A STUDY OF THE RELATIONSHIP BETWEEN MATHEMATICAL ABILITY AND QUANTITATIVE ESTIMATING ABILITY IN CHILDREN

T.K. Hewapathirana
Dept. of Mathematics,
University of Kelaniya

The main objective of this study is to find out the factors affecting the ability of children to estimate number. The data were collected from

two secondary schools from the same district. Age, position in class, sex and previous school were taken down from each child. The children were given a methematics test & an estimation test. For the estimation test eight randomly chosen slides were shown with different shapes and patterns, spaced in different ways. The number of objects varried from slide to slide. Eighteen months after this experiment the students were grouped into two according to their abilities and were given two mathematics tests.

A marking scheme was adapted such that estimation scores were distributed with zero mean under estimates being negative; over estimates positive. After carrying out a principal component analysis on the eight slide scores the mean score was selected to measure the estimating ability of each child.

The analysis of variance tests carried out on different age groups gave clear evidence that children develop their skills with age. The results of the tests showed that there was a definite tendency for children to underestimate; this itself may be an indication that they are developing their awareness of number. The accuracy of their estimates depended on the number of objects and how the objects are spaced too. Two sample t - test carried out on different ability groups revealed that abilities of children could not be discriminated according to their sex. Although this kind of estimation problem is a rare occurance to children and it needed some kind of intelligence to work it out from the results obtained solving such a problem does not seem to depend on childrens' mathematical ability.