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RESEARCH ARTICLE

THE IMPORTANCE OF LOGICAL THINKING ABILITY OF SECONDARY LEVEL SCHOOL STUDENTS IN SOUTH DELHI

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Abstract

Logical thinking ability of secondary level school students is described in this article. The logical thinking ability is one of the important components in the 21st century. Thus the study aim to analyze 14-16age group student's logical thinking ability in lock down period. The sample was chosen by using a simple random sampling technique. The study involves two classes which has 200participants, consisting of, 100boys and 100girls in class 9and class 10 in South Delhi school. The researcher used a Logical Thinking Test by Sujeet kumar and Sikha Tiwari. T test was used to analyze the data. The result is that there is a significant difference between boys and girls' logical thinking ability in 5domains.The finding of the test could be used to enhance students' logical thinking ability of secondary students in future.

Introduction:-

Logic is a Greek word that comes from Logos, is the processing including analysis and arguments to solve the basic problems. Logical thinking is a critical and metacognitive process. Human's left hemisphere of the brain controls the logical thinking system. Logic is a language process included but, though, if conjunction to take the decision. Without judgement and previous experience logical thinking is not possible. So logical thinking is a schematic term which is called problem solving ability in any completed situation.

Students' academic success depends on logical thinking ability. Each students' merit and thinking process is individual. They are different from each other. For that reason they can solve their problem according to their thinking capability. In some situations logical thinking skills can be enhanced. Students who are suffering from problems in different situations try to solve the basic problems following the steps. … ..

1. Focus on the problem
2. Draw a conclusion
3. Correlation between problem and solution.
4. Use inductive and deductive reasoning
5. Collect the documents to prove the solution.
6. Finally use the assumption to solve the critical problem.

Hypothesis to be tested

The following hypotheses are proposed to be tested. Those hypotheses were made with reference to the above objectives.

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1. There is no significant difference between boys' and girls' logical thinking abilities 1st part series or sequence.
2. There is no significant difference between boys and girls logical thinking abilities 2nd part completing the analogous pair.
3. There is no significant difference between logical thinking abilities 3rd part classification.
4. There is no significant difference between boys and girls logical thinking abilities 4th part coding decoding.
5. There is no significant relationship between logical thinking abilities 5th part relationship.

Delimitation of the study

To make original and good work of research, the researcher will delimit this study on the following points. … . .

1. This study will be conducted only on the students of secondary level students. (That is class 9and 10th class)
2. South Delhi school students are taken by the research.
3. In the study only the logical thinking abilities variable was taken.
4. The sample size was 200students only 100 boys and 100girls.
5. Sweet kumar and sikha tiwari 's tool was used.

Definition of terms used in study

1. **Secondary level education**

The class 9 and class 10 are known as secondary level education.

2. **Logical thinking abilities**

According to Gates"logical thinking is productive thinking where to solve a problem new methods are involved with the background of previous experiences. Logical thinking is a mental process where logic is important. Due to logical thinking human beings are the best thinker among all animals. Due to logical thinking an individual makes a decision.

Research Methodology:-

Normative study methods will be used.

Population

The study of senior secondary of south Delhi will be defined as a population.

Sample and sampling method

The researcher will select a sample of 200secondary level students from South Delhi by the use of a random sampling method.

Variables of the study

Following variables is in the study
Logical thinking ability

Tools to be used

The following tools will be used in the present study for collecting the data. I

Sujit kumar and sikha tiwari's logical thinking test was used.
In this test there are, 5 domains.------

1. Series/sequence 10questions
2. Completing the analogous pair10 questions
3. Classification 10questions
4. Coding decoding, 10questuons
5. Relationship 10questions total 50 questions. Each question's weightage 1marks.Time limits 30minutes.

The quality of the test

The validity and the reliability of the test is 0.827 and 0.7277

Sample size

200 students 100boys and 100girls of South Delhi school students were taken through the random sample technique.

Data collection (try out)
With the help of above described tools the research will collect data from different schools through the google form. Class 9 ,10 students fill the answer sheet using tick marks. After half an hour the exam was completed.

