**International Journal of Research in Social Sciences**
**Vol. 9 Issue 4, April 2019,**
ISSN: 2249-2496 Impact Factor: 7.081
Journal Homepage: http://www.ijmra.us, Email: editorijmie@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

# GENDER DIFFERENCES IN LEARNING SCIENCE AND MATHEMATICS SUBJECTS: A STUDY OF SECONDARY SCHOOL STUDENTS

**Dr. MAHMOOD ALI***

**Abstract:***The present study primarily aimed at comparing the performance on secondary level students in Science and Mathematics on the basis of their gender. A sample of 200 students was selected by using purposive sampling technique. For data collection purpose researcher used Mathematics Achievement Scale and Science Achievement Scale. Mean, SD, t-test and Pearson's Product moment correlation used for data analysis purpose. Findings of the study revealed that statistically significant difference between achievement in Science and Mathematics. Researcher also found that no correlation between Science and Mathematics achievement of secondary school students.*

Key Words: Gender, Science Achievement, Mathematics Achievement, Secondary School Students.

* **Associate Professor, Department of Education, A.M.U., Aligarh,**

## Introduction

Education, is it really important? Yes, Education is really important to us. It is the knowledge of putting one's potentials to maximum use. We consider education as a very precious tool in life. It cannot be measured by money, fame and other things for we consider this as a key to success that disregards the stature in life and financial capabilities as long as there's the desire to achieve the goals we envision in life. One can safely say thathuman being is not in the proper sense till he is educated. Without education people wouldn't have their high developed skills and talents that would help them become successful both in our careers, family in making right decisions in life and to become aware of our environment.

Science and Mathematics are the parts of educational system which plays a pivot role in making a man rational and develop his independent thinking and help in removing the doubt, prevalent in the system in various forms. In view of modern development and its importance in today's world, the Science and Mathematics education has assumed a significant place in curriculum.

## Objectives

1. To see the difference in Science Achievement between male and female students of IX grades.
2. To see the difference in Mathematics Achievement between male and female students of IX grades.
3. To see the difference in Science and Mathematics Achievement between male students of IX grades.
4. To see the difference in Science Achievement between male and female students of IX grades.
5. To see the relation in Science and Mathematics male students of IX grades.
6. To see the relation in Science and Mathematics of female students of IX grades.

## Hypotheses

1. There is no significant difference in Science Achievement between male and female students of IX grades.

2. There is no significance difference in Mathematics Achievement between male and female students of IX grades.

3. There is no significant difference in Science and Mathematics Achievement between male students of IX grades.

4. There is no significant difference in Science Achievement between male and female students of IX grades.

5. There is no relation in Science and Mathematics male students of IX grades.

6. There is no relation in Science and Mathematics of female students of IX grades.

## Methodology

**Sample of the study:** A sample 200 students selected by using purposive sampling technique from IX grade students of A.M.U., Aligarh.

**Tools used for data collection purpose:** Two tools used for data collection purpose:

1. Mathematics Achievement Scale: Developed and standardized by researcher himself. The scale consisted of 20 items selected from NCERT class VI, VII and VIII books. Multiple Choice items are there. One mark for right answer and 0 for wrong.

2. Science Achievement Scale: Developed and standardized by researcher himself. The scale consisted of 20 items selected from NCERT class VI, VII and VIII books. Multiple Choice items are there. One mark for right answer and 0 for wrong.

**Statistical Techniques used for this study:** Mean, SD, t-test and Pearson's Product moment correlation used **for** the purpose data analysis.

## Analysis and Interpretation of data

**1. Gender wise significant difference in students' achievement in Science of IX$^{th}$grade:**

| Gender | N | Mean achievement score | % of mean achievement score | Standard deviation (SD) | t-value | Level of significance |
|---|---|---|---|---|---|---|
| Male | 100 | 16.41 | 80.7% | 2.818 | -6.852 | 0.05 |
| Female | 100 | 13.59 | 68% | 3.032 | | |

**Interpretation:** The above table shows that the mean of Science achievement score of male students is 16.41 and SD=2.818. In case of female students the mean Science achievement score

is 13.59 and SD=3.032.The statistically calculated value of t is -6.852which is significant at 0.05level. The result clearly indicated that there is significant difference between male and female students of Science achievement of IX grade. Therefore hypothesis is rejected at 0.05 level.

