THE EFFECTS OF WITHIN-CLASS GROUPING: A CASE STUDY IN A HONG KONG SECONDARY MATHEMATICS CLASSROOM

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CERTIFICATE OF AUTHORSHIP / ORGINALITY

I certify that the work in this thesis has not been previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Alfred Wah-sing Cheung

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Abstract

This research study focuses on the effectiveness of within-class grouping in the mathematics classrooms of Hong Kong. Mathematics education in Hong Kong has been criticized as examination-driven, and the curriculum is led in such way as to include a large amount of content materials. Learning conditions in the mathematics classrooms of Hong Kong have been found to be adverse by local observers, such that a large number of students are learning in a teacher-dominated classroom that overemphasizes drill-and-practice. Lessons are negatively criticized as enforcing memorization and rote learning. Yet time and time again, Hong Kong students outperform their Western counterparts and most Asian pupils in International Tests such as TIMSS and PISA. The paradox that memorization and rote learning lead to good achievement is commented on by local scholars as a misconception.

Previous research findings also reveal that Chinese classrooms are mostly heterogeneous, with large attainment variances occurring as a result of a diversity of learners' abilities. The major concern for this research is the possibility of reducing such heterogeneity through introducing a small-group learning culture into the lessons. The argument of this thesis is: "Arranging students into small learning groups may not work for everyone in a Chinese classroom". Much consideration needs to be given to such areas as the students' learning traditions, which come from a long Chinese educational history.

A case study, aiming to investigate the way some Chinese students can learn mathematics in small groups, was conducted in a Hong Kong secondary school, the Mulberry School. An experimental approach was adopted, such that three classes of secondary-four students were randomly assigned to experimental and control groups.

Research data supports the assumption that weaker students were penalized on account of some of the aforementioned Chinese cultural norms. The Mulberry experience shows that grouping students within class in Mulberry School did not reduce heterogeneity. Weaker students were disadvantaged as a result of some of these learning traditions, whereas capable students enjoyed learning in a discussion-based classroom.

Consequently, a professional development program has been proposed, which takes into consideration other influential classroom objectives, such as: the design of classroom tasks specific for the needs of Chinese students and Hong Kong schools, an appropriate shift in the teacher's role, and the introduction of unthreatening assessments. Besides, in order to improve learning in a discussion-based classroom of Hong Kong, more research studies need to be done. These include: a meta-analysis of the influence of friendship on Chinese learners in group work, the impact of small-group learning on the weaker students, and so on.