

## TEACHERS' BELIEF STRUCTURE IN GENDER AND MATHEMATICS

Riitta Soro

University of Turku, FINLAND

*The focus of this paper is to examine teachers' beliefs about the differences of boys and girls (aged 13-15 years) as learners of mathematics. For this purpose we developed a questionnaire with a new answering scale. A sample of Finnish teachers of mathematics, 110 female and 94 male, answered to this questionnaire in February 2000. They classified a list of characteristics as being more frequent among girls or among boys in their mathematics classes.*

Research on affect and mathematics has focused on the affective responses of students rather than those of teachers (McLeod, 1994; Li, 1999). Teachers' knowledge of, and beliefs about, mathematics have been studied from the perspective of cognitive science, but this perspective is less used in studies concerned with gender (Fennema & Hart, 1994). Studies that deal with mental processes of teachers might give insight into why teachers interact with boys and girls the way they do.

<b>G</b> usually a girl	-2
<b>g</b> a girl more often than a boy	-1
$\pm$ a girl as often as a boy	0
<b>b</b> a boy more often than a girl	1
<b>B</b> usually a boy	2
Table 1. Alternatives and scores for X.	

Our questionnaire consisted of 55 items of the type: "X finds mathematics difficult." For each statement, teachers had to select the subject X out of the five alternatives: G, g,  $\pm$ , b, and B. In the analysis the neutral alternative was scored as 0, the direction "girls more often" was scored negative and the direction "boys more often" positive as presented in Table 1.

The results indicated that a great majority of teachers held different beliefs about girls and boys as mathematics learners. Factor analysis revealed six main factors in the structure of beliefs about gender differences: *Avoid using intelligence, Talent, Lack of equity, Work-orientation, Expectations of success, and Teacher attention*. The two most common beliefs stated girls avoid using intelligence and boys attain most of teacher attention. Beliefs are gathered as parts of a belief system (Green 1971, p.42). Correlations between the six belief dimensions will be discussed in the presentation.

### REFERENCES

- Fennema, E. & Hart, L. (1994). Gender and the JRME. *Journal for Research in Mathematics Education* 26(6), 648-659.
- Green, T. F. (1971). *The activities of teaching*. New York: McGraw Hill.
- Li, Q. (1999). Teachers' beliefs and gender differences in mathematics: a review. *Educational Research* 41(1), 63-76.
- McLeod, D. B. (1994). Research on affect and mathematics learning in the JRME: 1970 to the present. *Journal for Research in Mathematics Education* 25(6), 637-647.