

RAKHI BANERJEE, Assistant Professor

Education and research interests

Dr Rakhi Banerjee has a masters degree in mathematics and in education from the University of Delhi. She was awarded the doctoral degree by the Tata Institute of Fundamental Research, Mumbai in 2008 for her work on “Developing a learning sequence for transiting from arithmetic to elementary algebra”. The study focused on the transition from arithmetic to algebra among students of grade 6. It aimed to develop a teaching sequence for beginning algebra which builds sound procedural and structural understanding of arithmetic and algebraic expressions and further use this understanding in contexts where algebra will be a tool to solve problems. One of the main objectives of the study was to explore if teaching structure of arithmetic expressions helps students to understand and deal with symbolic algebra better.

She is interested in issues of meaning making and understanding of various mathematical concepts and symbols among students at the elementary school level. Further, she is interested in understanding classroom processes: how culture, environment and tasks effect teaching-learning in mathematics classrooms as well the nature and role of teacher knowledge, values and beliefs in practices.

Her teaching interests include cognitive development and learning, and mathematics education.

Past employment

Dr Banerjee has worked as a teacher in schools during 1996-98. She was a lecturer at Gargi College, Delhi Universtiy, New Delhi in 2000-2001 and was attached with the B.El.Ed programme. She served as an Assistant Professor at the Tata Institute of Social Sciences, Mumbai between 2006-20011 and was involved in the MA Education (Elementary) programme.

Publications

Banerjee, R. and Subramaniam, K. (2005) Developing procedure and structure sense of arithmetic expressions. In H. L. Chick and J. L. Vincent (Eds.), *Proceedings of the 29th Conference of the International Group of the Psychology of Mathematics Education* (Vol. 2, pp.121-128). Melbourne, Australia: PME.

Banerjee, R.; Subramaniam, K. and Naik, S. (2008) Bridging arithmetic and algebra: Evolution of a teaching sequence. In O. Figueras, J.L. Cortina, S. Alatorre, T. Rojano and A. Sepulveda (eds.) *Proceedings of the joint meeting of PME 32 and PME-NA XXX*. Morelia, Mexico: PME.

Banerjee, R. (2011) Is arithmetic useful for the teaching and learning of algebra?. *Contemporary education dialogue*, 8 (2), 137-159.

Naik, S., Banerjee, R. and Subramaniam, K. (2005) Understanding student's reasoning while comparing expressions. In P. Clarkson, A. Downtown, D. Gronn, M. Horne, A. McDonough, R. Pierce, A. Roche (Eds.), *Proceedings of the Annual Conference of the Mathematics Education Research Group of Australasia Inc.* (Vol. 2, pp. 569-576). Melbourne, Australia: MERGA.

Subramaniam, K. and Banerjee, R. (2004) Teaching arithmetic and algebraic expressions. In M. J. Hoines and A. B. Fuglestad (Eds.), *Proceedings of the 28th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 3, pp. 121-128). Bergen, Norway: PME.

Subramaniam, K. and Banerjee, R. (2011) The arithmetic-algebra connection: A historical pedagogical perspective. In Cai, J. & Knuth, E. (Eds.). *Early Algebraization: A Global Dialogue from Multiple Perspectives*. Springer, pp. 85-107.

Other writings

Building an engaging learning classroom: - To be part of Early Childhood Care and Education module of IGNOU, Delhi.

Language and mathematical reasoning: - To be part of Early Childhood Care and Education module of IGNOU, Delhi.

Presentation at international conferences/ seminars

Term as a bridge concept between algebra and arithmetic in *epiSTEME-1* in Goa in December, 2004.

Seminar in the Department of Science and Mathematics Education, University of Melbourne, Melbourne, Australia on 'Designing an instructional sequence for beginning algebra' in July, 2005.

Exploring student's reasoning with algebraic expressions in *Psychology of mathematics education* conference in Seoul, Korea, July 2007. (Abstract available in Banerjee, R. and Subramaniam, K. (2007) Exploring student's reasoning with algebraic expressions. In J. H. Woo, H. C. Lew, K. S. Park and D. Y. Seo (Eds.), *Proceedings of the 31st Conference of the International Group of the Psychology of Mathematics Education* (Vol. 1, p. 197). Seoul, South Korea: PME.)

Assessing the curriculum reforms in India: the case of integers and algebra for beginning middle school students, presentation made at International Congress of Mathematics Education (ICME – 11), July 2008, Monterrey, Mexico.

Research Projects

Impact of 'Sangati' programme on teachers and students of municipal schools in Mumbai.

Investigating the impact of national curriculum reforms on students' meaning making and teachers' beliefs and practices in the context of mathematics teaching and learning.