

## AM-ME Research Group Meeting Agenda

### Year 2 factor analyses results preview drop-in meeting

Two options for meeting dates & time in March 2024

Time: 1-hour meeting

**Location:** *zoom meeting link*

#### Meeting Objectives:

- Review the initial results of the AM-ME survey.
- Identify questions to ask in upcoming student focus groups.

#### Meeting Documents

- Slides
- Norms & Expectations
- Analyze - EXAMPLE Copy of Factor Handout
- Exit ticket

#### Agenda

Time	Item & Notes
5 minutes	<p><b>Welcome</b> <i>Facilitated by: Diane Hsieh</i></p> <ul style="list-style-type: none"> <li>• Introduce Marisa Crowder!               <ul style="list-style-type: none"> <li>○ Marisa is leading the quantitative part of this project, and because this and the next meeting are about the results from our survey, Marisa will join these meetings!</li> </ul> </li> <li>• Review of norms and expectations.</li> </ul>
5 minutes	<p><b>Team Building Activity</b> <i>Facilitated by: Diane Hsieh</i></p> <ul style="list-style-type: none"> <li>• On the scale of 0-100% battery life, how are you doing?</li> <li>• Please also share: What is your favorite donut flavor and why? (we took notes and ordered donuts at our next meeting)</li> </ul>

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Learn more about the Adapted Measure of Math Engagement at <https://www.childtrends.org/project/adapted-measure-of-math-engagement>.

<p><b>20 minutes</b></p>	<p><b>Overview of Survey Data Collection</b> <i>Facilitated by: Diane Hsieh and Marisa Crowder</i></p> <ul style="list-style-type: none"><li>● Discuss how we collected the data.<ul style="list-style-type: none"><li>○ Survey goal: to reflect our understanding of Black and Latino students' math engagement based on qualitative data gathered from focus groups and interviews.<ul style="list-style-type: none"><li>▪ Survey overview: 70 survey questions (Response options: strongly disagree -- disagree -- agree -- strongly agree) that were designed to capture the “6 buckets” of math engagement (that we identified from Analyze - Year 1 qualitative results group meaning making meeting (July 2023))</li></ul></li><li>○ To keep the survey within ~10 minutes, each student received 1 of 6 randomized versions of the survey</li><li>○ Show number of participants by school by race/ethnicity.</li></ul></li><li>● Discuss how we analyzed the data.<ul style="list-style-type: none"><li>○ Our question #1: How many factors, or “buckets,” emerged based on student responses? --&gt; this is called “exploratory factor analysis.”</li><li>○ Our question #2: Do survey questions capture high and low levels of student engagement? --&gt; this is called “Rasch analysis.”</li><li>○ Our question #3: To what extent do survey questions' placement vary by race/ethnicity? --&gt; this is called “Differential Item Functioning”</li></ul></li><li>● Share initial findings for question #1.<ul style="list-style-type: none"><li>○ Provide a simple example of exploratory factor analysis (six questions that speak to 2 subscales [enjoys cookies and loves animals])</li><li>○ Describe how many factors, or buckets, emerged from the data.<ul style="list-style-type: none"><li>▪ Student responses reflect an 8-factor structure.<ul style="list-style-type: none"><li>● Show the survey questions associated with each factor; one factor per slide.</li></ul></li><li>▪ 10 of the 70 survey questions were not placed into a factor.</li></ul></li></ul></li><li>● Share initial findings for question #2.<ul style="list-style-type: none"><li>○ Rasch Analysis is a technique that allows us to examine survey question-level information, such as whether an item is easy or hard for students.<ul style="list-style-type: none"><li>▪ e.g., (2+2) is easier to answer than 2 + (2 x 2)</li></ul></li></ul></li></ul>
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	<ul style="list-style-type: none"> <li>○ Describe how questions highlighted, or did not highlight, different levels of student engagement. <ul style="list-style-type: none"> <li>▪ Show an example Item-Person Map</li> <li>▪ Our results showed a “ceiling effect”, that most items are very easy for students to agree with. So, we need “harder” items. <i>What does high engagement look like?</i></li> </ul> </li> <li>● Share initial findings for question #3. <ul style="list-style-type: none"> <li>○ Differential Item Functioning (DIF): At equal levels of engagement, are some survey questions easier to agree to than others for certain groups? <ul style="list-style-type: none"> <li>▪ Example: A math question about the volume of snowballs might be easier for students in Minnesota to answer than students in Florida even when the students are equally good at math, because the “snowball” part of the question might be less familiar to students in Florida and trip them up.</li> </ul> </li> <li>○ 13 of the 70 items were flagged for Differential Item Functioning. <ul style="list-style-type: none"> <li>▪ Example: Among students at the same level of “Good feelings in math class” (which is factor 1), students who identified as Black were more likely to agree to the survey question than students who identified in the “Other” category.</li> </ul> </li> </ul> </li> <li>● <i>Note: two additional sets of results were available as back up slides in case people have questions about them: 1) survey items and their original/hypothesized factor, arranged by factor results, and 2) item-person map for all factors</i></li> </ul>
<p><b>25 minutes</b></p>	<p><b>Get to Know a Factor Activity, Part 1</b>  <i>Facilitated by:</i> Marisa Crowder  <i>Notetaker:</i> Diane Hsieh</p> <p>To help strengthen the survey for next year, we need to gain a better understanding of how Black and Latino students experience math engagement within the factors. <b><i>The student focus groups this year will focus on strengthening the survey.</i></b> For example, we need survey questions that capture higher levels of engagement for students. Further, some survey questions do not work the same across different race/ethnic groups. Finally, some factors don’t have enough survey questions. Therefore, we are going to deeply explore the survey questions in each factor to identify additional information we need to improve the survey. We will gather this information during the student focus groups this Spring.</p>

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	<p>Today, we will discuss one factor together. On March 18, we will discuss the rest in small groups.</p> <p>For the next 25 minutes, we will:</p> <ul style="list-style-type: none"><li>● Review Factor 1 (March 14) or Factor 6 (March 15). Follow the handout Analyze- EXAMPLE Copy of Factor Handout:<ul style="list-style-type: none"><li>○ Discuss the survey questions that make up the factor. What do they tell us about students’ math engagement (particularly for Black and Latino students)?</li><li>○ Brainstorm focus group questions that will help us create survey questions that:<ul style="list-style-type: none"><li>▪ Are more difficult for students to agree to (higher levels of “good feelings”).</li><li>▪ If needed, get at ideas to more “fully” capture the factor (i.e., is there anything missing?).</li><li>▪ Help us understand why students respond to the survey questions differently.</li></ul></li></ul></li></ul> <p>Things to consider:</p> <ul style="list-style-type: none"><li>● What survey questions make up the factor? How do they capture students’ math engagement?</li><li>● Who will be the most likely to know what high engagement looks like?<ul style="list-style-type: none"><li>○ In other words, who should we ask?</li></ul></li><li>● Who will be the most likely to understand why survey questions are interpreted differently?<ul style="list-style-type: none"><li>○ In other words, who should we ask?</li></ul></li></ul>
<p><b>5 minutes</b></p>	<p><b>Closing</b> <i>Facilitated by:</i> Diane Hsieh</p> <ul style="list-style-type: none"><li>● Next all-team AM-ME Research Group meetings:<ul style="list-style-type: none"><li>○ <b>THIS</b> Monday, March 18 from 3:30pm to 5:30pm (in person).</li><li>○ Let Diane know if you need transportation.</li></ul></li><li>● Complete the exit ticket.</li></ul>