



# A Research of the Scientific Creativity Components of Higher Secondary School Students

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## Abstract:

*The paper is a study of the scientific creativity of standard 11<sup>th</sup> and 12<sup>th</sup> students due to various components (fluency, flexibility, originality, sex (male and female), and area (rural and urban) in the five zone of Gujarat state from ten districts. Random sampling procedure was used to select the sample, out of the sample 1600 male students and female students 1600 from Higher Secondary school students of five zone of Gujarat state from ten districts. The scientific creativity test was administered to the sample. Data were analyzed by using 't' test of significance for mean.*

*The findings revealed that however scientific fluency and flexibility of higher secondary school students of total male was higher than the female, total urban students was higher than the rural students and standard 12<sup>th</sup> students was higher than the standard 11<sup>th</sup> students' scientific fluency and flexibility of higher secondary school students.*

*The findings revealed that however scientific originality of higher secondary school students of total female was higher than the male, total urban students was higher than the rural students and standard 12<sup>th</sup> students was higher than the standard 11<sup>th</sup> students' scientific originality of higher secondary school students.*

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**Keywords:** Components, Creativity, Higher secondary school, Scientific creativity

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## 1. Introduction

Man's creation is one of the most powers which part him from man's world. Because of this power, man uses the main places in the living world. Man's creation has given the excellent place in the history of revolution. Man's scholastic development and progress is due to power of creation. Today's children are the maker of tomorrow's nation, so the children's creativity is the precious capital. Most of the scientists have experimented and invented of new thoughts had come before the age sixteen and rest of the inventions and principles are a mortal forms. Thus, to identify the creative child in the young age and inspires as well as develops child's creative atmosphere in the age of adults. It is very necessary for the progress of a person, society, nation and the world. It is also very necessary to identify the main creative power from the students and give a chance to inspire and develop it. This is an important responsibility of education.

## 2. Objectives of the Study

1. To study the effect of gender on the scientific creativity various components of the students studying in higher secondary school.
2. To study the effect of area on the scientific creativity various components of the students studying in higher secondary school.

- To study the effect of standard on the scientific creativity various components of the students studying in higher secondary school.

### 3. Hypotheses of the Study

- H<sub>01</sub>:** There will be no significant difference between mean score scientific fluency of male and female of higher secondary school.
- H<sub>02</sub>:** There will be no significant difference between mean score scientific fluency of urban and rural area students of higher secondary school.
- H<sub>03</sub>:** There will be no significant difference between mean score scientific fluency of Standard 11<sup>th</sup> and Standard 12<sup>th</sup> students of higher secondary school.
- H<sub>04</sub>:** There will be no significant difference between mean score scientific flexibility of male and female of higher secondary school.
- H<sub>05</sub>:** There will be no significant difference between mean score scientific flexibility of urban and rural area students of higher secondary school.
- H<sub>06</sub>:** There will be no significant difference between mean score scientific flexibility of Standard 11<sup>th</sup> and Standard 12<sup>th</sup> students of higher secondary school.
- H<sub>07</sub>:** There will be no significant difference between mean score scientific originality of male and female of higher secondary school.
- H<sub>08</sub>:** There will be no significant difference between mean score scientific originality of urban and rural area students of higher secondary school.
- H<sub>06</sub>:** There will be no significant difference between mean score scientific originality of Standard 11<sup>th</sup> and Standard 12<sup>th</sup> students of higher secondary school.

### 4. Variables of the Study

Variables of the present research study were:

**Table 1 Variables**

| Sr. No. | Type of Variables    | Variables under the Investigation         |
|---------|----------------------|---|
| 1       | Dependent Variable   | (i) Gender<br>(ii) Area<br>(iii) Standard |
| 2       | Independent Variable | Scientific creativity                     |

### 5. Delimitations of the Study

The study has been delimited to the students of Higher Secondary school of Gujarat State, who are studying during the year of 2012-13. The study has been delimited to the following variables of scientific creativity: (a) gender (2) Area (3) Standard

### 6. Research Method

#### 6.1 Sample

The random sample forty higher secondary school students were selected of five zone of Gujarat State from 10 districts. The investigator has employed random sampling technique for selecting the population.

#### 6.2 Tools of the Study

The investigator has self prepared scientific creativity test for higher secondary school students.

#### 6.3 Statistical Techniques

The collected data were processed with the help of 't' test.