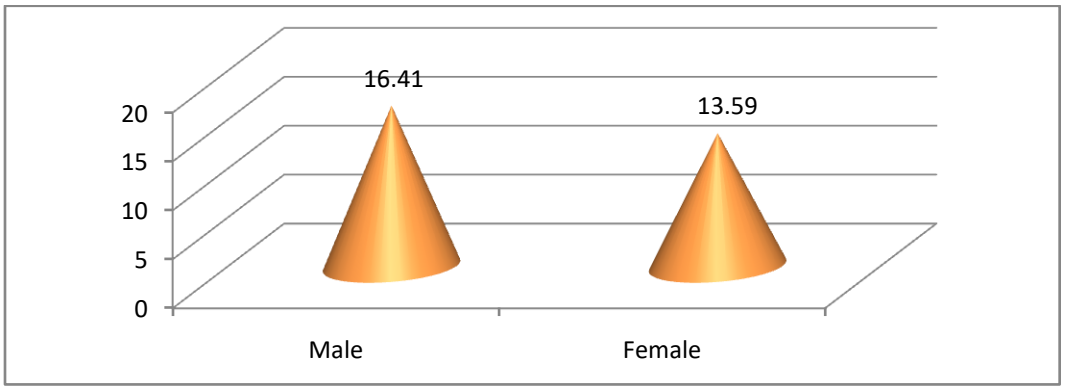


**Figure: Showing mean achievement score in Science male and female students of IX grade.**

**2. Gender wise significant difference in students' achievement in Mathematics of IX$^{th}$grade**

| Gender | N | Mean achievement score | % of mean achievement score | Standard deviation (SD) | t-value | Level of significance |
|---|---|---|---|---|---|---|
| Male | 100 | 16.56 | 82% | 3.006 | -8.05 | 0.05 |
| Female | 100 | 13.01 | 65.05% | 2.680 | | |

**Interpretation:** The above table shows that the mean of Mathematics achievement score of male students is 16.56 and SD=3.006. In case of female students the mean Mathematics achievement score is 13.01 and SD=2.680.The statistically calculated value of t is -8.05 which is significant at 0.05level. The result clearly indicated that there is significant difference between male and female students of Mathematics achievement of IX grade. Therefore hypothesis is rejected at 0.05 level.

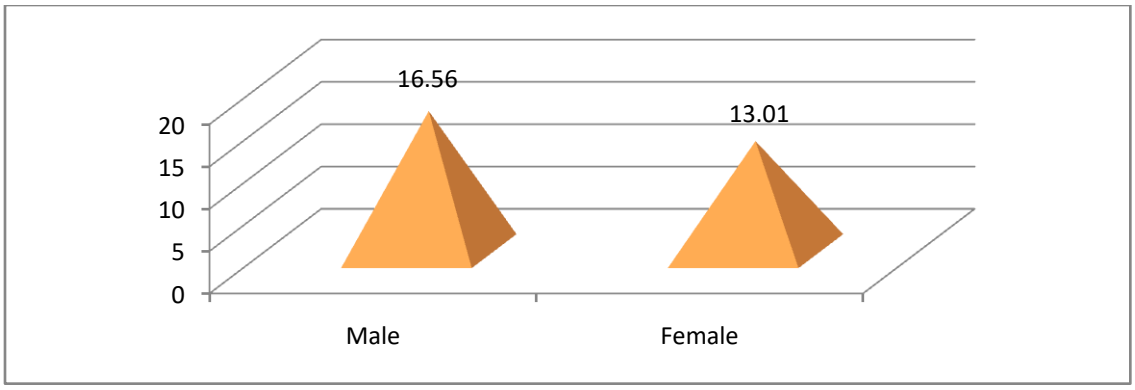


**Figure: 2 Showing mean achievement score in Mathematics male and female students of IX grade.**

**3. Significant difference in students' Achievement in Science and Mathematics of male students of IX grade.**

| Subject | N | Mean achievement score | % of mean achievement score | Standard deviation (SD) | t-value | Level of significance |
|---|---|---|---|---|---|---|
| Mathematics | 100 | 16.56 | 82.8% | 3.006 | 0.367 | 0.05 |
| Science | 100 | 16.41 | 82.05% | 2.818 | | |

**Interpretation:** The above table shows that the mean of Mathematics achievement score of male students is 16.56 and SD=3.006. In case of Science achievement score is 16.41 and SD=2.818.The statistically calculated value of t is -367 which more than tabulated value at 0.05 level of significant. The result clearly indicated that there is significant difference between Mathematics achievement score and Science achievement score of male IX grade. Therefore hypothesis is rejected at 0.05 level.

