Measuring Teachers' Knowledge and Skills

A common theme throughout the focus group sessions with math coaches was the importance they placed on building rapport and trust with their math teachers. All participating math coaches reported that they do not perform formal evaluations of their math teachers' knowledge and skills. Instead, they indicated they conduct informal observations. They noted, if appropriate, they provide their math teachers with feedback or suggestions for potential improvement during debriefing sessions.

Areas for Improvement

Several participating math coaches reported satisfaction with AMSTI's training, finding the sessions to be comprehensive and responsive to the math coaches' needs. Several math coaches noted that AMSTI added additional training and workshops when necessary and provided support when requested. While the training was helpful, multiple coaches said that additional hands-on materials to demonstrate the strategies discussed or taught would have been beneficial. Several participants mentioned paying out of pocket for manipulatives and other supportive materials, noting they would have appreciated more hands-on resources and materials. One participant requested more resources that could be implemented virtually. Several math coaches emphasized additional training is needed for teachers for them to fully understand and apply the standards and proficiency scales. They noted that teachers struggled to understand the depth of the standards and how to identify lessons that align to them.

Math Teachers

ANA Implementation

Math teachers who participated in the focus groups were asked to share the various ANA responsibilities they thought were most successful in supporting students who struggled in math. These teachers reported that manipulatives, textbooks, and training provided by AMSTI were extremely beneficial in helping students overcome their math challenges. The teachers also reported the math coaches are a valuable addition to their classrooms by modeling lessons, sharing research-based resources, and offering them constructive feedback about their instructional practices. Although one teacher agreed, they suggested that additional structured coaching schedules would be beneficial, as their math coach's limited availability meant not all students receive the support they need. Several teachers also expressed a desire for their schools to have dedicated math interventionists who can provide direct support to struggling students. Many teachers expressed challenges in providing tiered instruction, specifically finding the time needed to meet the needs of students at different levels. The math teachers emphasized they are often responsible for instruction at all three tiers and have difficulty providing adequate instruction and support for students at each tier. They suggested a more effective option may be for different teachers to cover instruction across the three tiers, with

each teacher responsible for instruction of students only at one tier. The math teachers noted that the sheer number of students requiring differentiated instruction makes it difficult to provide the necessary support to each student. Some teachers stated their schools do not have Tier 3 interventionists, but they believe the students who are significantly below grade level could benefit from their targeted support.

Student Progress Reports

Multiple participating math teachers indicated being unaware of any formal, ANA-required reports that must be provided to students' parents or legal guardians. These teachers indicated the feedback they share with students' parents or legal guardians comes only through grades and test scores. A few teachers stated they share reading reports with parents or legal guardians; even fewer teachers stated they share math reports with parents or legal guardians. One participant indicated they use Extra Math for math facts, which they send home to the parents, so they know what math facts their student struggles with. Another participant reported providing students' parents with data on progress-monitoring tools (e.g., i-Ready) but noted having difficulty getting the parents to participate in their student's learning.

Culture of Coaching

Most participating teachers agreed that the support provided by their math coaches positively impacts student learning and the coaching they receive is valuable. Most teachers praised their coaches for being reliable, supportive, and collaborative; however, one teacher expressed concern that their coach prioritized their own agenda over preparing students for standardized tests (e.g., ACAP). The teachers reported appreciating the regular meetings they have with their math coach because these meetings are generally when the math coaches provide helpful resources (e.g., manipulatives) and step-by-step guidance in planning lessons. One teacher shared that the math coach provided a comprehensive outline for each math standard that needed to be covered in the unit, along with resources that targeted each standard. The math teachers praised their coaches for helping them set an efficient pace for learning. They also reported appreciation for the debriefing sessions initiated by their coaches.

Providing Student Feedback

Several teachers described how the math coaching they received produced positive changes in how they provide feedback to their students. For example, one teacher stated the math coaching they receive facilitates creating targeted groups that are especially effective in helping the struggling students catch up with their peers. Another teacher credited their coach with encouraging them to share math performance data with the student, which allowed them to take ownership of their progress. Another teacher reported the coach modeling is especially effective in helping them determine if a student is struggling versus problem solving. One teacher reported that feedback provided directly from the coach was particularly effective in promoting the student's understanding and improvement.

Measuring Coaching Effectiveness

Teachers reported a notable impact on their teaching practices and confidence given the math coaching they receive. One teacher reported being more prepared and self-assured in their ability to teach math effectively. They also indicated noticing tangible improvements in student proficiency after implementing strategies modeled by the math coach. One teacher commented that their coaching experience helps them develop a reflective approach to their teaching where

they ask themselves questions about their own practice and how they can improve student learning.