**Table 2 Showing the mean differences between Scientific Fluency, Flexibility and Originality of total Male and total Female, Urban and Rural area, Standard 11 and Standard 12 of Higher Secondary School Students**

| Hypothesis            | Scientific Creativity Components | Group       | N    | Mean     | Median   | SD       | t-Value  | Significance |
|-----------------------|----------------------------------|-------------|------|----------|----------|----------|----------|--------------|
| <b>Ho<sub>1</sub></b> | Fluency                          | Male        | 1600 | 50.81563 | 52.58333 | 11.81595 | 2.034933 | 0.05 level   |
|                       |                                  | Female      | 1600 | 50.03375 | 51.90037 | 9.82809  |          |              |
| <b>Ho<sub>2</sub></b> | Fluency                          | Urban       | 1600 | 50.82125 | 52.1457  | 10.73106 | 2.064    | 0.05 level   |
|                       |                                  | Rural       | 1600 | 50.02813 | 52.292   | 11.0098  |          |              |
| <b>Ho<sub>3</sub></b> | Fluency                          | Standard 11 | 1600 | 49.33063 | 52.16324 | 11.59165 | 5.720225 | 0.01 level   |
|                       |                                  | Standard 12 | 1600 | 51.51875 | 52.22712 | 9.877662 |          |              |
| <b>Ho<sub>4</sub></b> | Flexibility                      | Male        | 1600 | 58.69625 | 56.56652 | 12.93836 | 2.976272 | 0.01 level   |
|                       |                                  | Female      | 1600 | 57.30125 | 57.15616 | 13.56919 |          |              |
| <b>Ho<sub>5</sub></b> | Flexibility                      | Urban       | 1600 | 59.24188 | 61.34227 | 13.58196 | 5.320537 | 0.01 level   |
|                       |                                  | Rural       | 1600 | 56.75563 | 53.93976 | 12.84176 |          |              |
| <b>Ho<sub>6</sub></b> | Flexibility                      | Standard 11 | 1600 | 56.6600  | 56.00398 | 13.37537 | 5.733862 | 0.01 level   |
|                       |                                  | Standard 12 | 1600 | 59.3375  | 57.52055 | 13.03787 |          |              |
| <b>Ho<sub>7</sub></b> | Originality                      | Male        | 1600 | 122.09   | 90.375   | 38.03474 | 3.370019 | 0.01 level   |
|                       |                                  | Female      | 1600 | 126.545  | 106.728  | 36.73479 |          |              |
| <b>Ho<sub>8</sub></b> | Originality                      | Urban       | 1600 | 126.3763 | 109.7203 | 39.0282  | 3.1138   | 0.01 level   |
|                       |                                  | Rural       | 1600 | 122.2588 | 88.7     | 35.70056 |          |              |
| <b>Ho<sub>9</sub></b> | Originality                      | Standard 11 | 1600 | 120.335  | 90.5     | 37.28684 | 6.048743 | 0.01 level   |
|                       |                                  | Standard 12 | 1600 | 128.3    | 107.2419 | 37.20272 |          |              |

## 7. Result and Discussion

**Ho<sub>1</sub>**: Reveals that t- value is 2.0349 which is significant at 0.05 level. Hence null hypothesis is rejected.

It means that the difference between two mean is significant.

**Ho<sub>2</sub>**: Reveals that t- value is 2.064 which is significant at 0.05 level. Hence null hypothesis is rejected.

It means that the difference between two mean is significant.

**Ho<sub>3</sub>**: Reveals that t- value is 5.7202 which is significant at 0.01 level. Hence null hypothesis is rejected.

It means that the difference between two mean is significant.

**Ho<sub>4</sub>**: Reveals that t- value is 2.976 which is significant at 0.01 level. Hence null hypothesis is rejected.

It means that the difference between two mean is significant.

**Ho<sub>5</sub>**: Reveals that t- value is 5.320 which is significant at 0.01 level. Hence null hypothesis is rejected.

It means that the difference between two mean is significant.

**Ho<sub>6</sub>**: Reveals that t- value is 5.73 which is significant at 0.01 level. Hence null hypothesis is rejected. It

means that the difference between two mean is significant.

**Ho<sub>7</sub>**: Reveals that t- value is 3.37 which is significant at 0.01 level. Hence null hypothesis is rejected. It

means that the difference between two mean is significant.

**Ho<sub>8</sub>**: Reveals that t- value is 3.11 which is significant at 0.01 level. Hence null hypothesis is rejected. It

means that the difference between two mean is significant.

**Ho<sub>9</sub>**: Reveals that t- value is 6.048 which is significant at 0.01 level. Hence null hypothesis is rejected.

It means that the difference between two mean is significant.

## 8. Findings

Here findings are given according to the objectives of the present study.

Scientific fluency of higher secondary school students of total male was higher than the female, total urban students was higher than the rural students and standard 12<sup>th</sup> students was higher than the standard 11<sup>th</sup> students' scientific fluency of higher secondary school students.

Scientific flexibility of higher secondary school students of total male was higher than the female, total urban students was higher than the rural students and standard 12<sup>th</sup> students was higher than the standard 11<sup>th</sup> students' scientific flexibility of higher secondary school students.

Scientific originality of higher secondary school students of total female was higher than the male, total urban students was higher than the rural students and standard 12<sup>th</sup> students was higher than the standard 11<sup>th</sup> students' scientific originality of higher secondary school students.

### 9. Conclusion

After the researcher knows that there is relationship between scientific creativity various components such as fluency, flexibility and originality of higher secondary schools sex (male and female); area (urban and rural) and standard (Standard XI and Standard XII).

We should make special efforts to develop scientific creativity various components such as fluency, flexibility and originality of higher secondary schools students. These types of programmes must be organized such as science seminar, science project and expert science lecturer for the Higher Secondary school students.

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