

KASSEL Project
(NIE – Exeter Joint Study)
An international comparative project on the teaching and learning of mathematics

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The Kassel project was initiated in September 1993 by England, Germany and Scotland. It was originally designed to compare the mathematical progress made by secondary school pupils in the three countries and consequently to identify good practice and provide empirical evidence for incorporating these practices into mathematics teaching and learning in the United Kingdom. Singapore joined the project in June 1994 and Berinderjeet Kaur and Yap Sok Fwe were the coordinators.

Over the years, the project has expanded to include several other countries including Australia, Brazil, Czech Republic, Finland, Greece, Holland, Hungary, Japan, Norway, Poland, Russia, Singapore, Thailand, Ukraine and United States. It differs from the other international mathematics studies such as Third International Mathematics Study (TIMSS) which was concerned with making inter-country comparisons on standards based on a 'snapshot' approach. The project was a longitudinal study of samples of pupils in participating countries. It was the first extensive comparative study in mathematics based on monitoring the progress of individual pupils. The basic aim of the project is to carry out research into the teaching and learning of mathematics in different countries so as to identify key factors that give rise to successful progress in mathematics. Partial funding of the project was provided by The Gatsby Charitable Foundation and British Council.

Approximately 2300 pupils in secondary two (1995) and subsequently secondary three (1996) from seven secondary schools in Singapore participated in the project. In the first round of testing in January 1995, all participating pupils took four tests: Potential, Number, Algebra and Shape & Space. Subsequently, in the second and third round of testing in October 1995 and November 1996 respectively, pupils took parallel forms of the Number, Algebra and Shape & Space tests only. It should be noted that there were some changes in the number of pupils taking the tests from each school over the two years due to transfer, the admission of new foreign pupils, etc.

Questionnaire survey data were collected from all the 64 secondary two classes of pupils who took the topic tests in the second round of testing. The 26 mathematics teachers who taught them were also surveyed at the same time. The pupils were streamed into Science, Arts or Commerce classes at the beginning of secondary three. The 64 secondary three classes of pupils and their 30 teachers were again surveyed in the third round of testing. The interviews with selected pupils who had positive, zero or negative progress in the second round of testing took place when they were in secondary three. The two project coordinators also jointly observed a total of 43 lessons conducted by the teachers involved in this project in the second year of the study and the year after.

The data collected and the findings of the project have been reported in the following publications:

Research Reports available at the National Institute of Education (Singapore) library

Kaur, B. & Yap, S.F. (1998). *Kassel Project Report – Third Phase (Jun – Nov 96)*. Singapore: Division of Mathematics, National Institute of Education, Nanyang Technological University.

Kaur, B. & Yap, S.F. (1997). *Kassel Project Report – Second Phase (Oct 95 – Jun 96)*. Singapore: Division of Mathematics, National Institute of Education, Nanyang Technological University.

Kaur, B. & Yap, S.F. (1996). *Kassel Project Report – First Phase (Jan – Oct 95)*. Singapore: Division of Mathematics, National Institute of Education, Nanyang Technological University.

Kaur, B. & Yap, S.F. (1996). KASSEL Project: An NIE - Exeter Joint Study. Collaborative research project. *NIECER Research Bulletin*, 1(2), pp. 15-16. Singapore: National Institute of Education Centre for Educational Research, Nanyang Technological University.

Other Publications

Burghes, D., Kaur, B. & Thompson, D.R. (Eds) (2004). *Kassel Project*. Budapest: Muszaki Konyvkiado, Wolterskluwer.

Kaur, B. & Yap, S.F. (1999). KASSEL Project - Pupils' performance on the Applying Mathematics Test. In M. Waas (Ed.), *Enhancing Learning: Challenge of Integrating Thinking and Information Technology into the Curriculum*, Vol 1. (pp. 445 – 451). Singapore: Educational Research of Singapore (ERA).

Kaur, B. & Yap, S.F. (1998). Qualities of my best mathematics teacher. In L.K. Chen & K.A. Toh (Eds.), *Proceedings – Research across the disciplines [1997 Annual Conference of the Educational Research Association]*, (pp. 292 – 296). Singapore. Educational Research of Singapore (ERA).

Kaur, B. (1997). My best mathematics teacher. In D. Clarke., P. Clarkson., D. Gronn., M. Horne., L. Lowe., M. Mackinlay. & A. McDonough (Eds.), *Mathematics: Imagine the Possibilities* (pp. 305 – 310). Australia: The Mathematical Association of Victoria (MAV).

Kaur, B. & Yap, S.F. (1996). Teaching of mathematics in Singapore schools - A glimpse of year 8 classes from 7 secondary schools. In H. Forgasz., T. Jones., G. Leder., J. Lynch., K. Maguire & C. Pearn (Eds.), *Mathematics: Making Connections* (pp. 183 – 188). Australia: The Mathematical Association of Victoria (MAV).

Kaur, B., Yap, S.F. & Burghes, D. (1996). KASSEL Project: An international comparative project in the teaching and learning of mathematics, paper presented at the *Joint Educational Research Association (Singapore) and Australian Association for Research in Education Conference*, Singapore, November.
