DRAFT AM-ME Research Group Engagement Categories, July 2023

AM-MΣ

Background

From May to June 2023, researchers in the AM-ME Research Group conducted nine focus groups with over 50 middle and high school students and eight middle and high school math teachers across three middle schools and two high schools. Data collected from these focus groups was first analyzed by the researchers using deductive and inductive thematic coding. The themes identified during this analysis are represented by the blue, white, and red boxes below.

In July 2023, teachers and students in the AM-ME Research Group reviewed the themes identified by the researchers. During this review, the teachers and students asked questions to get further clarity about each theme. Based on these questions, some of the themes were altered and new themes were added, which are represented by the purple boxes. The AM-ME Research Group then organized the themes into larger categories to capture how students and their teachers conceptualize engagement in their classrooms and schools. These larger categories are represented by the grey boxes. These categories will inform the development of the initial AM-ME.

Color Key

- Most common themes discussed in data.
- Neither most or least common themes discussed in the data.
- Least common themes discussed in data.
- New themes identified by the students and teachers in the AM-ME Research Group based on their review of the data.

In Class Engagement

The ways in which students visibly show and teachers encourage engagement. These occur mostly in the classroom, but could also show up in study halls, afterschool programs, or at home when students are learning math. *This form of engagement contains ideas similar to behavioral, cognitive, and social engagement.*

Completes work	Works with peers or friends	Distracted during class		
Pays attention	Focused during class	Helps others	Has access to basic resources	Asks questions (or for help)
Listens in class	Prefers to work alone	Thinks through math problems	Learns from mistakes	Answers questions

Classroom Culture

The ways in which classroom instruction, rules, norms, expectations, setting, and relationships shape engagement. These are often created by both students and teachers. *This form of engagement contains several ideas similar to social engagement. It is seen as a new dimension of engagement.*

Positive teacher-student relationships	Instruction style	Negative teacher-student relationships
Teacher personality	Differentiated learning strategies	Classroom management and structure
Supports from peers or friends	Receives rewards	

Future Aspirations

The ways in which students' future hopes and dreams (for example, ideas for success or future careers) shape engagement. While students may develop these independently of teachers, they can also be shaped by teachers. *This form of engagement is seen as a new dimension of engagement.*

Feels math is relevant	Engagement for future aspirations
Personal motivations for academic performance	

Feelings

The feelings students have towards math or their math classrooms that shape engagement. While these are held within students, they can be influenced by teachers and peers. *This form of engagement contains ideas similar to emotional engagement.*

Understands math	Feels discouraged or challenged	Feels motivated	Mental and physical capacity	Feels bored
Feels like math is enjoyable	Feels dumb	Feels isolated	Feels judged	
Feels a sense of belonging	Feels safe	Feels comfortable		

External Resources

The ways in which external resources (for example, family, programs, or technology) outside of the classroom shape engagement. These resources often support engagement. Students or teachers can choose to use them, if they are available. The availability of these resources is not necessarily controlled by students or teachers. *This form of engagement is seen as a new dimension of engagement.*

Guardian supports	Sibling supports	School-based programs	Technology resources	Multiple educators
Extended family or community supports				

External Factors

The ways in which external factors (for example, school structure or family obligations) outside of the classroom shape engagement. These external factors <u>are not controlled</u> by students or teachers. These are often systemic barriers (for example, practices, events, or decisions that result in unequal access or exclusion for students) to engagement. These external factors often decrease engagement. *form of engagement is seen as a new dimension of engagement.*

Impacts of COVID-19	School and class schedule
Disparities in representation and access to math	Family obligations