

# STUDENTS' DEVELOPMENT IN EXPLORATION USING A HAND-HELD CALCULATOR

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In the era of the technology information, 70% of Korean Households are using the internet network system and all public schools have undergone three times the renovation of classrooms with advanced technology tools. The research was to investigate how college students developed their mathematical thinking when they were allowed to use a hand-held calculator, the TI-92+.

Burton (1984)'s processes of mathematical thinking were used as the framework for the research. The researcher chose a case study with two groups of students, collecting data in various ways, such as videotapes, students' notes, and observers' records. The instrument for the research was designed for students' exploration, being composed of 7 tasks, five contextual problems from number system, measurement, and geometry by Stevenson (1992) and two non-contextual problems of function. The result indicated that students were influenced by a calculator, in the process of inductive, deductive and finally creative phases. The inductive and deductive phases complemented each other, but the creative phase was more closely related to the experience in the inductive phase where students found the patterns in organizing data between mathematical properties. The group of the students who used the calculator well as cognitive recognition developed their thinking processes up to the creative phase, but the other did not present this progress, although all students were exposed to the same course of mathematics with this hand-held calculator.

## References

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