



ATTITUDE TOWARDS SCIENCE AMONG SECONDARY STUDENTS

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ABSTRACT :

The running epoch is the age of science .Our feelings, beliefs ,values may be endeavor of science .The impact of science plays a vital role in every part of our life . So it is necessary all the students of institution should developed mentally affection, creative, interested,consciousness and attitude towards science. The present study investigated the attitude towards science in secondary students and Environmental awareness on the basis of their gender .Attitude towards science in secondary students consisted of 20 items (13 positive and 7 negative items) developed by researcher was used in this study. 80 secondary students as a sample were randomly selected from from two high school (one arban and other from rural area) in Purba Bardhaman district ,West Bengal, India. For the data analysis and interpretation Mean , SD and 't' test are used . The study reveals that there is no relationship between attitude towards science in secondary students with their gender. The study shows that their is no relationship between Environmental awareness on the basis of their gender. Girls shows slightly high level attitude towards science than boys.



KEYWORDS : Attitude, Science, Secondary, Students .

INTRODUCTION

The running epoch is the age of science. The tremendous advancement of science, consciousness of science, consciousness of environment ,mental and cognitive development are concatenated in the present life. It is from the student life to take lesson to make a person inclination to the science and free from any superstitions .The appropriate companion of teacher ,appropriate infrastructure ,mental condition, instrumental and scientific innovation, science fair, hygiene and environmental consciousness ignite us for affection to the science .So all the students of institute should developed mentally affection ,creative, interested and attitude towards science.

Simpson and Oliver (1990) conducted a study and noticed that male students had more positive towards science and their achievement was higher than female students.

Bagchi,J.P(1993-94) found that the impact of different educational practices on students that is exploring students attitude towards laboratories and other related practical work in science.

Muhamad Shabir Ali and Ahmed Sher awan (2014) conducted a study on attitude towards science and he found that attitude towards science had significantly positive relationship with the achievement of science students at secondary level.

Prakash ,(1994) noticed that impact of different educational practices towards science in the age group 17-19 years at science stream at higher secondary level. The result that the traditional group is better than C.B.S.E and I.C.S.E students in attitude towards science.

Narchi ,(1990) investigate the effects of parental background and students past experience ,students background, personality traits and gender .He found that student's background influenced their attitude towards science.

Wilson,(1983) reported that attitude towards science had large positive correlation .It is higher in 7-11 level students than elementary level.

Muhammad ,Anwar . & Hafiz ,Muhammad Iqbal (2012) noticed that girls had significantly higher attitude towards science than boys and career interest in science were slightly higher than girls .There was no significant variation between rural and Arban students.

Bennett and Hogarth (2008) suggested that attitude towards science most sharply between ages of 12-14 .

Potter and Pervin (2008) noted that student in UK ,there science curriculum in 9-14 too theoretical and related to everyday experience.

Jarvis ,Tine ,Pell and Anthony (2005) visit to the UK National space centre and noticed ,children showed more interest in space and moderate increases in their views about the value at science and society. 20% of them desire to become scientist in future .

The problem: Attitude towards science among secondary students .

The Objectives of the present study is follows :

- 1.To compare the attitude towards science on the basis of their gender.(male/female)
- 2 To compare the Environment awareness of secondary students on the basis of their gender.
3. To know the different level of attitude towards science in secondary students.
4. To find the different level of Environmental awareness in secondary students.

HYPOTHESIS OF THE PRESENT STUDY :

Ho1. Attitude towards science of secondary students do not differ significantly with Gender.

Ho2 Environmental awareness of secondary students do not differ significantly with Gender.

Variable : 1. Dependent variable - Attitude towards science, Environment awareness.

2. Independent variable - Gender

RESEARCH METHODOLOGY :

Research method - The researchers has adopted descriptive type survey research method.

Population- All the secondary students of secondary schools of Purba Bardhaman district, West Bengal are the population of the study.

Sample and Sample techniques- In the test which is constructed for the item analysis of 20 questions multiple choice test is given on 80 students (40 male and 40 female) in two high schools(1 Arban and 1 rural) at Purba Bardhaman district .Each question have five choice .In the test per item score is 5 which is the highest value .

Tool used : A self developed questionnaire was used by the research for the purpose of data collection.

Item analysis - It is a techniques through which items are valid and suited or selected for purpose and either eliminated or modified to suit the purpose -- Arun Singh

Item difficulty or D value - The formula used for computing this index for each item runs as below .

1. INDEX FOR ITEM DIFFICULTY = $A/N \times 100$

Where A= The number of students who answered the item correctly .