Distribution of the sample
1) Government boys senior secondary school ,Sarajini nagar(25boys+25girls)
2) Government boys senior secondary school, lajpat nagar

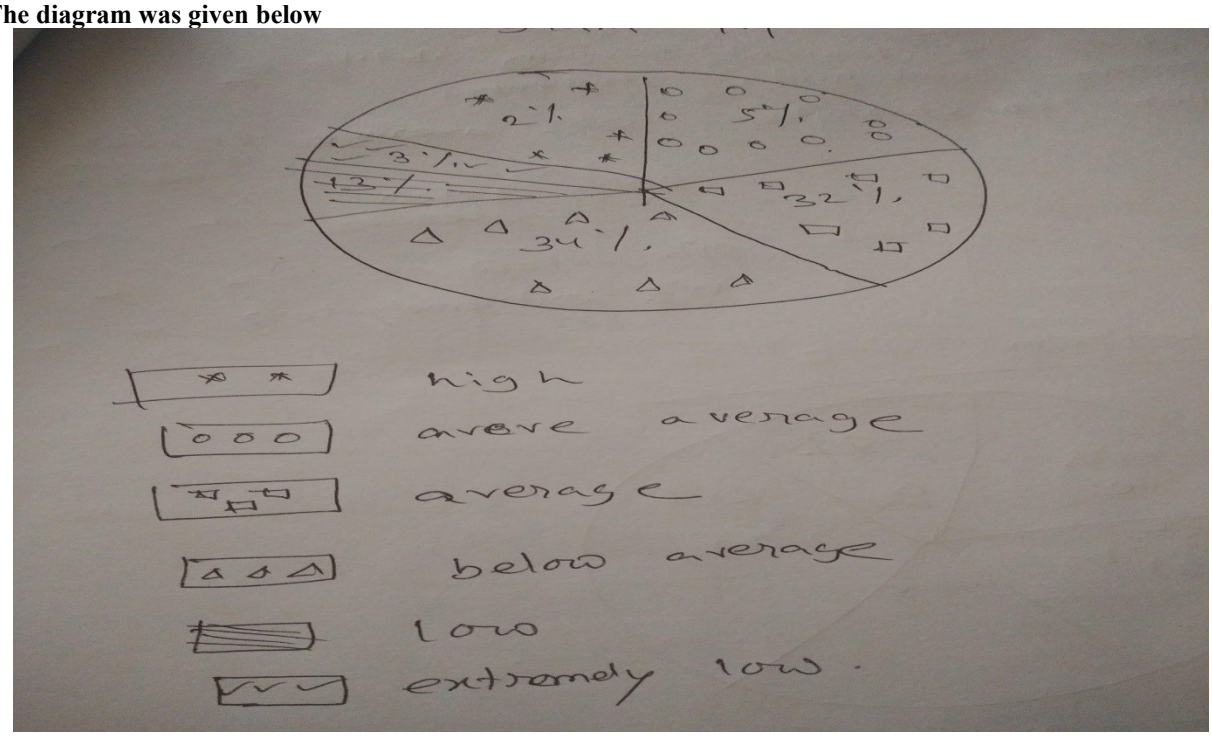
Analysis of the data
After collecting the data the source will be tabulated and appropriate statistical method will be used.
Using the statistical t test the data was analysed.
SEM1=sigma1/N1
SEM2=sigma 2/N2
SEDM=√(SEM1)2+(SEM2) 2
t=m1~m2/√(sem1) 2+(Sem2) 2
Range=highest score-lowest score

Data interpretation
Categorization
After collecting the data the student were categorised in five groups according to their logical thinking capabilities. Such as
1) High logical thinking ability(+2.01and above)
2) Above average logical thinking ability(+1.26to +2.00)
3) Average logical thinking ability(+, 0.51-+1.25)
4) Average logical thinking ability(-0.50to +0.50)
5) Low logical thinking ability

Scoring
Each question carried 1marks.There is no negative marking. Incorrect answer marks 0.Hight marks is 50 and lowest marks 0.
1. Correct answer score is 1
2. Incorrect answer score is 0

Finding of the study
1**st objective**
To study the logical thinking ability of secondary level boys.
Within 100 100students 2% belonged to extremely high logical thinking ability.
5%have average logical thinking ability
32%below average logical thinking ability
13%low average logical thinking ability
3%have extremely low logical thinking ability

