

Coping the Challenges While Promoting Social Justice in Mathematics Classroom

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Abstract: The purpose of this study is to explore the coping strategies applied by the teachers in the mathematics classroom to mitigate the challenges of social justice. I employed an interpretive inquiry for data collection, analysis and interpretation. I selected three mathematics teachers and their three students (one for each teacher) purposively from three public secondary schools in Kathmandu. I generated narratives through in-depth interviews with each participant. I conducted multiple layers of thematic analyses and interpretations of the narratives from the interviewed data. Altogether four themes -- persuasion, watching and caring, individual treatments, and grouping emerged from the analysis of the data. This study is likely to bring awareness among teachers for socially just pedagogy.

Key Keywords: *Social Justice, Coping strategies, Persuasion, and grouping*

Introduction

Social justice has been an area of study in mathematics education. The issues of social justice are often connected to traditional practices of teachers and textbooks. As a recipient student, I received only teachers' content knowledge, which in a way was transmitted to my mind. The teachers, who used a model of banking pedagogy (Freire, 1970), controlled us (students) and attempted to fill our mind as a container leading us to rote learning. They did not construct mathematical knowledge, instead just transmitted their mathematical knowledge to us. Gutstein (2006) argues that mathematics educators are expected to address the issues of social justice in their classroom. But, are we ready to address such issues in our classroom? Teachers can apply different ways for reducing its challenges. Leonard and Moore (2014) stated that social justice as creating equal chances for students to build real knowledge and improvement of living standards. Through the lens of access, all students have equal opportunities to study and learn (Vomvoridi-Ivanovic & McLeman, 2015). Teachers need to apply innovative teaching techniques of social justice in their own context; as a result, students will carry out this into their workplaces, their communities, and their daily lives (Koch, & Juntunen, 2014). I realized

that the improvement of instructional strategies fulfils the demands of marginalized students. To reiterate, all students from different ethnic groups or genders should get equal opportunity in their classroom. I think, there should not be any kind of discrimination among students based on their gender, language, cultures, and other day-to-day activities. The main purpose of this study is to explore mathematics teachers' coping strategies with challenges of social justice in the mathematics classroom. The research question which guided the study was-- How do the mathematics teachers cope with the challenges of social justice in mathematics classroom?

Research Method

I employed qualitative interpretive inquiry for this study. Interpretive inquiry relies on evaluative facts of data input, process, and outcome that best justifies the entire set of practices and make sense accordingly (Panthi, Luitel & Belbase, 2018). I generated meaning of the narratives relevant to the teachers' coping strategies of social justice in mathematics classroom. This paper is based on my M.Phil. dissertation entitled 'Social Justice in Mathematics Classroom: An Interpretive Inquiry'. The participants in this study were three public secondary level mathematics teachers and three public high school students in Kathmandu. The schools, teachers, and students were purposively selected. Among the different strategies of making the interpretive inquiry, this study aimed to employ in-depth interviews to collect data from teachers. I conducted in-depth interviews with teachers in Nepali language with a focus on ways of coping with challenges of social justice in mathematics classrooms. I recorded the interviews for transcribing and analyzing. At first, I translated and transcribed the recorded data verbatim in English. I carried out transcribing and interpreting the data together that supported conceptualizing meanings and concepts from the interviews to construct narratives (Bold, 2012). I applied thematic analysis such as "reading the transcripts several times, inductive coding, developing themes and subthemes and seeking to identify core narrative elements associated with each theme" (Ronkainen, Watkins, & Ryba, 2016, p.16). I analyzed and re-analyzed the data until four themes emerged out of it. I used pseudonyms of the participants as Saurya, Chandra, and Tara for the anonymity.

Results and Discussion

The four main themes emerged from analysis of the data were-- Persuasion, watching and caring, individual treatment, and grouping. Discussion of each theme followed by interpretation related to praxis-- the interplay between theory and practice. I discussed each theme separately as follows:

Persuasion

Persuasion is the first theme of my study which means encouragement.

Chandra viewed:

“I convince my students to perform well in classroom. I specially encourage weak students to ask me questions, when they do not understand the concept. I persuade them and also give more time to those students. I counsel them individually and also in group” (Interview, 28th August 2016).

Saurya stated: “I encourage students clear about the concepts and each step of mathematics problems. Students develop confidence to explain and solve mathematical problems” (Interview, 27th August 2016).

