'REASONING ABILITIES AND ITS RELATIONSHIP WITH GEOMETRY ACHIEVEMENT OF BOYS AND GIRLS OF HINDI MEDIUM DELHI SECONDARY SCHOOLS'

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Objectives of the Study

To identify the relationship between reasoning abilities and achievement of geometrical concepts among the boys studying at secondary stage in Delhi schools.

To identify the relationship between reasoning abilities and achievement of geometrical concepts among the girls studying at secondary stage in Delhi schools.

To compare the pattern of relationship between reasoning abilities and achievement of geometrical concepts between boys and girls studying at secondary stage in Delhi schools, and

To determine the extent to which reasoning abilities contribute to the achievement of concepts in geometry in the case of boys and girls studying at secondary stage in Delhi schools.

Hypotheses

There exists relationship between reasoning abilities and achievement of geometrical concepts among the boys studying at secondary stage in Delhi schools.

There exists relationship between reasoning abilities and achievement of geometrical concepts among the girls studying at secondary stage in Delhi schools.

There is difference in the pattern of relationship between reasoning abilities and achievement of geometrical concepts between boys and girls studying at secondary stage in Delhi schools.

Reasoning abilities contribute to the achievement of concepts in geometry in the case of boys and girls studying at secondary stage in Delhi schools.

Major Findings of the Study

The correlation coefficients revealed that the tests included in the test battery provided measures of different aspects of semantic reasoning abilities. These were presumed to get measures of twelve cognition and convergent, production of units, classes, relations, systems transformations and implications of Guilford's Structure of Intellect categories.

By retaining the factors with eigen values greater than 1.0 and rotating according to the Kaiser's Varimax criterion, ten factors in case of boys and ten in case of girls were obtained.

The ten factors identified from the matrices of 15+ boys and girls were grouped in ten categories from Factor A to Factor I.

In the category of convergent production semantic products, there immerged three mixed factors among 15+ boys and four mixed factors among the 15+ girls.

Multiple regression analysis of composite achievement in concepts of elements, properties, relations, measurement and construction in geometry as dependent variable and composite of twelve reasoning ability tests conducted among the 308 boys of class X showed that Cognition of Semantics Relations and Convergent Production of Semantic Systems abilities emerged as the predictors contributing nearly equally to the composite of concept achievement in geometry.

The multiple regression analysis of composite achievement in concepts of elements, properties, relations, measurement and construction in geometry as dependent variable and composite of twelve reasoning ability tests conducted among 309 girls of class X showed that Convergent Production of Semantic Units, Convergent Products of Semantic Relations and Convergent Production of Semantic Systems accounted for 36.4 percent of variance to the composite achievement tests. Thus it was posited that deductive reasoning ability test emerged as the determiners in the composite of concept achievement in geometry among 15+ girls.

Suggestion for Further Studies

Considering the fact that present investigation has been restricted to content category of semantics alone, investigations may be carried out with tests of figural and symbolic content depending on the nature of the curriculum.

Considering the fact that the present investigation has been restricted to operation categories of Cognition and Convergent Production only, investigations in other categories such as Divergent Production and Evaluation may also be undertaken.

Considering the fact that the present investigation has been conducted on students studying in Hindi Medium, other studies may be undertaken on students from English medium Public Schools.

Considering the fact that the present investigation has been conducted on sample

from urban area of South Delhi, same may be undertaken in rural areas of Delhi.

Implications

Since the cognition abilities emerged as true measures of reasoning abilities, the curriculum in geometry content can be so designed that it covers the content areas proportionately.

Since the reasoning abilities (CMR, NMU, NMR and NMS) emerged as major determiners to the concept achievement in geometry, the curriculum designers could take note of these findings that content areas also cover deductive reasoning components adequately.

The present investigation can be extended to other categories such as Divergent Production of Evaluation