

AN ABSTRACT OF  
CRITICAL THINKING PRACTICES  
IN MATHEMATICS CLASSROOM IN NEPAL

Learning mathematics in pin-drop silence does not support classroom talk and discussion while thinking and sharing culture is one of the values in mathematics curriculum development. The practice of dogmatic approach to teaching mathematics makes students monotonous when they are very often compelled to memorize for the procedures. In thinking and sharing value of mathematics curriculum, the change from textbook guided instruction to project based learning, traditional curriculum to thinking curriculum, exam-centered preparation to lifelong learning, content-centered to the process-guided instruction and paper- pencil- test to alternative assessment system are emphasized.

While doing this, as a type of critical thinking, reasonable and reflective thinking that leads to deduction and sound decision is sought. Ability to analyze, evaluate the information and the problem solving is critical thinking. In the mode of teaching with critical thinking, the class starts with classroom talk in a given topic. There will be discussion and dialogue among students. Then the teacher may raise questions and pose problems, and students derive different solutions and justify them accordingly.

When I realized that it is necessary to explore the view on critical thinking practices in Nepalese classrooms and find the possible ways to enhance this practice among students, the overarching research question for this purpose was how do the mathematics teachers perceive and practice critical thinking. To answer this question I have selected three secondary school

mathematics teachers and six students from Kathmandu and Lalitpur districts as research participants.

I have used qualitative research approach to pursue the study in which I used critical-constructive research paradigm. I used pre-observation interview, classroom observation, interview with the teachers (mostly after observation) and interview with the students to collect the data.

I observed that teachers perceive critical thinking as an alternative thinking, a strategy, and deep thinking. It is important not only to learn mathematics but also to reflect this area of knowledge as a useful subject. Critical thinking is mostly used in proving theorems in geometry where a teacher's role is very noteworthy. Teachers' perception in students' critical thinking has both negative and positive impacts. Positively, students can think if given enough time. And negatively, it merely works as hindrance. When teachers need to explain everything, a mathematics teacher perceives that critical thinking is a process of error detection with reasons. It is done by students and that develops confidence in students ultimately.

There are three types of teachers found in this study, the first does activities related to critical thinking regularly; second, moves with the direction of the interview and reflects on the trials and gets the change in perception as well as practice; third, is the teacher who perceives critical thinking as necessary activity but has least practice in the classroom. Mathematics teachers have used different reasoning: analogical, metaphorical, deductive, etc. Though the teachers mainly neglected to include most of the students; and they moved on after getting desired answer from one/two students without making other students' involvement and

internalize the matters, I have found critical thinking practices in the classroom useful when the teachers seem to be novice in using questioning, reasoning, providing thinking times, etc.

Finally, critical thinking perceptions and practices are found to be different in teachers and the teachers are using most of the necessary conditions. But they are not sufficient and these strategies are to be refined in order to address students' critical thinking appropriately.

**Key words:** Critical thinking, activity theory, expansive learning, classroom practice and mathematics education.

An abstract of the dissertation of Tika Ram Pokhrel for the degree of Master of Philosophy in Education presented on December 26, 2010.