

Memorandum

To: Executive Committee of the Alabama STEM Council
From: Human Resources Research Organization (HumRRO)
CC: Lee Meadows, Executive Director, Alabama STEM Council
Sarah Davis, Director, STEM Evaluation
Date: April 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 contract focuses on key ANA aspects implemented by full- and limited-support schools. The overall ANA evaluation, which includes process and outcome components and 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 January–March 2024

Regular Meetings

We continued to meet regularly with the STEM Council 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 purpose of these meetings was to discuss contract issues, progress made on ANA evaluation activities, and potential challenges.

We met weekly with Karen Anderson, Director of the Office of Mathematics Improvement (OMI) and Srinivas Javangula, ALSDE's Director of Data and Research. Dr. Anderson provided valuable information and critical reviews of draft evaluation data collection protocols. Mr. Javangula was especially supportive in executing a data sharing agreement to permit transferring data necessary for our ANA outcome evaluation.

The HumRRO-Mathematica team met monthly to share updates on progress made to designated ANA evaluation and supplemental studies activities. We discussed the planned approach and, if challenges were anticipated, we brainstormed modifications to avoid delays and remain on schedule. 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 could work. Within each organization, HumRRO and Mathematica met frequently with internal team members to continue planning and discuss ongoing evaluation and supplemental studies activities.

Information Gathering Session

HumRRO conducted an information gathering session with select ALSDE staff to discuss data currently gathered and maintained by ALSDE, plans for additional data collection during the 2023–24 school year, and potential gaps in data needed for HumRRO’s ANA evaluation.

Data Sharing Agreement

HumRRO worked closely with ALSDE staff to prepare a data sharing agreement (DSA) to allow transmission of Alabama state testing and other outcome data to HumRRO. Some information obtained during the information gathering session (described above) was used to prepare a list of key data/variables for inclusion in the DSA. HumRRO was notified on February 26, 2024, that the DSA had been fully executed. The DSA indicates the student-, teacher-, and school-level variables that HumRRO needs for its ANA evaluation. The DSA also outlines procedures for transmitting data to HumRRO via an online secure file transfer established and maintained by ALSDE. HumRRO is working with ALSDE staff to obtain the designated outcome data.

Year 1 Survey

HumRRO developed a Year 1 survey to measure key stakeholders’ baseline implementation of ANA processes and activities. The survey primarily includes 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.

Following a landing page with an introduction that describes the purpose of the survey and how response data will be used, the survey asks respondents to indicate their ANA-related role: regional coordinator, local education agency (LEA) staff, principal (limited- or full-support), math coach, or math teacher. Based on that role, respondents are then presented with numerous questions regarding their responsibilities.

We adhered closely to the language within the ANA to develop the survey questions regarding the responsibilities for 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 asks:

- ***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.

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 URL to avoid blockage.

HumRRO launched the survey on March 25, 2024, with an expected closing date of April 12, 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 plan to send at least two reminders during the administration window to encourage the designated respondents to complete the survey. As of March 29, 2024, the preliminary response rates for the various stakeholder types were:

- **Regional coordinators:** 79%
- **LEA staff:** 8.5%
- **Principals:** 12%
- **Math coaches:** 23%
- **Math teachers:** 3%

Potential Templates for Reporting Outcome Evaluation Results

HumRRO requested and received from the OMI Director several publicly available ALSDE reports that present technical results using a variety of visualization formats and narrative approaches. We are reviewing these reports to identify potential templates that will effectively and appropriately display and explain ANA outcome evaluation results. Our primary goal for these templates is to provide clear and comprehensible outcome

evaluation results for educated laypersons (e.g., teachers, policymakers) that support our conclusions and recommendations.

ANA Evaluation Data Tracking System

HumRRO planned and began developing an ANA evaluation data tracking system to support the long-term data collection, monitoring, and management of process and outcome 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 management system will track ANA data availability, data acquisition or receipt, the source of evidence, and how the data will be used to support multiple research questions.

Effectiveness of Screening Assessments

HumRRO completed a scan of numeracy screening and formative/diagnostic measures. We identified the most commonly administered math deficiency and diagnostic assessments, including dyscalculia and fractional reasoning screener assessments.

Remaining Year 1 Evaluation Activities

Attachment A presents the remaining planned Year 1 process and outcome evaluation activities. Attachment B presents the remaining planned Year 1 supplemental studies activities that we will complete from April through September 2024.

Attachment A: Planned Process and Outcome Evaluation Activities April–September FY2024

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</i>	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 full- and limited-support 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
Design & Data Collection <i>Mar-Sept 2024</i>	Identify the sample of schools in which to conduct spring 2024 virtual FGs; one limited- and one full-support school in each OMI region 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	Receive data and data file layouts from OMI/ALSDE Review the quality of data for meeting assumptions of proposed analyses (e.g., normality, linearity)

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 B: Planned Supplemental Studies Activities April–September FY2024

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
Information Gathering <i>Jan-Feb 2024 – COMPLETED</i>	Piggyback on process evaluation information gathering interviews and FGs	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	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	Identify math screening and diagnostic assessments used across the various districts serving limited- and full-support schools	Piggyback on process evaluation information gathering interviews or FGs	Piggyback on process evaluation information gathering interviews or FGs
Planning <i>Mar-Apr 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	Work with OMI/ALSDE to recommend refinements to existing measures, add new measures, refine data collection systems, and refine study design	Work with OMI/ALSDE to recommend refinements to existing measures, add new measures, refine data collection systems, and refine study design	Develop processes and establish procedures for collecting data not maintained at the state level	Piggyback on process evaluation to determine the sample of schools for in-person SVs	Piggyback on process evaluation to determine procedures and materials for administering annual surveys to parents and students

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</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 develop observation/al tool for use during in-person SVs (note SVs will not be conducted for this study until Year 2)	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 Year 1 activities	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.