

1145-J1-2500      **Mercedes A. McGowen\*** ([mercmcgowen@sbcglobal.net](mailto:mercmcgowen@sbcglobal.net)), 601 Pleasant PL, Streamwood, IL 60107. *Developing more robust mathematical understanding utilizing manipulatives and variations of a single problem.*

Algebra for us is not only a list of topics or general aspects of mathematics. It is also an attitude to mathematical thinking, one that emphasizes connections and flexibility of interpretation. The express aims of this series of problems is to break up undergraduate students' notions of mathematics as consisting solely of applying formulas to get an answer, and to provide experiences for them that increase the flexibility of their thought and their ability to see and value connections. We assign students a series of problems, utilizing concrete manipulatives initially, with the focus on building connections between different representations of a single problem involving binary choice. The problems selected are unlikely to allow a solution by a remembered formula. This presentation will include discussion of how these related problems with a focus on building connections can be utilized for a more robust understanding of binomial expansion, difference equations, sequences, basic functions (linear, exponential, quadratic), generalizations and mathematical arguments. Ways in which the problems could be extended or utilized in various courses will also be discussed. (Received September 25, 2018)