The diagram was given below

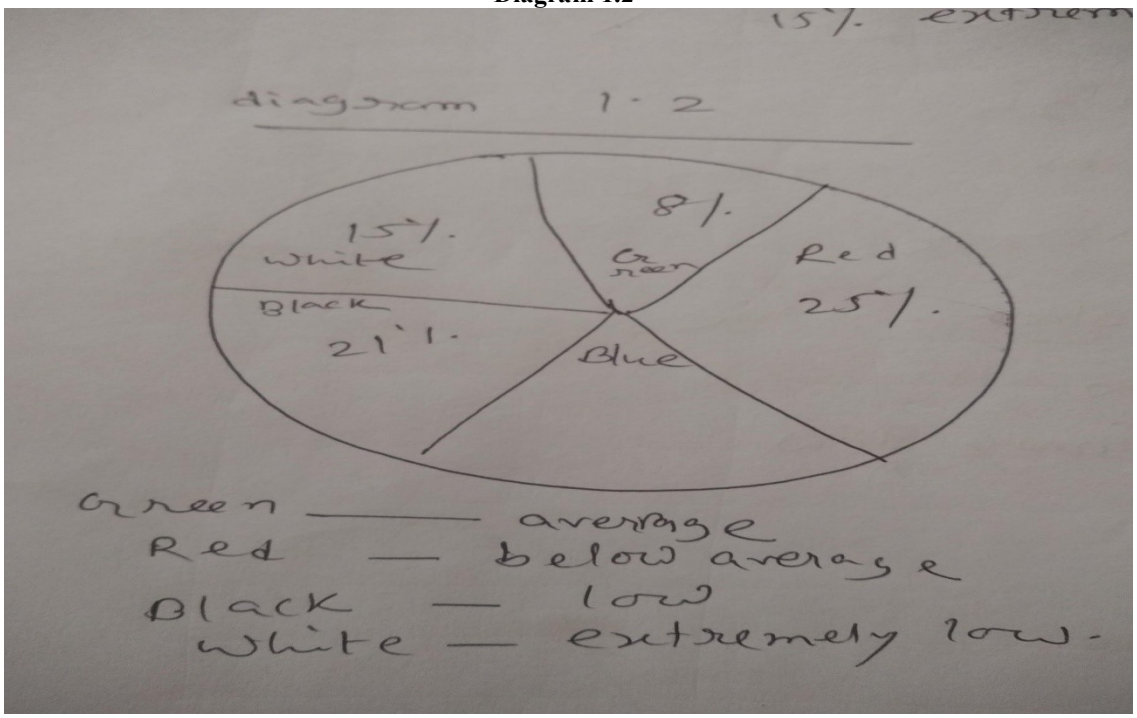


2nd objective

To study the logical thinking ability of secondary level girls' sstudents

Within 100 students 8% have Average logical thinking ability.
25%have below logical thinking ability
21%have low logical thinking ability
15%have extremely low logical thinking ability