Areas for Improvement

Teachers identified several areas where additional ANA implementation support would be beneficial. Specifically, they requested more resources on teaching standards and number routines to enhance their instructional strategies. Many participating teachers also felt that more examples of lesson modeling from coaches would be helpful in guiding their instruction and teaching practices. Some teachers suggested additional professional development or training on how to effectively incorporate multiple math concepts into lessons throughout the year rather than rushing to cover gaps in material right before the state assessment is administered. This approach would help teachers to efficiently pace their instruction to ensure students receive comprehensive coverage of the math curriculum.

Appendix E: Data Element Summary

Table E-1. School Data Element Summary

School Data Element	Status	Notes
Official school list and active, closed, status	Received	The open/closed status for each school is needed to identify eligible comparison schools for the math comparison study. Finalizing the list of schools that fall under the purview of ANA took multiple iterations of data management and review between HumRRO and OMI.
School designation (Full-support, Limited-support, None)	Received	Accurate FS/LS designations are the most crucial data element to ensure the integrity of the valuation. SY2023-24 designations were provided separately by ALSDE and OMI. Finalizing the final designations took multiple iterations of data management and review between HumRRO and OMI.
School ACAP-Math (ACAP-M) Percent Proficient	Indirect	ALSDE directed HumRRO to compute the school-level percent of students proficient on ACAP-M from the student-level data. HumRRO was able to compute these percentages; however, we found discrepancies between the computed percentages, the publicly available school percentages, and the percentages that OMI provided for the schools designated as FS or LS. School designations are directly assigned based on the school-level percent proficient and because the designations are normative (e.g., lowest 5%), receiving the official percent proficient of record for each school would result in more consistency across analyses since finalizing the student-level required several data cleaning business rules that may result in a small number of designated schools falling outside the FS/LS designation parameters.
School math coach status	Received	School math coach status is needed for research questions evaluating the impact of math coaches in FS/LS schools. Finalizing the final designations took multiple iterations of data management and review between HumRRO and OMI.
School math coach history	Received	School math coach history is needed since some schools have had a math coach for several years. To evaluate the impact of math coaches in FS/LS schools, comparisons must be drawn to schools without a math coach. Thus, if non-designated school has had a math coach, then they are not eligible to serve in the comparison group for those analyses. Finalizing the final designations took multiple iterations of data management and review between HumRRO and OMI.
School math coach funding source	Received	Some schools have had a math coach for several years. Identifying the funding source (e.g., locally funded) helps identify a more appropriate comparison group. Finalizing the final designations took multiple iterations of data management and review between HumRRO and OMI.
School math MTSS status	Not Received	The evaluation asks the extent to which MTSS is implemented whether students with math deficiencies are receiving MTSS supports. Data will be collected when available.
School Turnaround Academy status	Not Received	The evaluation asks what the impacts of the School Turnaround Academy are. Data will be collected when available.
School Alabama Principal Leadership Development System status	Not Received	This is currently being implemented in SY2024–25. Data will be collected when available.

Table E-2. Math Coach Data Element Summary

Math Coach Data Element	Status	Notes
Coach Alabama Coaching Framework scores	Not Received	The evaluation asks the extent to which the Alabama Coaching Framework is implemented with fidelity in full- and limited-support schools. Data will be collected when available.
Coach ratings by principal and RCs	Not Received	Coach ratings by principals and regional coordinators are used to examine the extent to which performance evaluations of math coaches by principals and regional coordinators relate to differences in math achievement and teacher performance. Data will be collected when available.

Table E-3. Teacher Data Element Summary

Teacher Data Element	Status	Notes
Teacher demographics	Received	Various teacher demographic variables are needed to contextualize how ANA impacts different student knowledge and teacher skills. Data were received in mostly good condition but required the creation of several business rules to finalize.
Teacher ratings by coaches and/or principals	Not Received	Teacher ratings by coaches and/or principals are used to examine the extent to which math coach performance relates to teacher performance and student math achievement, as well to examine gains within FS/LS schools. Data will be collected when available.
Alabama Teacher Observation Tool (ATOT) scores	Not Received	ATOT scores are needed to examine the extent to which math coach performance relates to student achievement, as well as to examine gains within FS/LS schools. Data will be collected when available.
Teacher math knowledge and skills score	Not Received	Measure(s) of teacher math knowledge and skills are needed to examine the extent to which math coach performance relates to student achievement, as well to examine gains within FS/LS schools. Data will be collected when available.

