

1086-VP-1016 **Kien H. Lim** (kienlim@utep.edu) and **Art Duval*** (artduval@math.utep.edu), Department of Mathematical Sciences, University of Texas at El Paso, 500 W. University Ave, El Paso, TX 79968-0514, and **Eric Freudenthal** (efreudenthal@utep.edu). *iMPaCT-Math: Fostering Foundational Concepts in Algebra 1 via Programming Activities on Graphing Calculators.*

iMPaCT-Math is a project that involves the development and implementation of a set of learning modules for students learning introductory algebra to make connections across multiple representations: (a) statements in a program, (b) computational process; (c) graphical output, and (d) underlying mathematical concepts. These programming-related activities provide an experiential-visual context for students to engage in mathematical thinking and reinforce foundational concepts like Cartesian coordinates and slopes. Most activities utilize summation within simple programs that can be executed on graphing calculators like TI-83. These programs, and their corresponding graphical outputs, enable students to discover their own math and logic errors in a manner that encourages further investigation or reflection. In this presentation, we will illustrate how writing/modifying simple programs involving “while” loops and anticipating the graphical outputs can reinforce students’ understanding of slope and why a constant second difference will cause the graph to curve. Information about our project is available at <http://www.impactstem.org>. (Received September 18, 2012)