Memorandum

To: Executive Committee, Alabama STEM Council
From: Human Resources Research Organization (HumRRO)
CC: Sheila Holt, Executive Director, Alabama STEM Council
Date: October 30, 2024
Re: ANA Evaluation Quarterly Memo

Background

The Human Resources Research Organization (HumRRO), along with our partner Mathematica, was awarded a contract in fall 2023 to conduct an evaluation of the Alabama Numeracy Act (ANA). This 5-year contract[1] 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 was devoted to building the foundation for the overall evaluation, and subsequent years focus on the quality and effectiveness of ANA implementation.

Activities Completed July–September 2024

Regular Meetings

We continued to meet regularly with the STEM Council Executive Director, Office of Mathematics Improvement (OMI) Director, and Alabama State Department of Education (ALSDE) staff to discuss ANA evaluation activities. We met monthly with the Executive Director, Lee Meadows, until he retired and then with Sheila Holt, when she joined the STEM Council in July 2024. The primary purposes of these meetings were to discuss contract issues, share progress made on ANA evaluation activities, and brainstorm resolution to potential challenges.

We conducted weekly meetings with Karen Anderson, OMI Director and Srinivas Javangula, ALSDE's Director of Data and Research. Dr. Anderson reviewed draft data collection instruments and identified ALSDE and OMI staff to support and provide information for conducting the supplemental studies. She provided input to planning and coordinating the in-person fall site visits to six full- and limited-support schools. Mr. Javangula coordinated HumRRO receiving student, teacher, and school databases in support of the outcome evaluation and several supplemental studies.

The HumRRO-Mathematica team met monthly to discuss process and outcome evaluation and supplemental studies activities; information about the supplemental studies can be found later in this memo, beginning on page 5. We shared updates regarding progress in completing ongoing evaluation activities and discussed plans and timelines for the (a) supplemental study activities from July through September 2024, (b) in-person fall 2024 site visits, (c) October 2024 quarterly memo, and (d) Year 2 annual report. To ensure everyone

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

was informed, the team emailed frequently between meetings and posted documents and 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 continued meeting biweekly with Karen Anderson, OMI Director, 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 coordination of select study activities. Dr. Anderson provided ongoing communications and connections among HumRRO researchers and the designated OMI staff.

ANA Evaluation Data Tracking System

HumRRO continued to refine the ANA evaluation data tracking system to support the long-term collection, monitoring, and management of process and outcome evaluation and supplemental studies data. We created the ANA evaluation data tracking system to help the team track the research questions, link the required data to the research question(s), determine the source of evidence, track data availability, identify gaps in data receipt/collection, store/maintain the data, and use the data efficiently across the various aspects of the evaluation.

Project staff monitored OMI's plans to collect ANA implementation data, paying particular attention to how these data inform the process evaluation and supplemental studies. HumRRO incorporated elements into the tracking system based on new data received from 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, if required). We will continue to add additional fields as we learn about data that are planned to be collected to ensure the system captures both current and newly identified variables.

ANA Outcome and Supplemental Study Data

HumRRO received some of the requested SY2022–23 outcome data (student, teacher, and school), along with a document explaining the contents of the data file, from ALSDE on June 13, 2024. We received the SY2023–24 outcome data from ALSDE on August 19, 2024. We found and continue to find that the files associated with the SY2022–23 datasets require more cleaning and manipulation (e.g., identifying and removing duplicate individuals, verifying the appropriate teacher certificate type) than anticipated. As this memo is prepared, our analysts continue to clean the SY2022–23 datasets. In addition, some data elements that we requested were not provided (e.g., full- and limited-support school status, multi-tier systems of support data) and we were told that other data elements will not be provided (e.g., Alabama Teacher Observation Tool [ATOT] data).

Once the SY2022–23 datasets have been cleaned and we are confident the data are accurate, we will merge the student, teacher, and school SY2022–23 datasets and conduct baseline analyses. Our goal in analyzing the SY2022–23 outcome data will be to establish key baseline ANA metrics (e.g., improvement over SY2022–23 ACAP math performance in grades 3–5, number and percentage of students retained in grades K–5 based on math deficiencies by grade level). The focus in subsequent years will be to identify and monitor

trendlines based on changes from those key baseline data elements. We also will begin to process the SY2023–24 data. While we have rules from cleaning the SY2022–23 datasets that we will apply to the SY2023–24 datasets, we anticipate there will still be cleaning and manipulation challenges associated with the SY2023–24 data.