N= The total number of students who attempt the item .

| PERCENTAGE RANGE | INTERPRETATION |
|------------------|----------------|
| 0% - 33% | HARD |
| 33% - 67% | AVERAGE |
| 67% - 100% | EASY |

DIFFICULTY VALUE

| | |
|--------------------------------------|--------------------------------------|
| Item no 1 $36/80 \times 100 = 45$ | Item no11 $44/80 \times 100 = 55$ |
| Item no 2 $50/80 \times 100 = 62.5$ | Item no12 $20/80 \times 100 = 25$ |
| Item no 3 $18/80 \times 100 = 22.5$ | Item no 13 $20/80 \times 100 = 25$ |
| Item no 4 $38/80 \times 100 = 47.5$ | Item no 14 $24/80 \times 100 = 30$ |
| Item no 5 $48/80 \times 100 = 60$ | Item no 15 $44/80 \times 100 = 55$ |
| Item no 6 $36/80 \times 100 = 45$ | Item no 16 $34/80 \times 100 = 42.5$ |
| Item no 7 $24/80 \times 100 = 30$ | Item no 17 $20/80 \times 100 = 25$ |
| Item no 8 $28/80 \times 100 = 35$ | Item no 18 $40/80 \times 100 = 50$ |
| Item no 9 $40/80 \times 100 = 50$ | Item no 19 $20/80 \times 100 = 25$ |
| Item no 10 $18/80 \times 100 = 22.5$ | Item no 20 $52/80 \times 100 = 65$ |

RANGE OF F.V

0% --33%
33% -- 67%
67% --100%

MEANING

Difficult item
Acceptable item
Easy item

INTERPRETATION

Reconstructed the item
Acceptable and included
Excluded

2. INDEX OF ITEM DISCRIMINATION $= (A - B) / N/2$

Where A = The number of correct scores from the high scoring group (27%)

B= The number of correct scores from the low scoring group (27%)

N= The total number of students in the two groups.

DISCRIMINATING INDEX

| | |
|------------------------------------|--------------------------------------|
| Item no 1 $D.I = (14-6)/40 = .20$ | Item no 11. $D.I = (18-10)/40 = .25$ |
| Item no 2 $D.I = (18-10)/40 = .2$ | Item no 12 $D.I = (10-4)/40 = .15$ |
| Item no 3 $D.I = (12-2)/40 = .25$ | Item no 13 $D.I = (12-0)/40 = .30$ |
| Item no 4 $D.I = (20-8)/40 = .30$ | Item no 14 $D.I = (14-4)/40 = .25$ |
| Item no 5 $D.I = (14-6)/20 = .20$ | Item no 15 $D.I = (16-8)/40 = .20$ |
| Item no 6 $D.I = (14-4)/40 = .25$ | Item no 16 $D.I = (18-8)/40 = .25$ |
| Item no 7 $D.I = (12-4)/40 = .20$ | Item no 17 $D.I = (10-2)/40 = .20$ |
| Item no 8 $D.I = (12-4)/40 = .20$ | Item no 18 $D.I = (18-2)/40 = .40$ |
| Item no 9 $D.I = (14-8)/40 = .25$ | Item no 19 $D.I = (22-2)/40 = .50$ |
| Item no 10 $D.I = (22-4)/40 = .45$ | Item no 20 $D.I = (22-4)/40 = .45$ |

RANGE OF D.I

-1.00 to + .20

MEANING

Performance of higher
Scoring group is not better than or rejected

NEED

Item should be reconstruct

+ .20 to + 1.00

The item indicates discrimination

Accepted item effect properly.

3. Item internal consistency = Total correct answer score of an item / Total score of an item

| ITEM NO | INTENAL CONSISTENCY |
|------------|---------------------|
| Item no 1 | 0.6308 |
| Item no 2 | 0.50 |
| Item no 3 | 0.57 |
| Item no 4 | 0.38 |
| Item no 5 | 0.13 |
| Item no 6 | 0.30 |
| Item no 7 | 0.50 |
| Item no 8 | 0.63 |
| Item no 9 | 0.50 |
| Item no 10 | 0.64 |

Similarly, Item no 12 0.25, Item no 12. 0.55 , Item no 13 0.67
 Item no 14 0.69 , Item no 15 0.69, Item no 16 0.60 , Item no 17 0.59
 Item no 18 0.53 ,Item no 19 0.21 , Item no 20 0.68

4. Here in the test of 80 students

THE NORM VALUE = 76.92

So the result shows that the marks of the students so good .The result is above the 50% ,so easily says that student perform good in their ideal attitude towards science.