Thus, it supports for reducing challenges of social justice in classroom.

Tara viewed, *“I apply different ways of teaching such as making figures and explaining each part of the figures clearly, counselling students according to their need etc. (Interview, 29th August 2016).*

The participants’ emphasis that convincing, encouraging weak students, developing confidence and counselling are the important processes for persuasion. But, persuasion should be based on the nature of students and should include both rational and emotional elements (Beekers, 2015). I think persuasion is good way for coping with challenges of social justice in mathematics classroom. Through counselling, teachers can convince their students about the importance of mathematics for their life. Students feel easy to perceive the notion of mathematics topic and enjoy a lot through persuasion. It is supportive for teachers in improving the performance of their students.

Watching and Caring

I feel that if teachers always watch and care students, it increases their responsibilities towards learning. All students are encouraged to learn and they also get learning opportunities.

Chandra said, *“I care every student while teaching in classrooms. Some students dominate their friends. Academically, good students dominate low performing students. I convince them not to dominate others (Interview, 28th August 2016).*

Saurya said, *“I also watch and care weak and marginalized students more than others. I separate boys and girls in groups. That assists to create interest in learning mathematics and improve student performance. It also helps to bring noisy students in right track”* (Interview, 27th August 2016).

The data shows that caring, dominating, convincing, watching and caring, separating, and creating interest are the main highlights for watching and caring of students. Teachers need to devote time to build a caring relationship with their students (Noddings, 1992). When students perceive that their mathematics teachers care for them, they have increased effort for learning mathematics (Bartell, 2011). Thus, the teachers should provide optimum care that motivate their students' in learning.

Individual Treatment

I think that teachers need to treat their students individually so that each student can improve his/her performance. Chandra said, *“I treat students individually. I focus more on students who are afraid of asking questions. For example, when students commit mistakes, s/he tells them to correct their mistakes and also gives them ideas and tips for solving problems* (Interview, 28th August 2016). However, if students are harassed, he convinces them that they can do better in the future. Similarly, Saurya said, *“I check homework and classwork of each student. I point out their errors and gives them feedback. I convince each individual student telling that anyone can be great through hard work* (Interview, 27th August 2016).

Tara views, *“I believe that personal treatment reduces the challenges of social justice in mathematics; it is better than group treatment for each student's understanding and his/her problem. I think, it is necessary for the betterment of weak students in classroom. It supports them to have equal position in classroom”* (Interview, 29th August 2016).

The data tells that treating, focusing, mistakes, correcting, checking, errors, feedback, individual, personal treatment, group treatment, problem of weak students, equal position are the key elements of individual treatment. But, responding to the needs of individual student is not an easy task for teachers (Jacobs et al. 2010). But, I consider that individual treatment is necessary for weak students as it helps them to reduce their weaknesses.

Grouping

I perceive that grouping is another coping strategy. I divide students into various groups and ask them to perform a task in their group while teaching. Chandra views,

“grouping is a good way to reduce the challenge of social justice. I divide students in small groups on the basis of their performance and gives them project work, class work and mathematical quiz. It helps to uplift weak students’ activities in classroom. Students learn with their colleagues” (Interview, 28th August 2016).

Saurya said,

“I also divide all students in small groups in which I put at least one good student in each group assuming that the good student cooperates with all members of the group. Clever and good students are chosen as a leader and marginalized and weak students learn more from their colleagues and active engagement in learning” (Interview, 27th August 2016).

Tara has similar views on small groups, cooperating learning, active engagement but different on group formation. The data demonstrated that reducing the challenges of social justice can be possible through small groups performance, uplifting weak students’ learning at least as one good student, cooperating, and active engagement. These processes are vital coping the challenges of social justice in mathematics classroom. In this context, Cohen and Lotan (1997) state that one of the main roles of group leader is to be responsible for appropriate understanding of all members. The group leaders will make a decision after discussing to their group members. Each member can learn from their friends. Thus, this technique develops cooperation among students. It also guides students for efficient learning (Ainscow, 1999). It is appropriate way for the students’ engagement in large size classroom.

Conclusion and Implications

The findings of this study revealed that teachers use coping strategies with the challenges of social justice, such as persuasion, watching and caring, individual treatment and grouping. This study is likely to bring awareness among teachers for making socially just curriculum. Enabling conditions as suggested by this study are needed so as to foster equitable pedagogical practices. It advocates school as an agency for social reconstruction.

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