We describe the two major challenges below that we encountered with the data we received from ALSDE and OMI:

- ***Data Structure:*** We received outcome data from ALSDE in multiple files, including a student demographics file, a student test file, a teacher file, and a school file. Receiving the data in this fashion required us to conduct multiple steps to merge the data needed to conduct our analyses. For example, each student's test score needed to be merged with that student's (a) demographic information intact, (b) specific teacher, and (c) school.

  The internal structure of the files that we received complicates the matching process. Separate records were included in the student test file for each testing "event." For example, when a student took a test, the student's score was included in the file. If the student took a different test, or retook the same test, a new student record was created. This meant that we had to recode each test event as a separate variable to generate a merge-ready file (one record per student). Only at that point could we merge the student test file with the student demographics file. This restructuring by itself is not complex, but because an assessment date variable was not included, if the student took specific tests multiple times, we did not have a means to determine the "score of record" or even the most recent score. This required us to check with ALSDE multiple times and/or establish data handling rules to merge individual student-level data and to generate analyzable student data (e.g., determine the highest score if the student had two scores with the same label).

  These challenges were exacerbated when we merged the student and teacher data. Like students, multiple records for an individual teacher appeared within the teacher file. For example, a new record was created each time a teacher received an updated certification. There was no clear hierarchy for the various teacher certifications and, like students, there was no date variable associated with the certification in the teacher file. This required us to establish data handling rules to create a file with one record per teacher so that we could appropriately merge the teacher data with the student and school files.

  We expect some level of challenge when working with complex state-level data; however, the structure of the ALSDE outcome data files has led to ambiguity regarding which specific data elements are most appropriate to attribute to each student or each teacher. While it is common for data to be structured in a long format to reflect student-by-test or student-by-grade data, sufficient data are needed to create business rules on how to handle duplicate records.

  Finally, ALSDE did not provide all the requested school-level data. Instead, ALSDE stated that HumRRO can calculate certain requested school-level data by aggregating the appropriate student-level data.

- ***Issue #2: Data Discrepancies:*** HumRRO requested that OMI provide certain school-level data (beyond the data that ALSDE provided) to support some of the ANA supplemental studies. Although some of the requested data was provided, OMI stated that HumRRO could access the school-level proficiency data that was publicly

available on ALSDE's website. OMI provided school designation status and, for only the full- and limited-support schools, their associated ACAP percent proficiency rates for SY2023–24 and SY2024–25. HumRRO accessed the publicly available proficiency data for all schools and, as a quality check, compared those rates to the OMI rates for the full- and limited-support schools. 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 full- and limited-support, it is potentially concerning that the publicly available proficiency rates and the OMI-supplied rates do not completely match. We describe below examples of the data discrepancies we discovered from this comparison:

- OMI designated certain schools as full-support; however, based on the publicly available data, these schools were not in the lowest 5 percent when ranked using percent proficient, suggesting instead that they should be designated as limited-support. This impacts one school for SY2022–23 and three schools for SY2023–24.

- We found the same situation described above for limited-support schools. OMI designated certain schools as limited-support; however, these schools were in the lowest 5 percent when ranked using percent proficient, suggesting they instead should be designated as full-support. This impacts two schools for SY2022–23 and six schools for 2023–24.

- OMI designated some schools as limited-support; however, our calculations using publicly available ACAP proficiency data puts them above the 25th percentile. This discrepancy does not impact any schools for SY2022–23 but it does impact seven schools for SY2023–24. Based on our calculations using the publicly available data, one of these schools has ACAP percent proficient in the 50th percentile, while the rest are between the 26th and 29th percentiles.

- Using the publicly available data, our calculations indicate there were some schools within the lowest 25 percent proficiency that were not designated as full- or limited-support. We are confused about the full- and limited-support designation criteria, including questions as to why these schools were not designated as full- or limited-support. This could impact 39–99 schools for SY2022–23 and at least four schools for SY2023–24.

- OMI designated certain schools as full- or limited-support; however, there were no publicly reported grade 3–5 ACAP data for these schools. Based on the publicly available data, these schools do not appear to have had any enrolled grade 3–5 students. This impacts seven schools in SY2022–23 and 11 schools for SY2023–24.

Rather than continue working to resolve the data issues, we have decided to move forward using the designations provided by OMI, as they are Alabama's designations of record. We intend to note the discrepancies in our reports and will group the schools for our analyses according to their OMI-designations. We also intend to use the publicly available ACAP proficiency data rather than compute a school's proficiency from the student-level ACAP data. This will likely result in some full- and limited-support schools having proficiency rates above the 25th percentile in our records.

