

Memorandum

To: Executive Committee of the Alabama STEM Council
From: Human Resources Research Organization (HumRRO)
CC: Lee Meadows, Executive Director (Outgoing), Alabama STEM Council
Sheila Holt, Executive Director (Incoming), Alabama STEM Council
Date: July 30, 2024
Re: ANA Evaluation Quarterly Memo

Background

The Human Resources Research Organization (HumRRO), along with its partner Mathematica, was awarded a contract in fall 2023 to conduct an evaluation of the Alabama Numeracy Act (ANA). This 5-year contract¹ focuses on key ANA aspects implemented by various stakeholders across Alabama's full- and limited-support schools. The overall ANA evaluation, which includes process and outcome components and eight supplemental studies, addresses 17 research questions. The first year of the ANA evaluation is devoted to building the foundation for the overall evaluation, and subsequent years will focus on the quality and effectiveness of ANA implementation.

Activities Completed April–June 2024

Regular Meetings

We continued to meet regularly with the STEM Council, Office of Mathematics Improvement (OMI), and Alabama State Department of Education (ALSDE) staff to discuss ANA evaluation activities. We met monthly with the Executive Director, Lee Meadows, and the STEM Evaluation Director, Sarah Davis. The primary purposes of these meetings were to discuss contract issues, progress made on ANA evaluation activities, and resolution to potential challenges.

We met weekly with Karen Anderson, OMI Director and Srinivas Javangula, ALSDE's Director of Data and Research. Dr. Anderson provided input for the smooth completion of planned evaluation activities, shared context to facilitate interpretation of preliminary findings from analyses of data gathered from the annual survey and spring 2024 focus groups, and brainstormed ideas in preparation for conducting the upcoming fall 2024 site visits. Mr. Javangula facilitated establishing specific data sharing procedures using API and ensuring the security of all shared data.

The HumRRO-Mathematica team met monthly to discuss process and outcome evaluation and supplemental studies activities. We shared updates regarding progress in completing ongoing evaluation activities and discussed plans and timelines for completing the (a) July 2024 quarterly memo and (b) remaining fiscal year (FY) 2024

¹ This contract was awarded in August 2023 and will conclude at the end of September 2028.

evaluation activities. To ensure everyone was informed, the team emailed frequently between meetings and posted documents or files to the 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.

The HumRRO-Mathematica team began meeting biweekly in May with Karen Anderson, OMI Director, and designated OMI staff to discuss conducting the eight supplemental studies. The purposes of these meetings are to discuss the data collection plans and requirements of each study and ways the designated OMI staff can provide information relevant to the various studies and support coordination of select study activities. Dr. Anderson provides ongoing communications and connections among HumRRO researchers and the designated OMI staff.

Annual Survey

HumRRO developed an annual survey to measure key stakeholders' baseline implementation of ANA processes and activities during the 2023–2024 school year. We administered the survey March 25 through April 16, 2024, to all individuals serving within the five major stakeholder groups: regional coordinators, LEA staff, principals (full- and limited-support schools), math coaches, and math teachers. In addition to responding to several background questions (e.g., name of the school or district, length of time in the role), individuals responded to questions about their ANA responsibilities. 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*** (limited- and full-support) 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 supports 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 this school year.

The response rates for the five stakeholder groups ranged from 29.5%–100%:

- Regional Coordinators – 100%
- LEA Staff – 78%
- Principals – Full-Support – 81%
- Principals – Limited-Support – 60%
- Math Coaches – 96%
- Math Teachers – 29.5%

Because less than 30% of the math teachers responded to the survey, the results for this stakeholder type may not generalize to the population of K–5 math teachers across Alabama’s full- and limited-support 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 9 years. A high-level summary of key annual survey findings by stakeholder type is presented in Attachment A. We will present detailed survey results in the annual report scheduled for distribution in January 2025.

Spring 2024 Focus Groups

As part of the ANA evaluation, HumRRO proposed conducting focus group sessions during late winter/early spring of every school year. The purposes of these focus groups are to explore response patterns or themes that emerge from the annual survey and obtain context or clarification for interpreting the survey responses.

