THE FORMATION OF DISCUSSION CULTURE IN MATHEMATICS CLASSROOMS

Jing Chung, Dep. of Math. Edu., National Taipei Teachers College, Taiwan, R.O.C
Tien-Chen Chu, Dep. of Mathematics, National Taiwan University, Taiwan, R.O.C.

In Taiwan , the national school mathematics curriculum of 1993 version stated that the teaching should be student centered. In 2000 version , this was reiterated as _the mathematics knowledge is built in social interaction. Coincidentally , Niss (1996) pointed out on the world tendency of mathematics teaching that most countries emphasize students themselves when they set the aim of mathematical education. The teachers and the teaching should change drastically. The traditional scheme of *subject matter – teacher - student* is modified (Kubinová, 2000). The role of the social relationship between students and teacher are accentuated. Anghileri (2002) analysed scaffolding strategies with particular reference to help students to learn mathematics.

The researchers, as members of the national study group of school curriculum , sharing the responsibility of successful realization of the 1993 curriculum , faced two major difficulties that very few teachers can teacher in this way , and that parents' opinions are polarized. Therefore , we carried on action research in a middle sized elementary school in the capital form 1992 to 1998 and organized a school based program of teacher's on-the-job development (Chung , 2000,2001) to support the teachers to readjust gradually . After this complete run of the curriculum , the first researcher organized a professional growth group consisted of near master teachers to study what is teaching by discussion and how to disseminate this teaching mode from 1998 to 2001.

In the first six years , the researcher observed two classes weekly by taking turns from the whole grade of six classes as the kids growing from grade 1 to 6. In the last three years , the observation restricted to arranged teaching of the member teachers. The researcher first summarized these teachings then discuss with the growth group , thus come to the following conclusions.

A. The key features of a round of mathematics teaching by discussion

It consists of five parts: 1. pose the problem, 2. solve and publish, 3. question and debate, 4. conclusion and reduction, 5. reexamination, Question and debate_is the key of mathematics learning.

Considerations similar to Anghileri′s scaffolding appear in parts 1 , 3. and 4. The evidences and study by the researcher will appear in different documents.

B. The formation of discussion culture of different grades

Students grow rapidly in six years so the focus of teaching by discussion changes , psychological aspect for low grades , social for middle and science for high.

Reference

Anghileri, J. (2002). *Scaffolding practices that enhance mathematics learning*. PME26, 2, 49-56.

Chung, J. (2001). *School based inservice improvement as an effective instrument to chang mode of mathematics teaching*. PME25, 1, 296.

Kubinová, M., Mare,, J., & Novotná, J. (2000). Changing teaching methods in school mathematics. *PME24, 3*, 183-190.