THE USE OF STUDENT QUESTIONING FOR ASSESSING MATHEMATICAL UNDERSTANDING

Huk-Yuen Law

University of East Anglia

Abstract of the Study

The issue I am most concerned with is how to enhance the mathematical communication that helps the students acquire mathematical concepts better. Conceptualization of thinking serves as an instance of communication, which in turn provides useful insights for an understanding of human cognitive process (Sfard 2000). Self-questioning defines an active role for the students to construct the solution strategies based on their own personal knowledge during the process of solving mathematical problems. In this study, I intend to make use of student questioning for assessing mathematical understanding.

The Methodology

Two groups of students (aged around 14-16, Fourth Formers) would be asked to solve a set of mathematical problems. The number of students included in each group would be decided on the basis of time constraints, with one being classified as expert-student group (the top students in my class) and the other as novice-student group (the students with below-average performance in mathematics). During the problem solving episodes, the verbalization process of students' thinking would be recorded and the think-aloud protocol is analysed for identifying the key questions being raised. (Sample of data would constitute part of my presentation.)

The Significance of the Study

The mathematical communication is an essential component of curriculum reform in Hong Kong for enhancing the teaching and learning of mathematics. The present study serves the purpose of enriching our understanding of the phenomenon of communication in term of self-questioning during the problem solving episodes. Understanding the self-questioning processes provides us with a key to enhancing the effectiveness of students' learning strategies in doing the self-study.

REFERENCES

Sfard, A. (2000). Steering (Dis)Course Between Metaphors and Rigor: Using Focal Analysis to Investigate an Emergence of Mathematical Objects. *Journal for Research in Mathematics Education*, 31(3), 296-327.