Capitalizing on Basic Brain Processes in Developmental Algebra - Part One

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Abstract

Basic brain function is not a mystery. Given that neuroscientists understand the brain's basic functioning processes, one wonders what their research suggests to teachers of developmental algebra. What if we knew how to teach so as to improve understanding of the algebra taught to developmental algebra students? What if we knew how the brain processes memory of something learned, and how it recalls the memory? If we knew this, how would we change our teaching to create these outcomes in our students?

The first thing we would do is reconsider the philosophy of "explaining with examples followed by lots of homework" as causing these desired outcomes. We would question the idea that what works for physical learning also applies to the understanding of abstract ideas and to developing long-term memory with recall.

We would implement the neural processes of associations (connections), visualizations, pattern recognition/generalizing, and meaning through contextual situations in our teaching. We would focus on the function approach as opposed to the equation-solving approach. We would use function and function behaviors to connect every concept and skill.

This paper demonstrates the process and provides supporting evidence from the neurosciences for the process of a function approach to teaching algebra.