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TEACHING, LEADERSHIP AND
CURRICULUM STUDIES

THE EFFECTS OF STUDYING THE HISTORY OF THE CONCEPT OF FUNCTION
ON STUDENT UNDERSTANDING OF THE CONCEPT (377 pp.)

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The purpose of this study was to examine the mathematical learning that occurred when students studied the history of a mathematical concept. In particular, the focus was on the concept of function. Students experienced an in-depth study of the history of functions during a 5-week unit in the junior-senior level History of Mathematics course. They completed a series of worksheets, readings, and problems.

The research methodology was a teaching experiment and the framework for analysis of data was *APOS* (Action, Process, Object, Schema) Theory. All 17 students enrolled in the course completed an extensive initial questionnaire and 6 were selected to participate in an in-depth interview to reveal their understanding of the function concept. During the unit, each student wrote a series of reflections about his or her understanding. After the unit, students completed a second questionnaire and participated in another indepth interview to discern the changes in their thinking about the concept.

The findings support the notion that studying the history of a mathematical concept enables a deep reflection of ideas. Four of the six participants notably strengthened their function conceptions. Two moved an entire *APOS* level. Five of the six exhibited an increased ability to recognize a function in a given scenario. Growth was most profound in the area of graphical representations.