Diagram 1.2

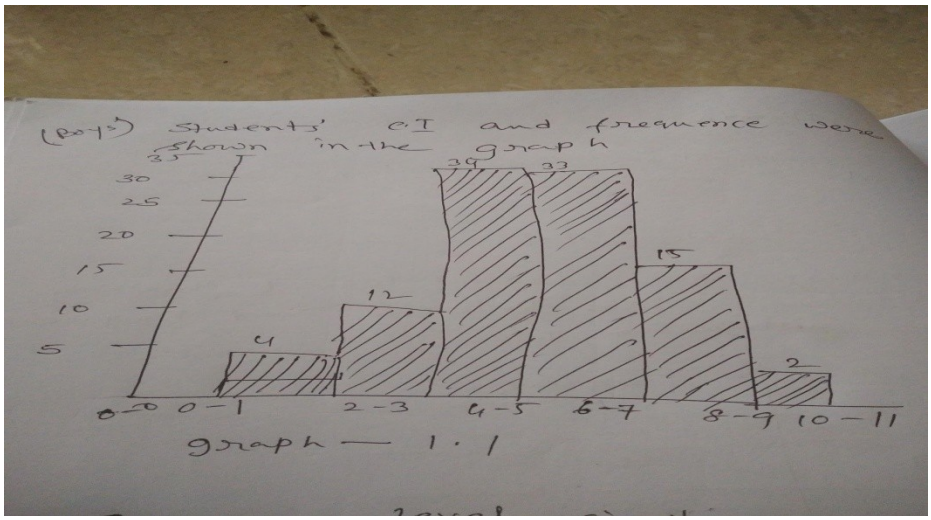


3rd objective

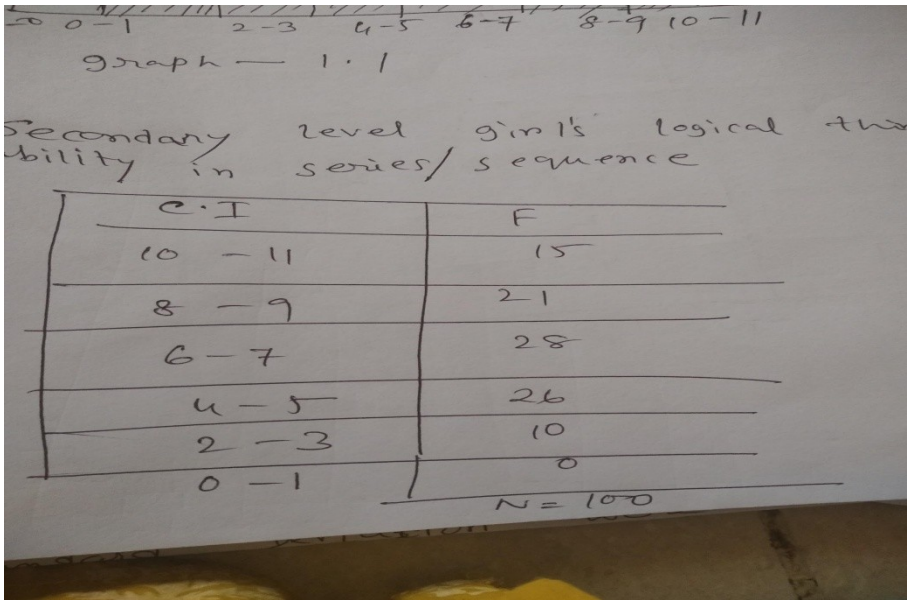
The competitive study of boys' and girls' logical thinking ability

Table 1.1:-Secondary level boys' logical thinking ability class internal and frequency were distributed below.

