Math Concepts: L1 and L2

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November 4, 2005
How do we manage the learning of Math Concepts in L1 and L2?

The math literacy lessons in DLM are scaffolded for the students.
Math L1/L2 Strategies

• We offer a strategy for managing the math concepts in dual languages are inherent in the program.
We already know:

- From Brain-based research that an additive English approach within bilingual education is compatible to the development of language.
We already know that such an approach works for the development of:

- BICS and CALP
- Additive vs. Subtractive Bilingualism
- Access of Cognitive Skills
- Brain Research
Second language acquisition has an open window for brain connection from birth to age ten; therefore, beginning a dual language program at an early grade level is the recommended practice for school personnel and parents.
Supportive Theoretical Frameworks

Students reach high levels of academic achievement when the following three components are developed.

- Subject matter teaching in first and/or second language
- Literacy development in first and second language
- Comprehensible input in English and the second language
National Data

(Standardized Reading Scores - ELL Students)

Note: Program Implementation at the K-5th Grade only

- Two-Way DL
- One-Way DL
- Early Exit BE + Content ESL
- Early Exit BE + Trad ESL
- ESL through academic content
- ESL Pullout

= average Reading score of native English speaker

(Thomas & Collier, 2002)
Separation of Languages

Separation of languages for instruction helps promote language development.
Comprehensible Instruction

- **Comprehensible instruction** is carefully making instruction understood by utilizing strategies that scaffold language acquisition.

- **Monitoring language** use and comprehension throughout the delivery of a lesson is explicitly planned to check that students are making sense and understanding what is being taught.

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**Comprehensible Instruction**
- Modeling
- Chunking Language
- Contextualizing Vocabulary
- Cognates
- Visuals
- Hands On

**Monitoring Language**
- Paraphrasing
- Repetition
- Adjusting Speech
- Checking for Comprehension
STRATEGY

• This strategy involves maintaining L1 language instruction in Math, while using clarifications for transitioning to L2.
Bilingual Pedagogical Theory
(Lara-Alecio and Parker, 1994)

Consists of four dimensions:
- Language Content
- Language of Instruction
- Communication Mode
- Activity Structures
Academic and Non-academic Activities

Transitional Bilingual Pedagogical Model/Theory
(Lara-Alecio & Parker, 1994)
Rafael’s Story: The Constructor’s Tools (An Example of Clarifications in Action)
Examples

The Cowboy Mouse with Clarifications (Storyretell for English Language and Literacy Acquisition)

Math Clarifications from DLM