Table E-4. Student Data Element Summary

Student Data Element	Status	Notes
Student ACAP-M scale score	Received	Student ACAP-M scale scores are needed as an additional measure of student achievement used throughout the evaluation. Data were received in good condition; however, business rules were complicated by not receiving the test administration date.
Student ACAP-M proficiency level	Received	Student ACAP-M proficiency levels are needed as an additional measure of student achievement used throughout the evaluation. Data were received in good condition; however, business rules were complicated by not receiving the test administration date.
Student formative-math scale score	Received	Student formative assessment scale scores are needed as an additional measure of student achievement used throughout the evaluation, particularly for students who do not take the ACAP. Data were received in good condition; however, business rules were complicated by not receiving the test administration date.

Student Data Element	Status	Notes
Student demographics	Received	Various student demographic variables are needed to examine how ANA impacts different subgroups. Data were received in mostly good condition but required the creation of several business rules to finalize. Business rules were further complicated by not receiving roster dates.
Student math screener/deficiency status	Received	Student math deficiency status is needed to examine the extent to which students with math deficiencies receive the appropriate services. ALSDE provided statuses for dyscalculia, incoming early numeracy, incoming fractional reasoning, and retention based on math deficiency. While the data were provided in good condition, there are very low percentages of students flagged and for some deficiencies, no students were flagged.
Student math summer program status	Received	Student math summer program status is needed to examine the extent to which all processes and activities required by the ANA are implemented. The data were received in good condition.
Student math MTSS tier status	Not Received	Student math MTSS tiers are needed to examine the extent to which students with math deficiencies are placed into appropriate tiers. Data will be collected when available.

Appendix F: Outcome Evaluation Supporting Data Tables

The following tables provide data that support the outcome analysis figures presented in the main body of the report.

Table F-1. Math Mean ACAP Scores and Percent Proficient by Grade, School Designation, and School Year

Grade	School Designation	N SY2022–23	N SY2023–24	Mean ACAP Score SY2022–23	Mean ACAP Score SY2023–24	% Proficient SY2022–23	% Proficient SY2023–24
2	FS	1,002	1,928	466	462	15.17%	10.94%
2	LS	4,253	3,974	475	472	18.01%	15.80%
2	None	48,837	50,756	517	517	50.61%	44.79%
3	FS	924	1,705	463	469	11.15%	10.95%
3	LS	4,094	3,826	477	477	16.32%	14.13%
3	None	47,662	48,352	521	523	47.08%	43.99%
4	FS	980	1,734	454	465	4.39%	5.06%
4	LS	4,002	3,972	472	473	8.62%	9.20%
4	None	47,502	46,996	520	526	38.09%	40.52%
5	FS	959	1,832	458	464	3.44%	6.76%
5	LS	4,082	4,058	473	476	9.92%	10.85%
5	None	48,166	46,586	518	523	36.82%	38.90%

Table F-2. SY2022–23 Student Race/Ethnicity by School Designation

Race and Ethnicity	N state population	% state population	N FS/LS	% FS/LS	N None	% None
Black	107,377	31.4%	25,671	77.5%	81,706	26.4%
Hispanic	38,032	11.1%	4,570	13.8%	33,462	10.8%
Other	21,908	6.4%	1,123	3.4%	20,785	6.7%
Unknown	543	0.2%	59	0.2%	484	0.2%
White	174,633	51.0%	1,707	5.2%	172,926	55.9%
Total	**342,493**	**100.0%**	**33,130**	**100.0%**	**309,363**	**100.0%**

Note. Groups with fewer than 100 students were combined into the “other” group to preserve anonymity.

Table F-3. SY2023–24 Student Race/Ethnicity by School Designation

Race and Ethnicity	N state population	% state population	N FS/LS	% FS/LS	N None	% None
Black	106,482	31.0%	26,725	71.5%	79,757	26.1%
Hispanic	41,754	12.2%	5,195	13.9%	36,559	11.9%
Other	23,373	6.8%	1,375	3.7%	21,998	7.2%
Unknown	471	0.1%	72	0.2%	399	0.1%
White	171,288	49.9%	4,005	10.7%	167,283	54.7%
Total	**343,368**	**100.0%**	**37,372**	**100.0%**	**305,996**	**100.0%**

Note. Groups with fewer than 100 students were combined into the "other" group to preserve anonymity.