We identified a list of potential full- and limited-support schools based on preliminary survey findings to target for the focus groups. We shared the list with Dr. Anderson for review and, based on her input, incorporated changes to ensure a broad representation of full- and limited-support schools. With Dr. Anderson’s input, we determined appropriate times for conducting separate focus group sessions with each of the five stakeholder groups. We scheduled one session per group during the weeks of May 6th, 13th, and 20th, yielding a total of three sessions for each stakeholder group. To the extent possible, we scheduled one session early in the day, one midday, and one later in the day. We used the contact information obtained earlier when administering the surveys to invite all individuals serving in the five stakeholder groups within the targeted schools to participate in one of the three scheduled focus group sessions.

We will use information obtained during the focus groups to (a) provide context to explain and clarify the initial implementation of required ANA processes and (b) inform the development of the implementation quality criteria. In subsequent years, the focus groups will focus on identifying implementation barriers and facilitators of the required processes and efforts made to reduce barriers and the extent to which they were effective. A high-level summary of key spring 2024 focus group findings is presented in Attachment B. We will present detailed focus group results in the annual report scheduled for distribution in January 2025.

ANA Evaluation Data Tracking System

HumRRO continued to develop and refine the ANA evaluation data tracking system, which will support the long-term data collection, monitoring, and management of process and outcome evaluation and supplemental studies data. We are designing the ANA evaluation data tracking system to maximize the efficiency of collecting and using various sources of evidence to support the evaluation's multiple research questions. During the past three months, HumRRO has monitored OMI's plans and recommendations for ANA implementation, and the full- and limited-schools' collection of ANA-related data. As we learn about the data that are currently collected and data that are planned to be collected, we will add the appropriate fields to ensure the system captures both current and newly identified variables. The data management system will track ANA data availability, data acquisition or receipt, the source of evidence, and how the data will support multiple research questions.

ANA Evaluation Supplemental Studies

HumRRO's evaluation of the ANA includes eight associated supplemental studies. We have begun completing activities for six of the supplemental studies, which we briefly describe below, along with the progress we have made to date on those studies. Because planning and activities associated with the two remaining supplemental studies will begin later (Year 2 for the Comparison Study and Year 5 for the Cost Effectiveness Study), there is no progress related to those studies to report at this time.

- ***Math Coach Study:*** Examines the extent to which (a) evaluations of math coaches by principals and regional coordinators in full- and limited-support schools related to differences in math achievement and (b) principals' and regional coordinators' ratings of coaches explain variance in principal and coach evaluations of teachers.
 - Worked with OMI to identify data requirements and availability to better understand the development timeline and implementation structure of math coach ratings.
- ***Multi-Tiered System of Supports (MTSS) Study:*** Examines the extent to which (a) the Alabama Framework for MTSS is being implemented in grades K–5 and (b) ratings of implementation of MTSS within schools relate to the distribution of students within tiered placements.
 - Worked with ALSDE to understand AL-MTSS implementation, monitoring, goals, and existing data collection on implementation fidelity; reviewed MTSS and Problem-Solving Team (PST) manuals to identify additional implementation criteria.
 - Included questions on the annual survey and focus groups to gather information about the basic components of AL-MTSS, including instructional practices related to each MTSS tier, the use of evidence-based instruction and intervention strategies, and collaborative planning and support.
- ***Teacher 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 full- and limited-

support schools account for differences in student performance on formative and summative math assessments.

- Worked with OMI to identify and review existing teacher effectiveness measures, such as the Alabama Teacher Observation Tool.
 - Researched existing and validated measures of teacher pedagogy and skills to provide recommendations for additional tools specific to math instruction that could be used to supplement existing observation measures; identified validated measures of math competencies that could be administered to teachers or adapted for use with coaching and principals.
 - Included questions on the annual survey to gather teachers' confidence ratings about their knowledge, instructional skills, and ability to teach math concepts specified in the ANA.
- **Screening Assessments Study:** Examines the extent that required screening and diagnostic assessments identify students who are subsequently identified as needing tiered services and/or receive diagnosis relating to math.
 - Requested from OMI a list of screening and diagnostic assessments used by districts.
 - **Unintended Consequences Study:** Examines the positive and negative outcomes that emerge from schools, LEAs, ALSDE, and other stakeholder groups that were not anticipated as a result of implementing any ANA component.
 - Requested from OMI an ANA logic model/theory of change.
 - Drafting questions for inclusion in the fall 2024 site visit protocols.
 - **Stakeholder Awareness & Satisfaction Study:** Examines the extent that stakeholders are aware of and satisfied with implementation of the ANA.
 - Included questions on the annual survey and spring 2024 focus group protocols to address the study's research question.