The delay in receiving the SY2022–23 outcome data, along with the data cleaning and manipulation challenges, has caused a delay in our analysis and reporting of baseline (SY2022–23) and first year ANA implementation results (SY2023–24). We are unsure if we can clean, merge, and analyze the SY2022–23 and SY2023–24 data to include baseline and first year implementation results in the Year 2 annual report due in January 2025. In addition, we are unsure to what extent we will be able to substantively address certain research questions without receipt of the requested extant data.

Process Evaluation Full- and Limited-Support School Site Visits

HumRRO's process evaluation includes conducting site visits each fall to collect information from six full- and limited-support schools across the state about how they are implementing the ANA. Project evaluators will observe various ANA-related activities at the selected schools. We will observe tiered classroom instruction (i.e., at least one Tier 1, one Tier 2, and one Tier 3 lesson), data meetings, coaching cycles (between regional coordinator and math coach and between math coach and math teacher), and professional development sessions. We will also conduct focus groups with parents and students. We plan to conduct the in-person fall site visits from the beginning of October through the first week of November 2024. Each visit will last approximately 1 ½ days per school, with two schools visited per week. HumRRO staff worked with OMI and school staff to coordinate the site visits.

HumRRO worked with OMI to identify potential full- and limited-support schools to visit. We considered information gathered from the Year 2 annual survey and focus groups; however, our main goal was to apply a somewhat random selection process for these initial site visits to include schools with a range of student demographics (e.g., English learners, students with disabilities, gender, race/ethnicity) and school characteristics (e.g., enrollment size, urbanicity, geographic location). Each identified school was designated as full- or limited-support for both SY2023–24 and SY2024–25.

HumRRO staff prepared draft site visit protocols and training materials and shared them with OMI staff for their review and feedback. OMI staff provided valuable input regarding example actions/behaviors that site visitors could expect to observe related to key classroom, coaching, data meeting, and professional development activities. We embedded these examples into the final protocols and training to facilitate identifying relevant observations. Site visitor training was held on September 19, 2024. Several OMI staff participated in the site visitor training and provided clarification and/or additional examples, as needed.

ANA Supplemental Studies

HumRRO's evaluation of the ANA includes eight associated supplemental studies. We completed the following study activities from July–September 2024:

- ***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 receive schools' math coach data (e.g., number of math coaches, source of coach funding, coach's proficiency level).
  - Discussed with OMI current data collected and plans for collecting future data regarding math coach performance.

  - Requested existing teacher effectiveness data collected by ALSDE to support the study.
  - Worked with OMI to identify data requirements and availability to understand the development timeline and implementation structure of math coach ratings (e.g., who provides coach performance ratings, what constitutes a coach performance rating).

- ***Alabama Multi-Tiered System of Supports (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 implementation of MTSS within schools relate to the distribution of students within tiered placements.
  - Finalized rubric to assess schools' AL-MTSS implementation; this rubric (a) leverages data from the American Institutes for Research (AIR) needs assessment and (b) provides records on full-alignment MTSS sites and depth of tiered instruction implementation scores.
  - Identified methods to collect tiered placement information from the schools, including using pilot data on intervention plans from PowerSchool.
  - Developed protocol to discuss implementation structures and challenges with school leaders during the fall 2024 in-person site visits.

- ***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.
  - Identified a validated instrument to measure self-assessment of teachers' math pedagogical content knowledge and domain specific content knowledge; worked with OMI staff to plan administration of the self-assessment instrument.
  - Requested existing teacher effectiveness data collected by ALSDE to support the study.
  - Developed protocol to discuss with school leadership supports for math teachers' expertise and instruction during the fall 2024 in-person site visits.

- ***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.
  - Awaited receipt of a list of approved screening and diagnostic assessments used/planned for use by districts in SY2023–2024 and SY2024–2025.

- ***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.
  - Awaited receipt of ANA logic model/theory of change.
  - Finalized fall 2024 in-person site visit questions regarding impacts and consequences of implementing the ANA.

- ***Stakeholder Awareness & Satisfaction Study:*** Examines the extent that stakeholders are aware of and satisfied with implementation of the ANA.

  - Finalized fall 2024 in-person site visit questions regarding stakeholder awareness of and satisfaction with the ANA.