Table F-4. SY2022–23 Student EL Status by School Designation

EL Status	N state population	% state population	N FS/LS	% FS/LS	N None	% None
EL	308,324	90.0%	28,823	87.0%	279,501	90.3%
Non-EL	34,169	10.0%	4,307	13.0%	29,862	9.7%
Total	**342,493**	**100.0%**	**33,130**	**100.0%**	**309,363**	**100.0%**

Table F-5. SY2023–24 Student EL Status by School Designation

EL Status	N state population	% state population	N FS/LS	% FS/LS	N None	% None
EL	306,020	89.1%	32,755	87.6%	273,265	89.3%
Non-EL	37,348	10.9%	4,617	12.4%	32,731	10.7%
Total	**343,368**	**100.0%**	**37,372**	**100.0%**	**305,996**	**100.0%**

Table F-6. SY2022–23 Student IEP Status by School Designation

IEP Status	N state population	% state population	N FS/LS	% FS/LS	N None	% None
IEP	293,251	85.6%	29,228	88.2%	264,023	85.3%
Non-IEP	49,242	14.4%	3,902	11.8%	45,340	14.7%
Total	**342,493**	**100.0%**	**33,130**	**100.0%**	**309,363**	**100.0%**

Table F-7. SY2023–24 Student IEP Status by School Designation

IEP Status	N state population	% state population	N FS/LS	% FS/LS	N None	% None
IEP	291,026	84.8%	32,518	87.0%	258,508	84.5%
Non-IEP	52,342	15.2%	4,854	13.0%	47,488	15.5%
Total	**343,368**	**100.0%**	**37,372**	**100.0%**	**305,996**	**100.0%**

Table F-8. SY2022–23 Student Economically Disadvantaged Status by School Designation

FRL Status	N state population	% state population	N FS/LS	% FS/LS	N None	% None
Eligible	235,424	68.7%	29,763	89.8%	205,661	66.5%
Not Eligible	107,069	31.3%	3,367	10.2%	103,702	33.5%
Total	**342,493**	**100.0%**	**33,130**	**100.0%**	**309,363**	**100.0%**

Table F-9. SY2023–24 Student Economically Disadvantaged Status by School Designation

FRL Status	N state population	% state population	N FS/LS	% FS/LS	N None	% None
Eligible	233,723	68.1%	33,174	88.8%	200,549	65.5%
Not Eligible	109,645	31.9%	4,198	11.2%	105,447	34.5%
Total	**343,368**	**100.0%**	**37,372**	**100.0%**	**305,996**	**100.0%**

Table F-10. SY2023–24 ACAP Results for Grades 2–5 Students by Race/Ethnicity and School Designation

School Designation	Grade	Race/ Ethnicity	N	Percent Proficient	Mean
FS/LS	2	Black	4,340	12.87%	466.05
FS/LS	2	Hispanic	813	12.99%	470.68
FS/LS	2	Other	190	21.24%	487.36
FS/LS	2	White	546	23.62%	477.67
None	2	Black	13,119	25.78%	491.71
None	2	Hispanic	6,085	31.08%	499.27
None	2	Other	3,567	50.67%	526.91
None	2	White	27,922	56.13%	531.55
FS/LS	3	Black	4,071	12.35%	473.59
FS/LS	3	Hispanic	768	12.93%	475.63
FS/LS	3	Other	169	18.09%	487.11
FS/LS	3	White	510	17.56%	472.43
None	3	Black	12,698	27.74%	502.36

School Designation	Grade	Race/ Ethnicity	N	Percent Proficient	Mean
None	3	Hispanic	5,641	29.31%	503.25
None	3	Other	3,267	51.31%	533.98
None	3	White	26,682	54.06%	536.44
FS/LS	4	Black	4,104	6.69%	468.91
FS/LS	4	Hispanic	791	8.63%	469.93
FS/LS	4	Other	197	9.82%	479.41
FS/LS	4	White	603	14.15%	481.98
None	4	Black	12,041	21.78%	500.61
None	4	Hispanic	5,323	27.57%	506.47
None	4	Other	3,128	47.80%	537.11
None	4	White	26,442	50.93%	539.47
FS/LS	5	Black	4,155	8.31%	468.93
FS/LS	5	Hispanic	830	10.34%	476.79
FS/LS	5	Other	179	15.42%	487.26
FS/LS	5	White	719	14.07%	485.1
None	5	Black	12,328	22.22%	500.42
None	5	Hispanic	5,407	27.16%	506.31
None	5	Other	3,052	48.98%	540.19
None	5	White	25,746	48.25%	536.17

Table F-11. SY2023–24 ACAP Results for Grades 2–5 Students by Student EL Status and School Designation

School Designation	Grade	EL Status	N	Percent Proficient	Mean
FS/LS	2	N	5,162	14.41%	468.26
FS/LS	2	Y	740	13.05%	469.67
None	2	N	45,372	46.56%	519.27
None	2	Y	5,384	29.98%	497.93
FS/LS	3	N	4,818	12.91%	473.81
FS/LS	3	Y	713	14.84%	477.05
None	3	N	43,165	45.64%	525.59
None	3	Y	5,187	30.35%	505.17
FS/LS	4	N	4,962	7.70%	470.92
FS/LS	4	Y	744	9.78%	470.31
None	4	N	42,009	41.85%	527.51
None	4	Y	4,987	29.42%	509.23
FS/LS	5	N	5,132	9.46%	471.85
FS/LS	5	Y	758	10.53%	477.3
None	5	N	41,389	40.04%	525.02
None	5	Y	5,197	29.84%	511.01

