Mathematics Video Conference: NTID and CSB

Vincent A. Daniele
Joan A. Carr
April 16/17, 2007

1st Videoconference: Key Points

- Mathematics curriculum at NTID
- Math instruction at NTID: content and philosophy
- Target Values at CSB
- Examples from NTID's Business Math course
- Relevance to the CSB Business Math course
- Use of calculators at NTID

2nd Videoconference: Key Points

- Research findings
- Importance of communication - vocabulary, language and problem solving
- Math anxiety and motivation
- Use of spiral approach
- Use of mathematical sketches/visuals for comprehension and retention of concepts
- Use of tutoring
- Multiple forms of assessment

3rd Videoconference: Overview

- Mathematics Placement
- A Final Conversation
  - Characteristics of Effective Classes
  - Effective Use of Technology
  - Issues and Realities
  - Optimism

Mathematics Placement

- Use of selected questions to target the 'heart' of a course
- Use results to place in a course where student can be successful and challenged
- Percents used for placement may seem low or arbitrary
- Student interviews can help in placement, as can academic record
- "But I already had this material."

CSB and NTID Mathematics Placement

- CSB Placement Process?
- NTID Placement Process
  - Questions from levels A through C
  - Each question may relate to more than one course
  - Testing, transcripts, interviews
  - Some examples

Characteristics of our Best Math Classes

- Communication accessible to all
  - ASL
  - English
- Open exchange of questions and answers
- Mutual respect
- Clear course expectations
- Clear course materials
- Challenging but not overwhelming content

Characteristics of our Best Math Classes

- Sufficient wait time
  - Questions/Answers
  - Switching between technologies/visuals
- Appropriate visuals
- Examples (general to specific, specific to general)
- Use of technology for doing math
  - Calculators, computers
  - Emphasizing connections

Effective use of Technology and Visual Materials

- Use of technology and visuals not sufficient to guarantee access to deaf students
- A story about use of technology with deaf professionals

Effective use of Technology and Visual Materials

- Wait time and eye gaze
- Taking notes
- Visibility of writing surfaces
- Acoustical distractions minimized
- Visual distractions minimized
- Furniture arranged for visibility

Issues:Teaching and Learning Mathematics

- Mathematics is not generally an area of strength for our entering deaf students
  - As a group, deaf students have not performed as well as their hearing peers
- Many students prefer the computational aspects of mathematics
- Problem solving and conceptual understanding is more difficult

Issues (continued)

- Student's educational backgrounds are varied:
  - Former teachers may not be trained mathematicians
  - Former teachers may not be able to communicate well
  - Emphasis often given to computation and manipulation
  - Academic advising and encouragement is often missing

Issues (continued)

- Math instruction may be given lower priority than English
- Spoken and written language can be barriers to mathematics learning
- Student sketches don't always capture the essence of a problem

Issues (continued)

- Incidental learning and interaction with others may be lacking
- Students may lack persistence and resilience, especially related to problem solving

Optimism

- Despite these issues, we remain optimistic; deaf students can learn mathematics
- We see tremendous growth in our students over time
- Rarely is mathematics the sole barrier to graduation
- Teacher attitude is critical