

# THE USEFULNESS OF PERFORMANCE ASSESSMENT IN STUDENTS' UNDERSTANDINGS OF FRACTIONS IN KOREA

Ji-Won Son

Michigan State University

NCTM emphasizes the development of conceptual understanding and mathematical reasoning. They also recommend multiple evaluations to assess this understanding (NCTM, 2000). Like this trend, mathematics education in Korea emphasizes the development of mathematical understanding and evaluation by multiple ways in the 7<sup>th</sup> national curriculum. Especially, performance assessment is stressed on evaluation in national education policy, which is one of the main characters in the 7<sup>th</sup> national curriculum. Performance assessments, as a part of instruction, allow students to show how they arrived at their solutions and provide explanations for their answer by using the multiple ways, thereby providing rich information about students' thinking and reasoning (Herman, 1992). On the basis of this character of performance assessment, this study assumed that performance assessment, as a part of instruction, could allow students to improve their thinking and reasoning more than traditional multiple-choice. The purpose of this study was to examine how performance assessment affected conceptual understanding of fractions. Referring to Hiebert (1986), this study subdivided understanding of fractions into conceptual knowledge and procedural knowledge. And this study specifically examined how performance assessment affected each understanding of fractions.

Two classes in fifth grade were selected and subjected to the diagnostic tests (a pre-test and a post-test) pertaining to this study. For the instruments of this study, a new fractions program and performance assessment tasks were developed, which were examined into face validity. The experimental group was taught both the new fractions program and performance assessment task. Control group was taught just the new fraction program. A post-test used this study was assessment which was developed by Niemi.

The major finding from this study was that performance assessment tasks improved students' understandings of fractions as well as provided rich information about students' understanding. Specific findings from this study were that performance assessment tasks could improve students' understandings of conceptual knowledge. However, they didn't affect students' understandings of procedural knowledge.

## References

- David Niemi (1996). Assessing Conceptual Understanding in Mathematics: Representations, Problem Solutions, Justifications, and Explanations. *The Journal of Educational Research* v. 89(n.6) July/August.
- Herman (1992). A Practical Guide to Alternative Assessment The National Center for Research on Evaluation, Standards, and Student Testing.