5. Now estimate a Reliability correlation coefficient for the whole test by making use of the SPEARMAN BROWN PROPHECY FORMULA

$$r = 0.85$$

Where r= Reliability correlation coefficient for the whole test

RELIABILITY COEFFICIENT

0.80 and above

0.70- 0.80

0.60-0.70

0.50 - 0.60

.050 or below

INTERPRETATION

Excellent Reliability. At the lever of the best.

Good for classroom test.Few items would be change.

This tests need to be supplemented by others by others measures .There are some items which could be improved.

Suggested need for revision of test unless it is quite short .

Questionable Reliability. This test should not contribute heavily to the course ,grade and it needs revision.

Techniques use for data collection- 1. Mean

2. SD

3. ' t ' test

RESULT AND DISCUSSION :

Ho1 . Attitude towards science of secondary students do not differ significantly with gender.

| GENDER | NUMBER | MEAN | SD | df | 't' calculate d value | 't' critical value at 0.05 level |
|--------|--------|-------|-------|-------|-----------------------|----------------------------------|
| Boys | 46. | 74.04 | 13.66 | 78 | 0.0165 | 1.99 |
| Girls | 34 | 80.82 | | 11.05 | | |

The null hypothesis remain accepted at 0.05 level of significance. The 't' calculated value is better than 't' critical value.

Ho2. Environmental awareness of secondary students do not differ significantly with gender.

| GENDER | NUMBER | MEAN | SD | df | 't' calculated value | 't' critical value at 0.05 level |
|--------|--------|-------|-------|----|----------------------|----------------------------------|
| Boys | 46 | 13.91 | 3.77 | 78 | 0.4640 | 1.99 |
| Girls | 34 | 14.66 | 3.526 | | | |

The null hypothesis retains accepted at 0.05 level of significance. The 't' calculated value is lower than 't'critical value.

3. Level of attitude towards science in secondary students.

TOTAL STUDENTS =80 (46 BOYS +34 GIRLS)

MEAN = 76.92

SD = 12.99

| RANGE | REMARKS | NO OF STUDENT. | PERCENTAGE. |
|-----------------|------------------|----------------|-------------|
| 63.93 or below. | Low attitude. | 08 | 10 |
| 63.94-89.90 | Average attitude | 58 | 72.5 |
| 89.91 or high | High attitude | 14 | 17.5 |

3.1. BOYS

| RANGE. | REMARKS | NO OF STUDENTS. | PERCENTAGE |
|-----------------|------------------|-----------------|------------|
| 60.38 or below. | Low attitude | 04. | 8.7 |
| 60.39-86.6 | Average attitude | 37 | 80.4 |
| 86.7 or high | High attitude | 05 | 10.9 |

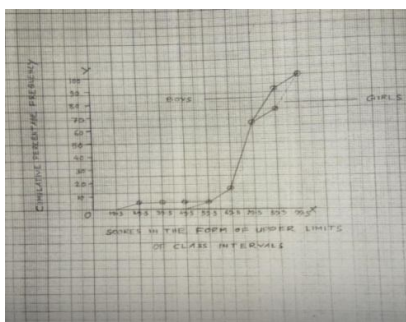
3.2. GIRLS

| RANGE | REMARKS | NO OF STUDENTS | PERCENTAGE |
|----------------|------------------|----------------|------------|
| 69.77 or below | Low attitude | 01. | 2.9 |
| 69.78-91.86 | Average attitude | 28. | 82.35 |
| 91.87 or high | High attitude | 05 | 14.7 |

4. Level of Environmental awareness in secondary students.

(on the basis of 4 Environmental awareness related item in the tool)

| RANGE | REMARKS | NO OF STUDENTS | PERCENTAGE |
|-----------------|------------------|----------------|------------|
| 10.71 or below. | Low attitude | 10. | 12.5 |
| 10.72-18.04 | Average attitude | 56. | 70 |
| 18.05 or high. | High attitude | 14. | 17.5 |



GRAPHICAL REPRESENTATION DATA THROUGH OGIVE

INTERPRETATION OF THE STUDY : The researcher collected data which was given by boys and girls of 80 students in class ix. After getting the data is converted into grouped data. The group data of 2 sets of row score are presented one OGIVE into a one graph page.

It clearly shows that in lower cumulative frequency is better boys than girls students.

It shows that higher cumulative frequency boys is better than girls as shows lower cumulative frequency.

In the range of (59.5--79.5) and cumulative frequency (15--65) results are same. There has no differences between boys and girls in their attitude.

CONCLUSION :

The study reveals that there is no relationship between attitude towards science in secondary students with their gender . The study shows that there is no relationship between Environmental awareness in secondary students with their gender. Girls shows slightly high level attitude towards science than boys.

Students past experience, background, personally trait, innovative thinking, laboratories and other related practical , modern technology work enhance students attitude towards science.

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