

ABILITY GROUPING, SEX AND SOCIAL CLASS – EFFECTS ON ATTITUDE
TOWARDS AND CONFIDENCE IN MATHEMATICS

Susan Steward, Faculty of Education, University of Cambridge, UK

The substance for the Short Oral will be based on results from a questionnaire given to Year 9 pupils (640 in total) in three schools to investigate attitudes towards and experiences of learning mathematics. The profiles of the three schools used in the survey are similar in that they are all successful, mixed comprehensives in a small English city and were chosen opportunistically. The statistical results presented therefore act as a snap-shot picture of particular pupils' attitudes and cannot be reliably generalised. The results appear to confirm existing research yet prompt further questions as to the extent of pupil disaffection, its causes and the particular groups of pupils affected.

There is a view that mathematics as a discipline is objective and value-free. Yet research at school-level shows that sub-sections of students have different experiences of mathematics lessons and can be prevented from realising their potential or from gaining ownership of the mathematics they do. In particular, the attitudes of pupils in two such sub-groups, namely girls and those from lower socio-economic groups will be presented. The effects of grouping by perceived mathematical ability will also be considered.

1) Girls

In the UK, while girls' performance compared to boys in mathematics examinations at age 16 has improved this improvement is relatively minor compared to other school subjects. More importantly girls remain under-represented in non-compulsory mathematics courses post-16. Much research around gender issues has shown that confidence is a key factor in determining attitudes to the subject and its choice. Leder suggested that 'bright' girls demonstrate 'fear of success' in mathematical situations more than boys. There is also evidence that girls 'experience' school mathematics differently and do not value the type of mathematics that is widely taught. (Boaler, 1997).

2) Social class and ability groupings

There is little research within mathematics education, into the effects of social class on pupil's experiences and attitudes. Cooper has suggested working class children perform less well on national tests at age 11 which results in these pupils being placed in lower ability groups with lower expectations of their mathematics potential. In England nearly all secondary schools teach mathematics to such 'setted' groups. Boaler, Wiliam & Brown have detailed the effects of this policy and argue that pupils' experiences of learning mathematics often depend on the ability group in which they are placed.

Boaler, J (1997) Reclaiming School Mathematics: the girls fight back. *Gender and Education* 9 (3)

Boaler, J, Wiliam, D, & Brown, M (2000) Students' Experiences of Ability Grouping - disaffection, polarisation and the construction of failure. *British Educational Research Journal* 26 (5)

Cooper, B & Dunne, M (2000) *Assessing Children's Mathematical Knowledge: Social Class, Sex and Problem Solving* Buckingham: Open University Press

Leder, G (1980) Bright girls, mathematics and fear of success *Educational Studies in Mathematics* 11.