

# LEARNING MATHEMATICS IN SMALL GROUPS: CASE STUDIES FROM PAKISTAN

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As part of my D. Phil. research, I investigated the role of social interactions in students' learning of mathematics. The research methodology was qualitative in nature. Over a period of nine months I observed two small groups of students as they did mathematics in their respective classrooms in Karachi, and recorded the social interactions on videotapes. To follow up on issues arising from the classroom observations, students were interviewed under stimulated recall. During these interviews students were also set mathematics tasks similar to the ones used in the classroom. Grounded theory procedures (Strauss & Corbin, 1998) were used in analysis of data.

Preliminary findings from one case, indicate that the socio cultural norms being constituted and stabilised in the classroom, in turn constituted and stabilised mathematical norms where mathematical norms were criteria of values for mathematics activities. For example, the classroom organisation of working at mathematics tasks in small groups, preceded by some introductory work by the teacher and followed by presentations to whole class, was very consistent across the lessons observed. The social norms were that students were expected to explain their solutions to others, give reasons for their thinking, and make sense of other's explanation. As different groups presented their work using varied approaches to the solution, a mathematical norm being stabilised was that there could be more than one solution to a mathematics problem. This had implications for mathematics development in the classroom community.

Moreover, the teacher's effort to ensure individual accountability in group work led to qualitatively different patterns of interaction in the group with further implications for students' learning.

The study also revealed that students' responses were different to mathematics tasks with the same content but given under different social settings that of the classroom and of the interview. Thus raising deep and intangible questions about the processes involved in learning.

Strauss & Corbin (1998) *Basics of qualitative research*. London: Sage