C.I	Frequency
10 – 11	2
8 – 9	15
6 – 7	33
4 – 5	34
2 – 3	12
0 – 1	4
	N = 100



graph — 1.1



graph — 1.1

Secondary level girl's logical thinking ability in series/sequence

C.I	F
10 – 11	15
8 – 9	21
6 – 7	28
4 – 5	26
2 – 3	10
0 – 1	0
	N = 100

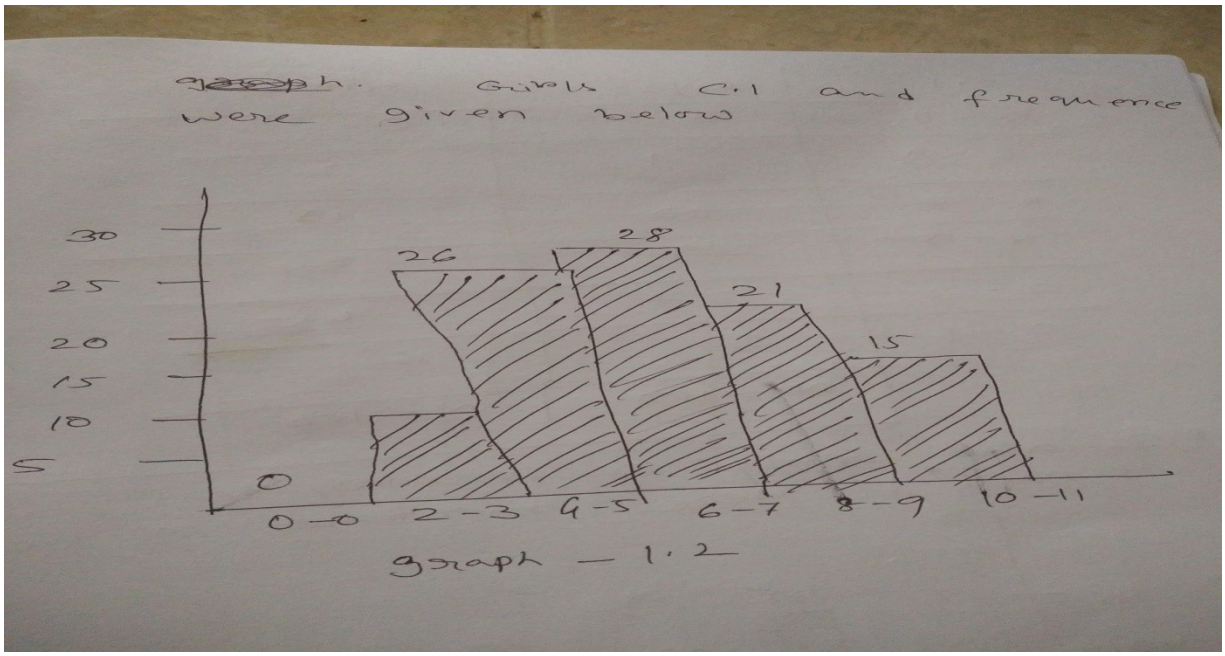
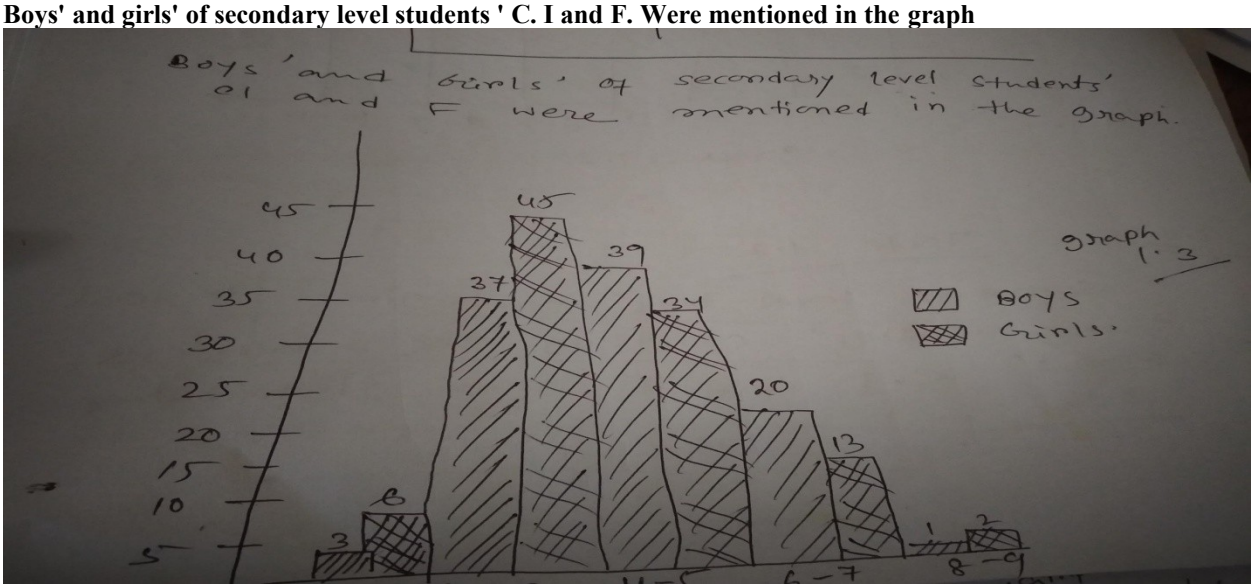


Table 1.2:- Secondary level boys' and girls' logical thinking ability in completing the analogous pairs C. I and F was distributed below

