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Research Paper

Assessment of Cognitive Ability of the Students of Upper Primary School Students of Kamrup District In Relation To Their Gender

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ABSTRACT
Cognitive skill development in children involves the progressive building of learning skills, such as attention, memory and thinking. These crucial skills enable children to process sensory information and eventually learn to evaluate, analyze, remember, make comparisons and understand cause and effect. Cognitive abilities are the brain-based skills and mental processes needed to carry out any task and have more to do with the learning, remembering and paying attention. There is a need for research in this area of individual's learning ability particularly in relation to perform the various mental activities associated with learning and solving problem. In this context a study was undertaken to assess the cognitive abilities existing among the upper primary students in a district in the state of Assam. Sample consisted of 100 students of VIIth standard. Standardised tool of Cognitive capabilities test for transition period has been used. The findings of the study revealed that 1) Mean scores obtained by the boys in CCT- T (Cognitive Capabilities Test For Transition Period) were more than the girl students and there exists a significant difference in the cognitive ability of boys and girls of standard VII and 2) The boys possess slightly more cognitive ability than the girl students. It is found that the boys tend to possess slightly more cognitive ability than the girls.

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I. INTRODUCTION:

In applied psychology individual differences are assessed particularly in context to cognitive ability occupying a special place. Cognitive abilities are the mental skills used for learning. Weak Cognitive Skills requires more effort for any form of Academic Learning. Cognitive skills play an important role in processing new information. That means if even one of these skills is weak, no matter what kind of information is coming one's way, grasping, retaining, or using that information is impacted. In fact most learning challenges are caused by one or more weak cognitive skills.

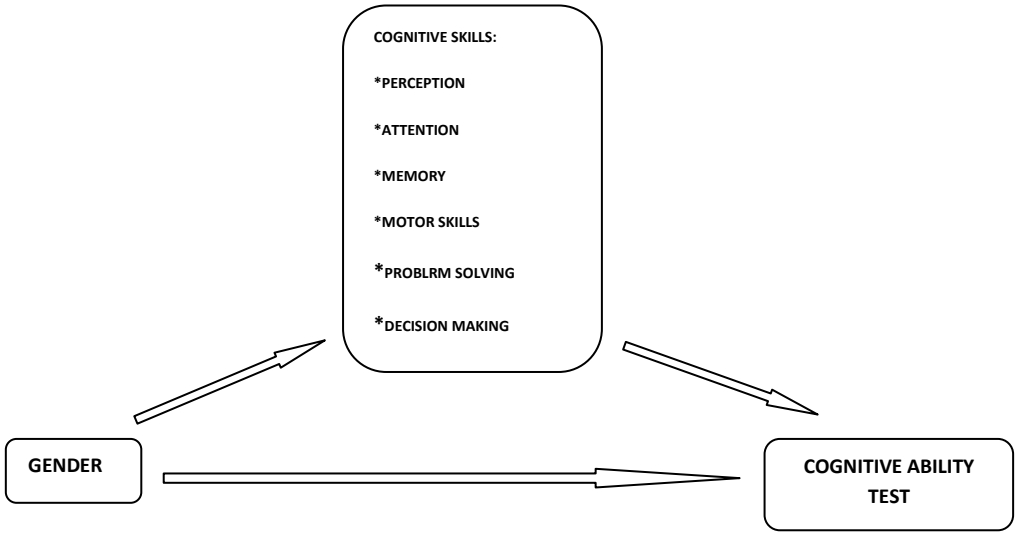
Cognitive skills are the core skills our brain uses to think, read, learn, remember, reason, and pay attention. Combination of skills together, forms the bulk of knowledge that is used in every day at school, at work, and in life. Modern psychology considers that cognitive ability has a different dimensions which are correlated with one another. Many interpret this correlation as reflecting an underlying general cognitive ability that is measured by the full-scale scores on the major tests of cognitive ability or IQ **(Dickens, 2016).**

Testing of Cognitive ability provides information about an individual's capacity to identify and solve problems. It is all about how much we know and how effectively we process the information we receive. School systems mostly deals with the fulfilment of cognitive goals in the form of different subject areas for acquisition of knowledge and understanding with respect to intellectual domain e.g. numeracy, history, science. These help in developing the skill of critical thinking among the students, and also determine to think logically and solve problem. The problem-solving skill, learnt in the early years is sure to enable them to solve problems in later life.

II. CONCEPTUAL FRAMEWORK :

Research has shown that an individual's learning ability is determined by cognitive ability. When cognitive ability is weak, learning becomes a struggle for the learners. Some children find schoolwork difficult as they do not possess the cognitive skills required to process information properly. At upper primary stage the child gradually moves towards the formal operational stage which starts at the age of 12 and continues throughout the adolescence period. At this stage children gradually start to think abstract hypothetical thoughts to solve a particular problem and start thinking logically.

Although there are negligible gender differences in general intelligence (Aluja-Fabregat, Colom, Abad, & Juan-Espinosa, 2000; Colom, Juan-Espinosa, Abad, & Garcia, 2001), gender differences have been reported in a number of specific cognitive domains. It was traditionally believed that females had better verbal ability and males had greater spatial and mathematical ability (Maccoby & Jacklin, 1974). However, recent meta-analyses have found much more specific gender differences.



Path diagram showing gender difference in a cognitive ability test

There is a need for research in this area of individual's learning ability particularly in relation to perform the various mental activities associated with learning and solving problem.

