BEST PRACTICES AND CURRENT TRENDS AND IDEAS IN TEACHING DEVELOPMENTAL MATH

ORANGE COUNTY COMMUNITY COLLEGE

APRIL 26, 2013

Presented by: Peter Arvanites
Department of Mathematics
Rockland Community College
parvanit@sunyrockland.edu
(845) 574-4767

BEST PRACTICES AND CURRENT TRENDS AND IDEAS IN TEACHING DEVELOPMENTAL MATH

I. Characteristics of Developmental Math Students

A. Diverse ages, backgrounds, and abilities
B. Lower self-confidence
C. Lower self-esteem
D. Poor attendance
E. Lower intrinsic motivation (non-credit)
F. Poor attitudes about math
G. Poor study habits
H. Lower perseverance
I. Lower grade point average (earned vs. unearned "F" grade)
J. Math anxiety and test anxiety

II. Changing Student Attitudes about Math

A. Importance of learning math
B. Different rates of learning
C. Focus on process
D. Emphasize communication more
E. Group work
F. Take risks and make educated guesses
G. Estimate answers

III. Changing the Way Students Learn

A. Teach students how to be a "student"
B. Decrease math anxiety and test anxiety
C. Improve self-confidence and self-esteem
D. Encourage students to become risk-takers
E. Analyze mistakes (minor vs. conceptual)
F. Improve ability to reflect on their own thinking and performance while doing math (metacognition)
G. Encourage tutoring
H. Show importance of attending class regularly
I. Show connections between math and other disciplines
J. Encourage students to become proactive learners and take responsibility for their own learning

IV. Improving the Way Students Study

A. Read math textbook effectively
B. Practice with homework problems
C. Improve time management skills
D. Study for short periods
E. Use chapter reviews and tests to tie topics together and see "total picture"

V. Alternative Teaching Methods

A. NCTM recommendations
   - Accommodate for different learning styles
   - Create diverse assessment tools (portfolios, quizzes, projects, retests)
   - Design positive experiences in math class
   - Emphasize that everyone makes mistakes
   - Make math relevant
   - Point out importance of original and creative thinking rather than rote memorization of rules and formulas (learn math by doing math)

B. Adjust teaching techniques
   - Manipulatives
   - Calculators
   - Computers
   - Cooperative learning
   - Mastery learning
   - Slow the pace and use repetition
   - "Flip" the lesson
   - Increase student motivation (extrinsic)