- ***ANA Comparison Study:*** The overall ANA evaluation includes a quasi-experimental design (QED) study, or a comparison study, to assess the impact that math coaches have on student math performance in full- and limited-support schools. This study examines the extent to which full- and limited-support schools that are assigned a math coach yield higher student math achievement than identified schools that do not have a coach. Because of the acceleration of placing math coaches in as many schools as possible, there is a concern that this study may not be feasible as there may not be sufficient full- and limited-support schools without a math coach to serve as comparison schools.
  - Worked with OMI staff to obtain a list of schools that OMI designated as full- and limited-support, along with information about those schools' source of math coach funding and hiring status for SY2023–24 and SY2024–25.
  - Used the math coach data provided by OMI to begin exploring the extent to which there may be sufficient treatment schools (full- and limited-support schools that had a math coach) and comparison schools (schools of similar proficiency as the treatment group that did not have a math coach). If there are sufficient numbers of both treatment and comparison schools, we will conduct a QED study to assess the impact that having a math coach has on student math achievement.
  - Discussed with OMI potential covariates that may explain the impact a coach might have on school math achievement (e.g., coach proficiency).

- ***ANA Cost Effectiveness Analysis Study:*** Examines the overall costs and actual or anticipated financial benefits of the ANA. This analysis will provide information about the effective allocation of state resources to inform future policy improvements, sustainability of education initiatives, and potential efficiencies related to ANA implementation. We will examine (a) cost data related to specific ANA components, including math coaches and other personnel, screening and diagnostic assessments, professional development, administrative and logistical activities, and summer programs; and (b) benefit data associated with the outcome evaluation and select supplemental studies. In addition to examining the statewide ANA cost data, we conduct regular searches for publicly available information about ANA costs, which we verify with OMI or ALSDE staff.
  - Developed protocols for use during the fall 2024 in-person site visits to gather information from school leaders about the ANA implementation costs at their schools, additional sources of relevant data, and the role of local funds.

Remaining FY2024 Evaluation Activities

Attachment A presents the process and outcome evaluation activities completed July through September 2024. While the process evaluation in-person site visits were a Year 2 planned activity, they were delayed due to the delay in executing the data sharing agreement. The in-person site visits will be completed in October and November 2024. In addition, given the challenges HumRRO encountered with the SY2022–23 data, the outstanding Year 2 outcome evaluation activities will be completed during the first few months of Year 3. Attachment B presents the supplemental studies activities completed from July through September 2024.

Planned FY2025 Evaluation Activities

Attachment C presents the major process and outcome evaluation activities planned for completion during Year 3 (October 2024 through September 2025) and Attachment D presents the major supplemental studies activities planned for completion during the same timeframe.

Attachment A: Planned Process and Outcome Evaluation Activities July–September 2024[2]

Year 2 Timing	Process Evaluation[3]	Outcome Evaluation[4]
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 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

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

Year 2 Timing	Process Evaluation[3]	Outcome Evaluation[4]
Design & Data Collection *Mar–Sept 2024 – PARTIALLY COMPLETE*	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 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) Administer spring 2024 first annual (baseline) survey to stakeholders (regional coordinators, district staff, principals [limited- and full-support], math coaches, math teachers) 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 Conduct spring 2024 virtual FGs with stakeholders (regional coordinators, district staff, principals [limited- and full-support], math coaches, math teachers) 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 Conduct fall 2024 in-person SVs at the identified sample of limited- and full-support 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)

Year 2 Timing	Process Evaluation[3]	Outcome Evaluation[4]
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

Attachment B: Planned Supplemental Studies Activities July–September 2024

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 full- and limited-support 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

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 full- and limited-support schools Work with OMI/ALSDE to obtain list of approved math screening and diagnostic assessments used by full- and limited-support 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

Attachment C: Year 3 Planned ANA General, Process, and Outcome Evaluation Activities (October 2024–September 2025)

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 six full- and limited-support 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 [limited- and full-support], math coaches, math teachers) Work with OMI/ALSDE to whitelist Year 3 annual survey URL in full- and limited-support 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 [limited- and full-support], math coaches, math teachers) Refine protocols for spring 2025 virtual focus groups (FGs) with stakeholder groups (regional coordinators, district staff, principals [limited- and full-support], 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
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 [limited- and full-support], 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 full- and 3 limited-support 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 limited- and full-support 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

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

Attachment D: Year 3 Planned ANA Supplemental Studies Activities (October 2024–September 2025)

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 full- and limited-support 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)

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