Table F-12. SY2023–24 ACAP Results for Grades 2–5 Students by IEP Status and School Designation

School Designation	Grade	IEP Status	N	Percent Proficient	Mean
FS/LS	02	Y	685	4.39%	422.01
FS/LS	02	N	5,217	15.65%	474.53
None	02	Y	7,494	20.61%	475.53
None	02	N	43,262	49.21%	524.19
FS/LS	03	Y	764	4.36%	432.5
FS/LS	03	N	4,767	14.66%	480.92
None	03	Y	7,511	16.69%	476.47
None	03	N	40,841	49.28%	532.03
FS/LS	04	Y	811	1.71%	424.6
FS/LS	04	N	4,895	9.08%	478.5
None	04	Y	7,203	12.26%	472.94
None	04	N	39,793	45.99%	535.1
FS/LS	05	Y	811	1.89%	424.93
FS/LS	05	N	5,079	10.95%	480.15
None	05	Y	6,822	9.45%	467.45
None	05	N	39,764	44.32%	533.07

Table F-13. SY2023–24 ACAP Results for Grades 2–5 Students by Economically Disadvantaged Status and School Designation

School Designation	Grade	FRL[a] Eligibility	N	Percent Proficient	Mean
FS/LS	02	Y	5,286	13.16%	466.57
FS/LS	02	N	616	22.90%	484.38
None	02	Y	33,485	34.23%	503.85
None	02	N	17,271	65.59%	542.51
FS/LS	03	Y	4,946	12.45%	472.99
FS/LS	03	N	585	18.84%	484.72
None	03	Y	31,249	33.17%	509.5
None	03	N	17,103	64.04%	548.8
FS/LS	04	Y	5,083	7.15%	469.21
FS/LS	04	N	623	14.35%	484.16
None	04	Y	29,790	29.31%	510.93
None	04	N	17,206	60.26%	550.92
FS/LS	05	Y	5,226	8.78%	470.6
FS/LS	05	N	664	15.80%	487.91
None	05	Y	29,436	27.46%	508.3
None	05	N	17,150	58.89%	549.47

[a]FRL = Free or reduced lunch

Appendix G: Year 3 Planned General, Process, and Outcome Evaluation Activities

Year 3 Timing	General Evaluation Activities	Process Evaluation Activities	Outcome Evaluation Activities
Oct – Dec 2024	Weekly meetings with OMI/ALSDE Biweekly supplemental study meetings with OMI/ALSDE Monthly meetings with STEM Council Executive Director Monthly HumRRO-Mathematica team meetings Refine/Update ANA evaluation data tracking system Prepare Year 2 annual report (Oct 2023–Sept 2024)	Work with OMI/ALSDE to coordinate in-person fall 2024 site visits (SVs) to a total of six FS and LS schools; conduct in-person SVs Analyze in-person fall 2024 fall SV data overall and by school type and/or stakeholder type Prepare description of fall 2024 in-person SV findings (narrative, tables) Refine Year 3 annual survey to measure quality/effectiveness of ANA implementation processes and activities; survey to include parallel versions for specific stakeholder groups (regional coordinators, district staff, principals [FS and LS schools], math coaches, math teachers) Work with OMI/ALSDE to whitelist Year 3 annual survey URL in FS and LS schools	Establish outcome evaluation data metrics Complete cleaning and merging SY2022–23 student, teacher, and school datasets Conduct baseline analysis of SY2022–23 outcome data, separately by metric as appropriate Prepare description of SY2022–23 baseline outcome findings (narrative and tables) Clean and merge SY2023–24 student, teacher, and school outcome datasets; review quality of data for meeting assumptions of proposed analyses (e.g., normality, linearity) Conduct analyses of SY2023–24 outcome data, separately by metric as appropriate

Year 3 Timing	General Evaluation Activities	Process Evaluation Activities	Outcome Evaluation Activities
Jan – Mar 2025	Weekly meetings with OMI/ALSDE Biweekly supplemental study meetings with OMI/ALSDE Monthly meetings with STEM Council Executive Director Monthly HumRRO-Mathematica team meetings Submit/Disseminate Year 2 annual report (Oct 2023–Sept 2024) Refine/Update ANA evaluation data tracking system	Administer Year 3 annual survey to stakeholders (regional coordinators, district staff, principals [FS and LS], math coaches, math teachers) Refine protocols for spring 2025 virtual Focus Groups (FGs) with stakeholder groups (regional coordinators, district staff, principals [FS and LS], math coaches, math teachers); sessions will elaborate on and/or clarify survey findings Conduct spring 2025 virtual FGs (regional coordinators, district staff, math coaches) Identify sample of schools in which to conduct spring 2025 virtual FGs; coordinate with OMI to recruit participants and schedule FGs	Compare SY2022–23 and SY2023–24 outcome findings to establish potential trends