Remaining FY2024 Evaluation Activities

Attachment C presents the completed and remaining planned FY 2024 process and outcome evaluation activities. Attachment D presents the completed and planned supplemental studies activities that we will complete from July through September 2024.

Attachment A: ANA Evaluation Annual Survey

High-Level Summary of Key Findings

Of the five key stakeholder types, 100% of the regional coordinators and 96% of math coaches responded to the ANA evaluation annual survey. Response rates among LEA staff and full- and limited-support principals were not as high, but they were adequate (78%, 80%, and 60%, respectively). Less than 30% of the math teachers responded to the survey, possibly making the results for this stakeholder type less generalizable to the population of K–5 math teachers in Alabama’s full- and limited-support 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 9 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 implementation of multi-tiered system of supports (MTSS). Across their ANA tasks, they reported having to implement most of them either once a week or once a month. There were three ANA tasks that none of the regional coordinators reporting implementing.

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 their tasks varied, indicating no common pattern for frequency of implementation.

A large percentage of full- and limited-support school principals reported understanding their ANA responsibilities, having received training/PD to perform their tasks, and having access to the resources and support they need to perform their ANA responsibilities. Across their designated ANA tasks, full-support school principals reported performing most on a daily, weekly, or monthly basis. In contrast, most limited-support school principals reported performing their ANA tasks every day.

Most responding math coaches confirmed they understand their key ANA tasks, have had 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 or not having access to the necessary resources or support involved administering fractional reasoning screeners or diagnostic assessments to grades 4–5 students. Many math coaches indicated they perform most of the 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.

At least three-fourths of all responding math teachers reported understanding their key ANA tasks, receiving training to perform their key tasks, and having access to the resources and support to perform their ANA tasks effectively. The exception was that only 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, with the exception of providing reports to parents/legal guardians.

Attachment B: ANA Evaluation Spring 2024 Focus Groups

High-Level Summary of Key Findings

Focus groups were held in spring 2024 with regional coordinators, LEA staff, principals, math coaches, and math teachers from a potential pool of 65 full- or limited-support 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 has generally been positive, especially with coaching cycles.

In addition to sharing positive aspects, the focus group participants shared some challenges they or others in their school have experienced when implementing the ANA. Some reported the rollout of ANA was too rapid, resulting in some stakeholders becoming overwhelmed with their responsibilities. They also reported a lack of infrastructure within their schools to fully and effectively implement ANA. Some examples included ambiguity in scheduling to allow teachers sufficient time to provide the required time for tiered instruction, uncertainty in how to balance the implementation of multiple 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 on (a) administering and using assessments (e.g., screeners, diagnostics, etc.) to inform instructional decision-making, (b) math standards and proficiency scales for teachers, and (c) guidance on shifting from traditional math instruction to ANA's requirements would be beneficial. 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.

Attachment C: Planned Process and Outcome Evaluation Activities April–September 2024

| Year 1 Project Phase | Process Evaluation | Outcome Evaluation |
|---|---|--|
| Data Sharing Agreement <i>Jan 2024 – COMPLETED</i> | Work with OMI/ALSDE to establish data sharing agreement(s) | Work with OMI/ALSDE to establish data sharing agreement(s) |
| Information Gathering <i>Jan-Feb 2024 – COMPLETED</i> | 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 <i>Feb-Apr 2024 – COMPLETED</i> | <p>Identify the ANA components to be implemented in Year 1</p> <p>Identify indicators of successful implementation of ANA components</p> <p>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</p> <p>Identify stakeholders within each full- and limited-support school/district to receive a survey</p> <p>Determine procedures and materials for administering annual surveys</p> <p>Determine procedures and materials for conducting spring FGs</p> <p>Determine procedures and materials for conducting fall site visits (SVs)</p> | <p>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])</p> <p>Determine process and establish procedures for OMI/ALSDE to share outcome data</p> <p>Establish outcome data baseline metrics</p> <p>Determine data visualization templates</p> |
| Design & Data Collection <i>Mar-Sept 2024</i> | <p>Identify the sample of schools in which to conduct spring 2024 virtual FGs; one limited- and one full-support school in each OMI region</p> <p>Identify the sample of schools in which to conduct in-person SVs; sample to include three limited- and three full-support schools across the state</p> | <p>Receive data and data file layouts from OMI/ALSDE</p> <p>Review the quality of data for meeting assumptions of proposed analyses (e.g., normality, linearity)</p> |

