**Access and Equity: Identity - Session Description**

This session will use vignettes and the voices of students, teachers, and other school personnel to highlight the Access and Equity Principle. Specifically, the session will use identity and agency as framework for discussing the obstacle and ways to overcome these obstacles as described in *Principles to Actions.* For this session, mathematics identity includes beliefs about one’s self as a mathematics learner; one’s perceptions of how others perceive them as a mathematics learner, beliefs about the nature of mathematics, engagement in mathematics, and perception of self as a potential participant in mathematics. Agency is identity in action and the presentation of one’s identity to the world. This session will conclude with a discussion of teaching practices that cultivate identity and agency to support Access and Equity.

**Access and Equity Principle**

* An excellent mathematics program requires that all students have access to a high-quality mathematics curriculum, effective teaching and learning, high expectations, and the support and resources needed to maximize their learning potential.

**Calvin’s Story**

* A dyad is the exchange of listening between two people:
  + One person is the listener and the other is the talker.
  + The talker will talk continuously and the listener listens but may respond non-verbally with gestures (but not words).
* Slide 1 notes: The dyad topic/question is dependent on the chosen vignette:
  + Vignette 1: In the Calvin vignette, we see Calvin’s interwoven identities of being a middle school Black boy who is good at mathematics and has “swagger.” Consider Calvin and his mother’s lens; why does Calvin and his mother have to carry an additional burden to show his worthiness when the evidence already exist that he is capable of doing the mathematics and how does this impact his interwoven identities.

**Interwoven Identities**

* The talking points are dependent on the chosen vignette:
* Vignette 1: Calvin was confronted with not gaining access to an upper-level mathematics course, we can imagine that he began questioning his interwoven identities:
  + Am I not being recommended for placement in pre-algebra course because I am no longer a good student who is good at mathematics?
  + Am I not being recommended for placement in pre-algebra course because I am perceived as a behavioral problem?
  + Am I not being recommended for placement in pre-algebra course because middle school is different from elementary?
  + Am I not being recommended for placement in pre-algebra course because I am a Black boy?

**Mathematics Identities**

* Venn Diagram showing the connections
* Mathematics identity includes:
  1. beliefs about one’s self as a mathematics learner;
  2. one’s perceptions of how others perceive them as a mathematics learner,
  3. beliefs about the nature of mathematics,
  4. engagement in mathematics, and
  5. perception of self as a potential participant in mathematics (Solomon, 2009).

**Identities and Motivation**

* Understanding the strengths and motivations that serve to develop students’ identities should be embedded in the daily work of all teachers.
* Mathematics teaching involves not only helping students develop mathematical skills but also empowering students to seeing themselves as capable of participating in and being doers of mathematics.
  + When students identify themselves as participatory and doers of mathematics, they make positive connections and are motivated to achieve at high levels.
  + This understanding of students’ identities gives teachers insights to how and why some students might make positive connections with mathematics and others do not.
* Teachers can use this understanding to provide opportunities for students to use mathematics to examine personal, communal, and social contexts.
  + In providing these opportunities, students may find the motivation and connections with mathematics to see the relevance for their future thus developing a mathematics identity.

**Supporting Teaching**

* Mathematics teaching should leverage students’ culture, contexts, and identities to support and enhance mathematics learning (NCTM, 2014).

**Identity Affirming Behaviors**

* Identity-affirming behaviors influence the ways in which students participate in mathematics and how they see themselves as doers of mathematics.
  + Students who identify themselves as being good at mathematics might exhibit behaviors and participate to maintain their status as students who are “smart” or good at mathematics.
* In mathematics teaching and learning we see identity-affirming criteria emerging as learners are labeled as “smart,” “gifted,” “proficient,” “at-risk,” or “on grade-level”.
* Teachers affirm mathematics identities by providing opportunities for students to make sense of and persevere in challenging mathematics.
  + Students should be engage with mathematics that requires active participation, asking questions, problem posing, and reasoning.
  + This kind of teaching values all students’ thinking and uses pedagogical practices, such as differentiated tasks, mixed ability groupings, and publicly praising contributions and perseverance, to cultivate and affirm mathematical participation and behaviors (NCTM 2014).

**Agency**

* Agency is our identity in action and the presentation of our identity to the world.
* If one identifies himself as being smart and good at mathematics, then he presents himself and adopted behaviors and actions of smartness and being good at mathematics.
  + Once this presentation of smartness and being good at mathematics is affirmed by teachers and others, then students see themselves as active participants and doers of mathematics.