Year 3 Timing	General Evaluation Activities	Process Evaluation Activities	Outcome Evaluation Activities
Apr – Jun 2025	Weekly meetings with OMI/ALSDE Biweekly supplemental study meetings with OMI/ALSDE Monthly meetings with STEM Council Executive Director Monthly HumRRO-Mathematica team meetings Refine/Update ANA evaluation data tracking system Prepare/Submit April 2025 quarterly memo	Clean Year 3 annual survey data Analyze Year 3 annual survey data overall and separately by stakeholder type Prepare description of Year 3 survey findings (narrative, tables) Analyze spring 2025 regional coordinator, district staff, and math coach virtual FG data separately by stakeholder group Prepare description of regional coordinator, district staff, and math coach spring 2025 virtual FG findings (narrative, tables) Conduct spring 2025 virtual FGs (principals [FS and LS], math teachers)	Prepare description of SY2023–24 outcome findings (narrative and data visualization/tables); include SY2022–23 and SY2023–24 trends as appropriate Identify procedures for receipt of SY2024–25 outcome data

Year 3 Timing	General Evaluation Activities	Process Evaluation Activities	Outcome Evaluation Activities
July – Sept 2025	Prepare/Submit July 2025 quarterly memo Weekly meetings with OMI/ALSDE Biweekly supplemental study meetings with OMI/ALSDE Monthly meetings with STEM Council Executive Director Monthly HumRRO-Mathematica team meetings Refine/Update ANA evaluation data tracking system	Analyze spring 2025 principal and math teacher virtual FG data separately by stakeholder group Prepare description of principal and math teacher spring 2025 virtual FG findings (narrative, tables) Refine protocols for fall 2025 in-person SVs Identify sample of schools in which to conduct fall 2025 in-person SVs (3 FS and 3 LS schools) Coordinate with OMI/selected school staff to determine procedures for conducting fall 2025 in-person SVs Conduct fall 2025 in-person SVs at identified sample of FS and LS schools	Work with ALSDE to receive SY2024–25 outcome data Clean and merge SY2024–25 student, teacher, and school outcome datasets Conduct analyses of SY2024–25 outcome data, separately by metric as appropriate Prepare description of SY2024–25 outcome findings (narrative and data visualization/tables); include SY2022–23, SY2023–24, and SY2024–25 trends as appropriate

Appendix H: Year 3 Planned Supplemental Studies Activities

Year 3 Timing	Math Coach Evaluation and Student Math Achievement	MTSS and Student Math Achievement	Teacher Math Pedagogy and Student Math Achievement
Oct – Dec 2024	Work with OMI/ALSDE to receive math coach info for full- and limited support schools (SY2023–24 and SY2024–25 status; number of math coaches each school had SY2022–23, SY2023–24, and SY2024–25; school's math coach funding source; math coach level of training/tier assigned; math coaches' other relevant professional learning) Work with OMI/ALSDE to receive SY2023–24 math coach performance data (performance ratings by principals and regional coordinators) Work with OMI/ALSDE to receive SY2023–24 math teacher performance data (performance ratings by principals and math coaches)	Work with OMI/ALSDE to receive AL-MTSS full-alignment status data and AIR MTSS Fidelity of Implementation rubric scores (SY2022-23; SY2023-24); determine SY2024-25 data availability Coordinate with OMI and regional coordinators to determine frequency and collect aggregate school-level scores on the depth of Tier 1, Tier 2, and Tier 3 instruction (SY2024–25) Work with OMI/ALSDE to receive school-level data on applicable MTSS tiered interventions and supports (SY2024–25) Finalize MTSS implementation questions and discuss with school leadership during fall 2024 in-person Site Visits (SVs) Analyze fall 2024 in-person SV MTSS implementation data Draft and finalize MTSS implementation questions for Year 3 annual survey	Finalize teacher math content/pedagogy knowledge questions and discuss with school leadership during fall 2024 in-person SVs Analyze teacher math content/pedagogy knowledge fall 2024 in-person SV data Implement validated teacher self-assessment of math pedagogical and domain specific content knowledge in FS and LS schools (SY2024–25) Draft and finalize teacher math content/pedagogy knowledge questions for Year 3 annual survey