C. I	boys	girls
10-11	0	0
8-9	1	2
6-7	20	13
4-5	39	34
2-3	37	45
0-1	3	6
	N=100	N=100

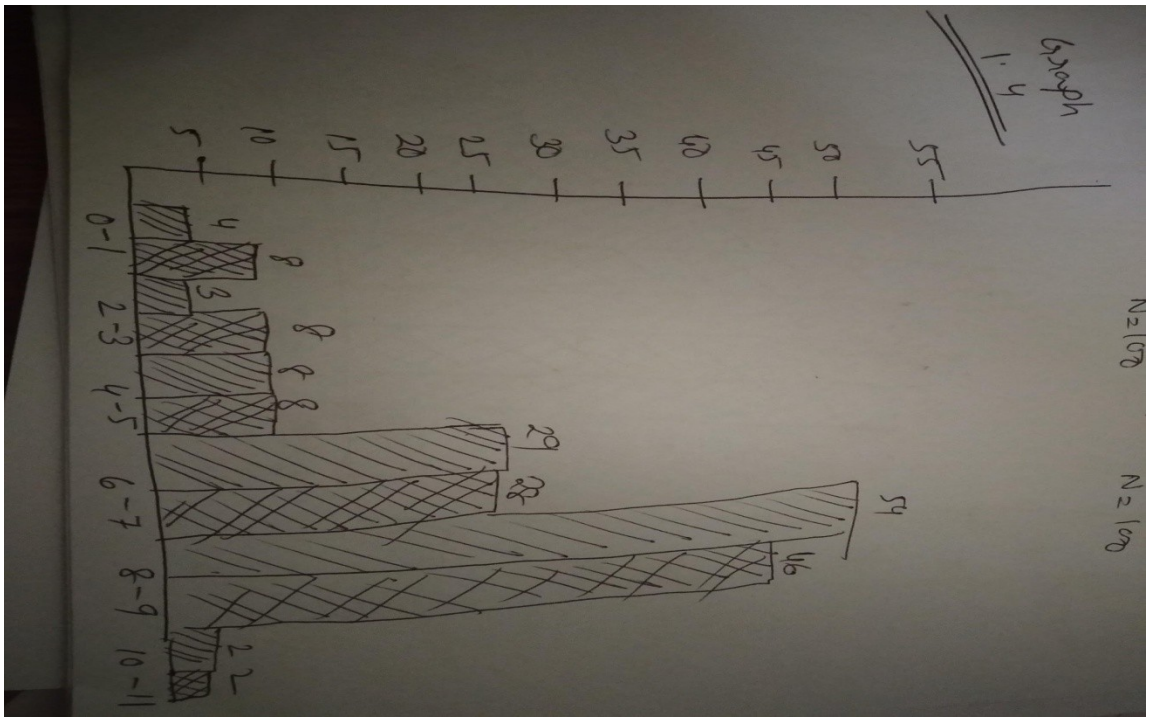
Boys' and girls' of secondary level students ' C. I and F. Were mentioned in the graph



Boys and girls of senior secondary school 's logical thinking abilities classification ariya's C. I and F was given below

CI	boys	girls
10-11	2	2
8-9	54	46

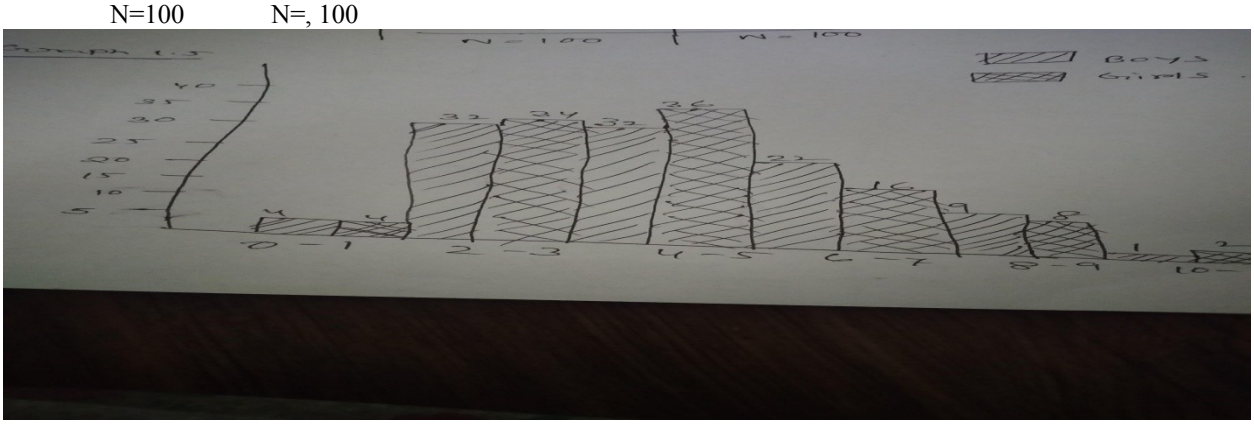
6-7	29	28
4-5	8	8
2-3	3	8
0-1	4	8
	N=100	N=100



Coding decoding

Secondary level students' boys and girls both logical thinking ability in coding decoding part