**Identity Affirming**

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* Teachers affirm mathematics identities by providing opportunities for students to make sense of and persevere in challenging mathematics.
* Students should be engaged with mathematics that requires active participation, asking questions, problem posing, and reasoning.
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**High Sense of Agency**

* Agency can be conceptualized in two ways: high sense of agency and low sense of agency.
* A high sense of agency is having a high degree of self-exploration that is associated with a high degree of self-direction in determining one’s life course (Côté & Schwartz, 2002).
  + Students with a high sense of agency make decisions about their participation in mathematics.
  + Bilal show a high sense of agency by stating, “I gotta excel in everything I do. Be the best that I can be…being the best means doing your work, asking questions, and being involved in class.”
  + Andre’s sums up his sense of agency by stating, “Good math students are focused, do their work, and want to make A’s all the time…I am a good math student.”
* In these statements we see a high sense of agency that is resistant to the negative identities imposed on them because these boys perceive themselves as having a sense of control over their academic success because they knew that, in order to maintain their good standing in mathematics, they needed to be participatory in the mathematics classroom.

**Caroline & Craig**

* A dyad is the exchange of listening between two people:
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* Slide 1 notes: The dyad topic/question is dependent on the chosen vignette:
  + Vignette 2: In the Caroline and Craig vignette, we see experiences that potential shape Caroline and Craig’s identities and dispositions towards mathematics. Discuss Caroline and Craig’s vignette using the lens of respect, engagement, challenge and creativity.

**Mathematics Identities (Revisit slide 6)**

* Venn Diagram showing the connections
* Mathematics identity includes:

1. beliefs about one’s self as a mathematics learner;
2. one’s perceptions of how others perceive him or her as a mathematics learner,
3. beliefs about the nature of mathematics,
4. engagement in mathematics, and
5. perception of self as a potential participant in mathematics (Solomon, 2009).

**Beliefs about Access and Equity (Focus on 4 productive/unproductive beliefs)**

|  |  |
| --- | --- |
| Unproductive Beliefs | Productive Beliefs |
| Students possess different innate levels of ability in mathematics, and these cannot be changed by instruction. | Mathematics ability is a function of opportunity, experience, and effort—not of innate intelligence. |
| Mathematics learning is independent of students’ culture, conditions, and language, and teachers do not need to consider any of these factors to be effective. | Effective mathematics instruction leverages students’ culture, conditions, and language to support and enhance mathematics learning. |
| Students living in poverty lack the cognitive, emotional, and behavioral characteristics to participate and achieve in mathematics. | Effective teaching practices have the potential to open up greater opportunities for higher-order thinking and for raising the mathematics achievement of all students |
| Only high-achieving or gifted students can reason about, make sense of, and persevere in solving challenging mathematics problems. | All students are capable of making sense of and persevering in solving challenging mathematics problems and should be expected to do so. Many more students need to be given the support, confidence, and opportunities to reach much higher levels of mathematical success and interest. |

**Overcome Obstacles (Discuss most like one or two points)**

* Educators need to identify, acknowledge, and discuss the mindsets and beliefs that they have about students’ abilities.
  + Fixed Mindset
  + Growth Mindset
* Effective instruction and differentiated supports can overcome obstacles.
* Access to rigorous, high-quality mathematics, taught by teachers who not only understand mathematics but also understand and appreciate learners’ social and cultural contexts in meaningful ways.
* Classroom environments that foster a sense of community that allows students to express their mathematical ideas.
* Access to instructional support personnel who can provide specialized support services to schools and teachers
* School-based mathematics coaches and specialists can enhance teachers’ abilities and capacities to meet individual students’ learning needs, improve instruction, and monitor students’ progress.

**Leaders and Policymakers**

* Allocate resources to ensure that all students are provided with an appropriate amount of instructional time to maximize their learning potential.
* Ensure that teachers at all levels are emphasizing the mathematical practices as a key element of their instruction for all students.
* Eliminate the tracking of low-achieving students and instead structure interventions that provide high-quality instruction and other classroom support, such as math coaches and specialists.
* Provide support structures, co-curricular activities, and resources to increase the numbers of students from all racial, ethnic, gender, and socioeconomic groups who attain the highest levels of mathematics achievement.

**Principals, Coaches, & Specialist**

* Consider teacher assignment practices to ensure that struggling students have access to effective mathematics teaching that incorporates the Mathematics Teaching Practices.
* Maintain a school-wide culture with high expectations and a growth mindset.
* Develop and implement high-quality interventions.
* Ensure that curricular and extracurricular resources are available to support and challenge all students.

**Teachers**

* Develop socially, emotionally, and academically safe environments for mathematics teaching and learning—environments in which students feel safe to engage with one another and with teachers.
* Understand and use the social contexts, cultural backgrounds, and identities of students as resources to foster access, motivate students to learn more mathematics, and engage student interest.
* Model high expectations for each student’s success in problem solving, reasoning, and understanding.
* Promote the development of a growth mindset among students.

**Final Thoughts**

Connect the actions to identity and agency

1. What are the interwoven identities expressed by your students?
2. In what ways, if any, do you affirm the identities of your students?
3. What teaching practice do I use to support and affirm students’ mathematics identity development?
4. What structures are in place for students to demonstrate a high sense of agency?
5. How do students demonstrate high and low sense of agency in my mathematics classroom?