Year 3 Timing	Math Coach Evaluation and Student Math Achievement	MTSS and Student Math Achievement	Teacher Math Pedagogy and Student Math Achievement
Jan – Mar 2025	Clean math coach performance data and merge with student achievement data (SY2023–24) Clean math teacher performance data and merge with student achievement data (SY2023–24) Analyze math coach performance and student math achievement data (SY2023–24) Analyze math teacher performance and student math achievement data (SY2023–24)	Clean full-alignment AL-MTSS/AIR needs assessment/tiered instruction implementation data (SY2022–23 and SY2023–24); merge with student achievement data (SY2022–23 and SY2023–24) Analyze full-alignment AL-MTSS/AIR needs assessment/tiered instruction implementation and student achievement data (SY2022–23 and SY2023–24)	Clean teacher math content/pedagogy knowledge self-assessment data (SY2024–25); merge with student math achievement data Analyze teacher math content/pedagogy knowledge Year 3 survey data (SY2024–25)
Apr – Jun 2025	Prepare description of math coach performance and student math achievement findings (SY2023–24; narrative and tables) Prepare description of math teacher performance and student math achievement findings (SY2023–24; narrative and tables)	Prepare description of full-alignment AL-MTSS/AIR needs assessment/tiered instruction implementation and student achievement findings (SY2022–23 and SY2023–24; narrative and tables)	Work with OMI/ALSDE to receive SY2024–25 Alabama Teacher Observation Tool (ATOT) learning and essential dimensions subscale data Prepare description of teacher math content/pedagogy knowledge survey (SY2024–25; narrative and tables) Prepare description of teacher math content/pedagogy knowledge self-assessment findings (SY2024–25) Clean ATOT learning and essential dimensions subscale data (SY2024–25)

Year 3 Timing	Math Coach Evaluation and Student Math Achievement	MTSS and Student Math Achievement	Teacher Math Pedagogy and Student Math Achievement
July – Sept 2025	Work with OMI/ALSDE to receive math coach performance data (SY2024–25) Clean math coach performance data (SY2024–25); merge with student achievement data (SY2024–25) Analyze math coach performance and student math achievement data (SY2024–25) Prepare description of math coach performance and student math achievement findings (SY2024–25; narrative and tables) Work with OMI/ALSDE to receive math teacher performance data (SY2024–25) Clean math teacher performance data (SY2024–25); merge with student math achievement data (SY2024–25) Analyze math teacher performance and student math achievement data (SY2024–25) Prepare description of math teacher performance and student math achievement findings (SY2024–25; narrative and tables)	Clean full-alignment AL-MTSS/AIR needs assessment/tiered instruction implementation data (SY2024–25); merge with student achievement data (SY2024–25) Analyze full-alignment AL-MTSS/AIR needs assessment/tiered instruction and student achievement data (SY2024–25) Triangulate findings from AL-MTSS/AIR needs assessment/tiered instruction, Year 3 annual survey, and student achievement data, as appropriate Prepare description of full-alignment AL-MTSS/AIR needs assessment/tiered instruction and student achievement separate and triangulated findings as appropriate (SY2024–25; narrative and tables)	Merge ATOT learning and essential dimensions data with student math achievement data (SY2024–25); analyze Prepare description of ATOT learning and essential dimensions and student math achievement findings (SY2024–25; narrative and tables) Triangulate teacher math content/pedagogy knowledge (survey and self-assessment), Year 3 annual survey, and student math achievement findings, as appropriate Prepare description of teacher math content/pedagogy knowledge (survey and self-assessment), Year 3 annual survey, and student math achievement triangulated findings (SY2024–25; narrative and tables)

Year 3 Timing	Effectiveness of Screening Assessments	Unintended Consequences of the ANA	Stakeholder Awareness and Satisfaction
Oct – Dec 2024	Work with OMI/ALSDE to receive list of district-approved SY2023–24 screening and diagnostic assessments Work with OMI/ALSDE to receive SY2023–24 student (a) screening and diagnostic assessment data and (b) tiered services or math-related diagnosis classifications	Discuss unintended consequences questions with parents during fall 2024 in-person SVs Analyze fall 2024 in-person SV parent data; prepare findings narrative and tables Draft and finalize unintended consequences questions for Year 3 annual survey	Discuss awareness and satisfaction questions with parents during fall 2024 in-person SVs Analyze fall 2024 in-person SV parent data; prepare findings narrative and tables Draft and finalize stakeholder awareness and satisfaction questions for Year 3 annual survey
Jan – Mar 2025	Calculate classification rates, sensitivity, and specificity of required assessments Draft and finalize screening/diagnostic assessment questions for Year 3 annual survey Draft and finalize screening/diagnostic assessment questions for spring 2025 virtual FGs (regional coordinator, district staff, principal, math coach, math teacher) Discuss screening/diagnostic assessment questions during spring 2025 virtual FGs (regional coordinator, district staff, math coach)	Draft and finalize unintended consequences questions for spring 2025 virtual FGs (regional coordinator, district staff, principal, math coach, math teacher) Discuss unintended consequences questions during spring 2025 virtual FGs (regional coordinator, district staff, math coach)	Draft and finalize stakeholder awareness and satisfaction questions for spring 2025 virtual FGs (regional coordinator, district staff, principal, math coach, math teacher) Discuss stakeholder awareness and satisfaction questions during spring 2025 virtual FGs (regional coordinator, district staff, math coach)