III. REVIEW OF RELATED LITERATURE

Anggraini, Budiyono, and Pratiwi (2006), "Cognitive differences between male and female students in higher order thinking skills".

The objective of the research was to analyze the differences between male and female student's abilities of higher order thinking skills. The samples were taken randomly to represent the population. The results indicated that male and female have the differences average at higher order thinking skills.

Sharma and Gulati (2013), "Gender differences in cognitive abilities of children attending school and non attending schools in migrant labour family".

The main objective of the study was to investigate the gender differences in cognitive ability among the children attending school and non attending schools. The study was conducted on 120 mother-child dyads including children between 6-8 years. The result indicated a difference in cognitive abilities of school going and non school going children. Differences were found between the school going girls and school going boys as, the school going girls possessed better verbal, quantitative and general cognitive index where as the school going boys have better perceptual, memory and motor ability.

Kalita, Pallabi, (2013), "A Study of creativity among the adolescents in relation to select variables, cognitive ability, socio economic status and personality pattern" **.** The study is conducted with the objective to examine the creativity of the adolescents in relation to sex and locality, cognitive ability, personality and socio-economic status. Sample comprised of six hundred (600) adolescent students. The result of the investigation showed that cognitive ability is an effective contributor of creativity. This is true irrespective of sex and locality. At the same time, the teachers and the parents should pay special attention to the low cognitive adolescents. They should instill self confidence among these adolescents and should encourage them to take up various types of creative activities.

There are scanty of research in individual's learning ability particularly in relation to perform the various mental activities associated with learning and solving problem at the upper primary level in the North Eastern States of India. As such a study was undertaken to assess the cognitive abilities existing among the upper primary students in a district in the state of Assam.

Operational Definitions:

Cognitive Ability: Cognitive ability is the ability of an individual to perform the various mental activities most closely associated with learning and problem solving.

Upper Primary School students : It represents the students of class VII standard of Assamese Medium School .

Objective of the study:

The objective of the present study was**:**

To find out the cognitive ability of the sampled students of VII standard with reference to their gender.

Methodology

The study was based on descriptive survey method.

Area of the study:

Comprised of Kamrup district in Assam.

Population:

The students of Upper Primary schools (standard VII) of Kamrup district constituted the population.

Sample:

A sample of 100 students (vide table 1) was selected randomly considering the representation of gender. Simple random sampling method was adopted while selecting four different schools from Kamrup district.

Table – 1: Distribution of Samples

Boys		**Girls**		**Total**
Urban	**Rural**	**Urban**	**Rural**	
25	25	25	25	100

Tool:

For the present study the tool, Cognitive capabilities test for transition period constructed and standardised by Dr. Vasundhara Padmanabhan has been used.

The data were analysed in the light of objectives set for the investigation. For analysing the data, simple statistical techniques like frequency analysis, standard deviation, t-test, were used.

Variables:

Independent Variable: Gender.

Dependent variable: Cognitive Ability.

Analysis and Interpretation of Data

The data collected for the study were carefully analysed in the light of objective of the study.

The cognitive ability of the students of VII standard on the basis of their Gender (Boys and Girls.)

In this study attempt was made to find out the difference in cognitive ability between the boys and the girl students of VII standard. In order to study the difference, if any in the Cognitive ability of the students of VII standard with respect to gender , Mean was calculated from the scores of both boys and girls in the CCT-Test (Cognitive Capabilities Test for Transition Period) by constructing a distribution table and by calculating the mean scores in different capabilities tasks fitting into the ten schemes of thought representative of the transition period from concrete operational to formal operational stage ,which are stated in the following table no.

Table 2: Gender wise mean component scores of CCT-Test

Component	**Mean score**	
	Boys	**Girls**
PART I (Combinatorial thinking, Class inclusion)	23.3	21.5
PART II (Proportionality, time and motion, conservation of area, co-ordinate system)	16.1	13.4
PART III (Conservation of weight, volume, formulation of hypothesis)	6.4	4.2
Total Mean score	45.8	38.1
Standard Deviation	9.4	12.16
t-value	5**	
Significance	**Significant at 0.01 level of significance	

Based on the findings given in above table-2, it was found that, the mean scores obtained by the boys in CCT- T (Cognitive Capabilities Test for Transition Period) were more than the girl students. In this study attempt was made to find out the difference in cognitive ability between the boys and the girl students of VII standard and its significance level. So, after verifying the means and calculating the standard deviation, the t-value was worked out.

The result showed, among the VII standard students appeared in CCT-test, there was significant difference between the male students (M=45.8, SD= 9.4) and female students (M=38.1, SD=12.16) and the t-value happens to be 5 which is higher than the tabulated value at 0.01 level of confidence.

Findings:

1] The mean scores obtained by the boys in CCT- T (Cognitive Capabilities Test For Transition Period) were more than the girl students and there exists a significant difference in the cognitive ability of boys and girls of standard VII.

2] The boys possess slightly more cognitive ability than the girl students.

IV. CONCLUSION:

In education, cognition plays an important role. In the processes of learning thought-provoking questions are essential for the development of learning abilities of pupils. Science as a subject plays a unique role in promoting the thinking ability. Learning science needs a deeper creative and critical thinking skill to apply new learning to new situation. These skills are a set of broadly transferable abilities appropriate to different science disciplines using systematic and meaningful strategies leads to better academic achievement. It is also presumed that difference in the cognitive ability cause difference in the academic achievement.

So, in conclusion the study reveals that gender is the determining factor of the cognitive ability of the students. Also, it is found that the boys tend to possess slightly more cognitive ability than the girls.

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