| Year 1 Project Phase | Process Evaluation | Outcome Evaluation |
|---|---|--|
| | <p>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 [limited- and full-support], math coaches, math teachers)</p> <p>Administer spring 2024 first annual (baseline) survey to stakeholders (regional coordinators, district staff, principals [limited- and full-support], math coaches, math teachers)</p> <p>Develop protocols for spring 2024 virtual FGs with specific stakeholder groups (regional coordinators, district staff, principals [limited- and full-support], math coaches, math teachers); these sessions will be held to elaborate on and/or clarify survey findings</p> <p>Conduct spring 2024 virtual FGs with stakeholders (regional coordinators, district staff, principals [limited- and full-support], math coaches, math teachers)</p> <p>Develop protocols for fall 2024 in-person SVs at three limited- and three full-support 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</p> <p>Conduct fall 2024 in-person SVs at the identified sample of limited- and full-support schools</p> | |
| <p>Data Analysis <i>July-Sept 2024</i></p> | <p>Analyze spring 2024 annual (baseline) survey data separately by stakeholder group</p> <p>Analyze spring 2024 virtual FG data separately by stakeholder group</p> | <p>Analyze outcome data separately by metric</p> <p>Prepare draft data visualizations of baseline outcome data</p> |

Note. Activities may change based on the availability of information required for study planning and design and implementation status of the ANA.

Attachment D: Planned Supplemental Studies Activities April–September 2024

| Year 1 Project Phase | 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 |
|--|--|--|---|---|---|---|
| <p>Information Gathering</p> <p><i>Jan-Feb 2024 – COMPLETED</i></p> | <p>Piggyback on process evaluation information gathering interviews and FGs</p> | <p>Review existing measures and data collection systems covering MTSS implementation, tiered placements, student math achievement, and other student and teacher characteristics; this information will build understanding and inform data collection instruments</p> | <p>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, including years of coaching received by the teacher</p> | <p>Identify math screening and diagnostic assessments used across the various districts serving limited- and full-support schools</p> | <p>Piggyback on process evaluation information gathering interviews or FGs</p> | <p>Piggyback on process evaluation information gathering interviews or FGs</p> |
| <p>Planning</p> <p><i>Mar-Apr 2024 – COMPLETED</i></p> | <p>Provide support and consult with OMI to develop tools for regional coordinators and principals to use to measure math coaches' behavior during Years 2 and beyond</p> | <p>Work with OMI/ALSDE to recommend refinements to existing measures, add new measures, refine data collection systems, and refine study design</p> | <p>Work with OMI/ALSDE to recommend refinements to existing measures, add new measures, refine data collection systems, and refine study design</p> | <p>Develop processes and establish procedures for collecting data not maintained at the state level</p> | <p>Piggyback on process evaluation to determine the sample of schools for in-person SVs</p> | <p>Piggyback on process evaluation to determine procedures and materials for administering annual surveys to parents and students</p> |

| Year 1 Project Phase | 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 <i>May-June 2024 – COMPLETED</i> | Provide support and consult with OMI to develop tools for regional coordinators and principals to use to measure math coaches' behavior during Years 2 and beyond | Finalize measures, data sources, and study design Finalize data collection timeline Prepare draft study design narrative; submit final study design narrative | Finalize measures, data sources, and study design Finalize data collection timeline Prepare draft study design narrative; submit final study design narrative | Obtain available score data from math screening and diagnostic assessments Obtain data on subsequent student classifications into needing tiered services or having a math-related diagnosis | Piggyback on process evaluation to conduct observations during in-person SVs | Piggyback on process evaluation to administer annual surveys to parents and students |
| Data Analysis <i>July-Sept 2024</i> | Provide support and consult with OMI to develop tools for regional coordinators and principals to use to measure math coaches' behavior during Years 2 and beyond | Clean and process data Analyze data to identify relationships between MTSS implementation, tiered placements, and student math achievement, with and without controls for other student and teacher characteristics | Clean and process data Analyze data to identify relationships between teacher math knowledge and skills and student math achievement, with and without controls for other student and teacher characteristics | Calculate classification accuracy rates, sensitivity, and specificity of required assessments Recommend screening and diagnostic assessments most effective in accurately identifying students needing math-related support | No SY2023–24 qualitative data to analyze | Analyze quantitative and qualitative annual survey data separately for parents and students Triangulate quantitative and qualitative annual survey findings separately for parents and students |

Note. Activities may change based on the availability of information required for study planning and design and implementation status of the ANA.