

1056-Z1-2012

Clyde L. Greeno* (greenomathematicsinstitute.org), P.O. Box 54845, Tulsa, OK 74155-0854. *Closing the Gap: How Can Mathematics Instructors Empower Students for Academic Success in Future Mathematics Courses - Insights From the Developmental Psychology of Personal Mathematical Comprehension.*

Excessive drop/fall outs of college students from undergraduate and pre-college mathematics programs or courses are due largely to their being mathematically under-prepared for the next courses they might take – or for courses in which they now are enrolled. Such is visibly severe in the remedial arena of pre-college courses – but less visibly pervasive throughout the undergraduate curriculum.

So arises the question of just what mathematical preparation actually is internally needed by students, so as to anticipate and comfortably achieve gratifying, genuine personal academic success in the respective courses in which they might enroll. Then arises the question of how curricula and instructors might provide them with such mathematical-learning dispositions and powers.

Piaget ascertained, in essence, that functional personal intelligence grows through progressive development of personal theories – which learners use as templates that portray their realities. That also is how mathematical knowledge grows ... within mankind and within individuals.

Via illustrations, this session challenges mathematicians to (SIGMAA) explore how the tenets of developmental psychology can be merged with the nature of mathematical theorizing, to radically improve instructional productivity. (Received September 22, 2009)