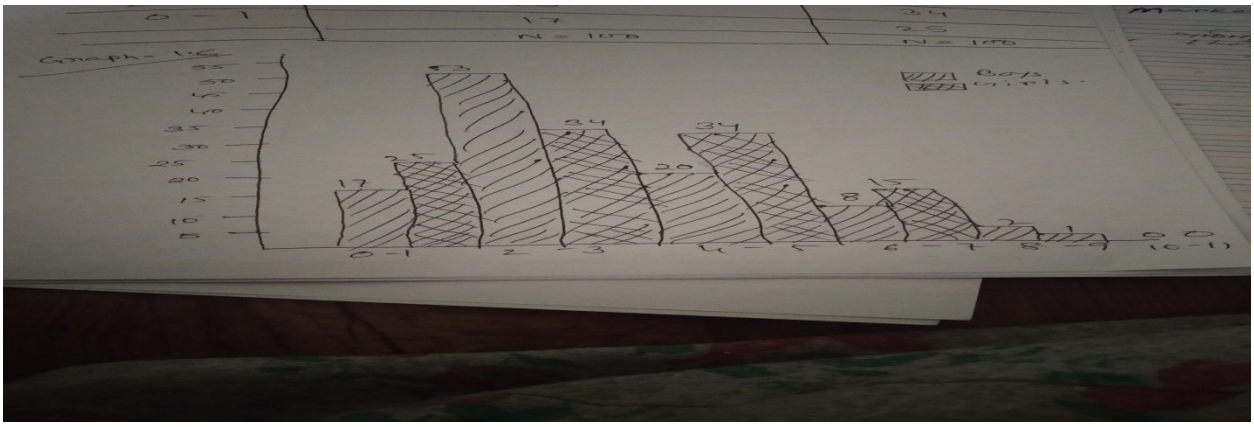
C. I	boys	girls
10-11	1	2
8-9	9	8
6-7	22	16
4-5	32	36
2-3	32	34
0-1	4	4
	N=100	N=, 100



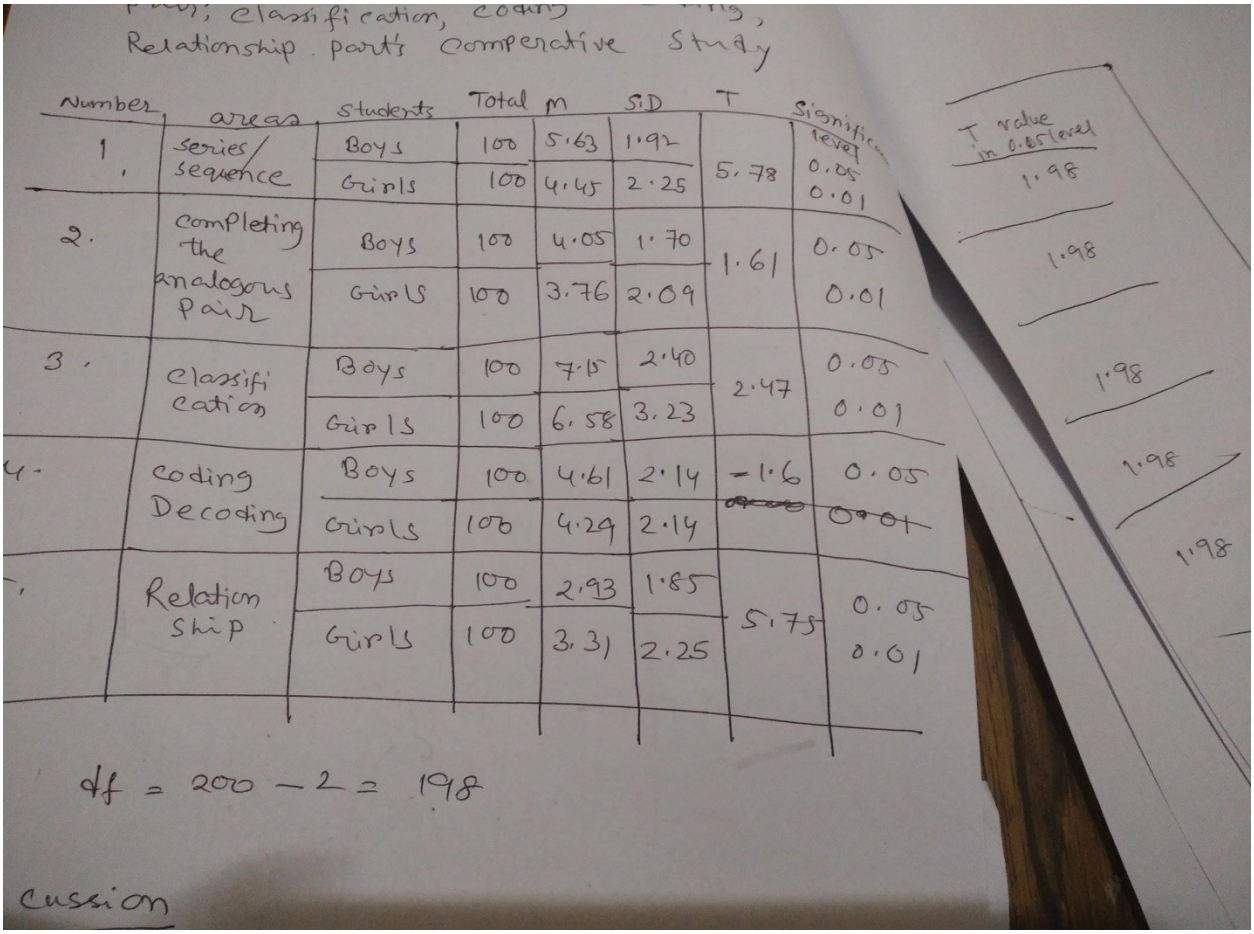
Secondary level students boys and girls logical thinking abilities relationship parts C. I and F