Year 3 Timing	Effectiveness of Screening Assessments	Unintended Consequences of the ANA	Stakeholder Awareness and Satisfaction
Apr – Jun 2025	Conduct preliminary test of assessment classification accuracy Clean screening/diagnostic assessment Year 3 annual survey data Analyze Year 3 annual survey screening/diagnostic assessment data Discuss screening/diagnostic assessment questions during spring 2025 virtual FGs (principal and math teacher)	Clean unintended consequences Year 3 annual survey data Analyze Year 3 annual survey unintended consequences data Discuss unintended consequences questions during spring 2025 virtual FGs (principal and math teacher)	Clean stakeholder awareness and satisfaction Year 3 annual survey data Analyze Year 3 annual survey awareness and satisfaction data Discuss stakeholder awareness and satisfaction questions during spring 2025 virtual FGs (principal and math teacher)
July – Sept 2025	Analyze screening/diagnostic assessment Year 3 spring 2025 virtual FG data by stakeholder type Triangulate Year 3 annual survey and spring 2025 virtual FG screening/diagnostic assessment data, as appropriate Prepare description of screening/diagnostic assessment findings (narrative and tables)	Analyze unintended consequences Year 3 spring 2025 virtual FG data by stakeholder type Triangulate Year 3 annual survey and spring 2025 virtual FG unintended consequences data, as appropriate Prepare description of unintended consequences findings (narrative and tables)	Analyze awareness and satisfaction Year 3 spring 2025 virtual FG data by stakeholder type Triangulate Year 3 annual survey and spring 2025 virtual FG awareness and satisfaction data, as appropriate Prepare description of stakeholder awareness and satisfaction findings (narrative and tables)

Year 3 Timing	Comparison	Cost Effectiveness Analysis
Oct – Dec 2024	Work with ALSDE/OMI to receive outstanding SY2023–24 school math coach and individual math coach data Clean SY2023–24 school math coach and individual math coach data Conduct preliminary analysis of SY2023–24 school math coach and individual math coach data; if sufficient comparison schools, develop plans for retrospective Quasi-Experimental Design (QED) study	Obtain ANA cost data from public sources; verify accuracy with OMI/ALSDE Work with OMI/ALSDE to receive non-public ANA cost data (SY2022–23, SY2023–24, and SY2024–25) Discuss ANA cost questions with school leaders during fall 2024 in-person SVs Draft and finalize ANA cost questions for Year 3 annual survey
Jan – Mar 2025	Identify SY2023–24 final treatment and comparison schools for QED Conduct SY2023–24 impact analysis	Clean ANA cost data obtained from public and non-public sources and school leaders during fall 2024 in-person SVs Clean ANA cost Year 3 annual survey data Draft and finalize ANA cost questions for spring 2025 virtual FGs
Apr – Jun 2025	Prepare description of SY2023–24 comparison coach study findings (narrative and tables) Work with ALSDE/OMI to receive outstanding SY2024–25 school math coach and individual math coach data Clean SY2024–25 school math coach and individual math coach data	Discuss ANA cost questions during spring 2025 virtual FGs (regional coordinator, district staff, and math coach, as appropriate) Analyze Year 3 annual survey ANA cost data Discuss ANA cost questions during spring 2025 virtual FGs (regional coordinators, district staff, principals, and math coaches)

Year 3 Timing	Comparison	Cost Effectiveness Analysis
July – Sept 2025	Conduct preliminary analysis of SY2024–25 school math coach and individual math coach data; if sufficient comparison schools, proceed with plans for retrospective QED study Identify SY2024–25 final treatment and comparison schools for QED Conduct SY2024–25 impact analysis Prepare description of SY2024–25 comparison coach study findings (narrative and tables)	Obtain updated ANA cost data from public sources; verify accuracy with OMI/ALSDE Triangulate public and non-public source, fall 2024 in-person SV, Year 3 survey, and spring 2025 virtual FG findings Prepare description of ANA cost findings by year and overall (SY2022–23, SY2023–24, and SY2024–25; narrative and tables)