

Dimensions of Learning Mathematics

Cognitive Dimension

- Getting the big picture
- Breaking it down
- Monitoring comprehension
- Using problem solving strategies to assist and restore comprehension
- Setting purposes and adjusting processes to solve mathematical problems

Social Dimension

- Creating safety
- Investigating relationships between math literacy and power
- Sharing mathematical processes, problems, and solutions
- Noticing and appropriating other's ways of gaining meaning and problem solving

Knowledge-Building Dimension

- Mobilizing and building knowledge structures that students bring to math context
- Developing content/topic knowledge
- Developing knowledge of mathematical word construction and vocabulary
- Developing knowledge and use of text structures to determine mathematical meaning
- Developing discipline- and discourse- specific knowledge

Personal Dimension

- Developing identity as a mathematician
- Developing metacognition
- Developing mathematical stamina
- Developing mathematical confidence and curiosity
- Assessing performance and setting goals