C. I	boys	girls
10-11	0	0
8-9	2	1

6-7	8	15
4-5	20	34
2-3	53	34
0-1	17	25
	N=100	N=100



Secondary level school students logical thinking test complete 5areas series/sequence, completing the analogous pair, classification, coding decoding, relationship part s competitive study mentioned below



Relationship part's comperative Study

Number	areas	students	Total	m	S.D	T	Significance level
1.	series/ sequence	Boys	100	5.63	1.92	5.78	0.05 0.01
		Girls	100	4.45	2.25		
2.	completing the analogous pair	Boys	100	4.05	1.70	1.61	0.05
		Girls	100	3.76	2.09		0.01
3.	classifi cation	Boys	100	7.15	2.40	2.47	0.05
		Girls	100	6.58	3.23		0.01
4.	coding Decoding	Boys	100	4.61	2.14	-1.6	0.05
		Girls	100	4.29	2.14		0.01
	Relation ship	Boys	100	2.93	1.85	5.75	0.05
		Girls	100	3.31	2.25		0.01

T value in 0.05 level
1.98
1.98
1.98
1.98
1.98

df = 200 − 2 = 198

cussion

Discussion:-

1) Secondary level students' 2%boys have high logical thinking ability.
2) 5%student have above average logical thinking ability

3) 32% of students have average logical thinking ability.
4) 34%students' logical thinking ability is below average
5) 13%boys ' logical thinking ability ability is low
6) 3% of students (boys) logical thinking ability is extremely low.
7) 8% of the girls students' logical thinking ability is above average.
8) 25% girls students logical thinking ability is average
9) 18% girls students logical thinking ability is low
10) 15%girls students logical thinking ability is extremely low
11) No girls students have extremely high logical thinking ability
12) No girls students have high logical thinking ability
13) Series/sequence in the area of logical thinking ability 0.05 and 0.01 level is significant. T value is 5.784.so the null hypothesis was rejected.
14) Logical thinking abilities 2nd part completing the analogous pair 0.01 and 0.05level was not significant. T value was 1.61.For that reason null hypothesis was accepted.
15) Logical thinking abilities 3rd area classification in0. 05level was selected. 0.01level was rejected. T Value was 2.47
16) Logical thinking abilities' coding decoding area's 0.01 and 0.05 level was rejected. T value was -1.6, so the null hypothesis was accepted.
17) Logical thinking abilities relationship in the area 0.05and 0.01 level was selected. T value was 5.75.So the null hypothesis was rejected.

Educational implementation

Every student has their own and different personality. As per different personality students have different logical thinking processes. In this, researchers tries to find out how a student can solve their own problem. Using logical capabilities the students cognitive development is increased.

As humans always try to solve problems from the past experience. Apart from that, how much knowledge the student has logical thinking knowledge. Analyzing those aspects are also part of this research activity. In the paper logical thinking capabilities get affected also being discussed.

For juvenile students, giving right direction to students is the most important aspect of the research work. This research aims to be a navigation moral for logical thinking of new generation.

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