

## **Discovering a Rule and its Mathematical Justification in Modelling Activities Using Spreadsheets: An Experimental Study with Korean Tenth Graders**

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*The objective of the present study is to describe how students discover rules underlying a certain phenomenon under question and the process in which they mathematically justify such discovery by way of utilizing tables and graphs in the use of the cell reference function of spreadsheets when a problem is not easily solved through simple symbol manipulation in a paper and pencil environment. This study was designed as a pilot lesson study with six Korean tenth graders with the aim of overcoming various obstacles in using computers in mathematics classrooms in Korea, such as teachers' negative attitudes towards technology, the absence of a computer integrated mathematics curriculum, where some contents could be learned much better than in a paper and pencil environment, and the absence of the proper way to use computers in their examinations. In modelling activities, the students could solve problem situations and find mathematical rules by using various spreadsheet functions. The spreadsheet environment could also help to convince students that their findings are accurate by checking various cases of the problem situation and justifying their findings deductively.*

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**Key words:** Discovering; Justification; Modelling; Spreadsheets