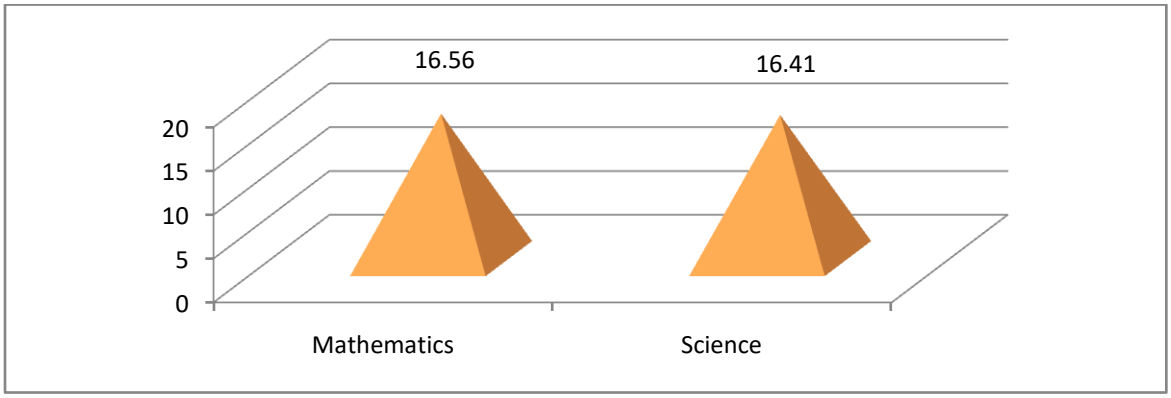

**Figure: 3 Showing mean achievement score in Mathematics and Science male students of IX grade**

**4. Significant difference in Students' Achievement in Science and Mathematics of Female students of IX grade.**

| Subject | N | Mean achievement score | % of mean achievement score | Standard deviation (SD) | t-value | Level of significance |
|---|---|---|---|---|---|---|
| Mathematics | 100 | 13.01 | 65.05% | 2.680 | -1.47 | 0.05 |
| Science | 100 | 13.59 | 68% | 3.032 | | |

**Interpretation:** The above table shows that the mean of Mathematics achievement score of female students is 13.01 and SD=2.680. In case of Science achievement score is 13.59 and SD=3.032.The statistically calculated value of t is -1.47 which more than tabulated value at 0.05 level of significant. The result clearly indicated that there is significant difference between Mathematics achievement score and Science achievement score of female IX grade. Therefore hypothesis is rejected at 0.05 level

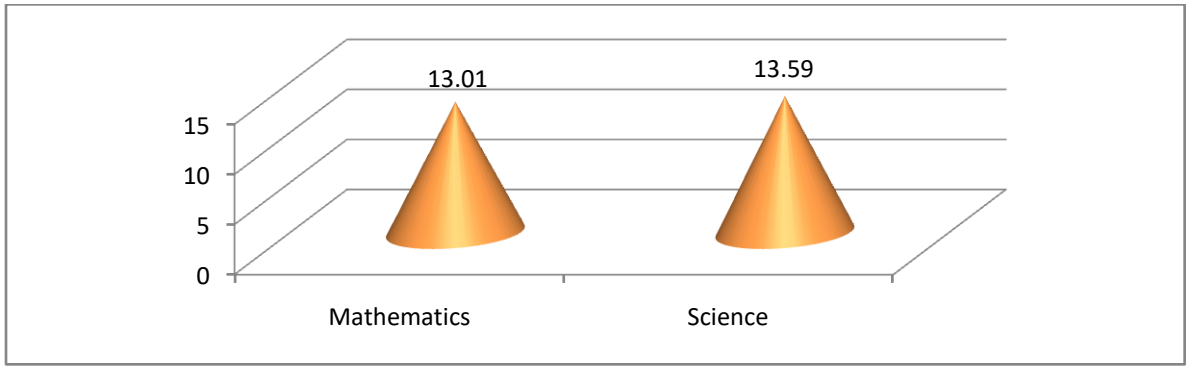


**Figure: 4Showing mean achievement score in Mathematics and Science female students of IX grade**

**5. Correlation in subject Science and Mathematics of male students of IX grade**

| Variables | Coefficient of correlation 'r' | Level of Significance |
|---|---|---|
| Science Achievement and Mathematics Achievement | 0.017 | Not Significant |

**Interpretation:** The statistically calculated value of Coefficient of correlation (r) is 0.017. It is being revealed that there is approximately no correlation between Mathematics achievement and Science achievement of IX grade male students. So hypothesis is accepted.

**6. Correlation in Science and Mathematics of female students of IX grade:**

| Variables | Coefficient of correlation 'r' | Level of Significance |
|---|---|---|
| Science Achievement and Mathematics Achievement | 0.061 | Not Significant |

**Interpretation:**The statistically calculated value of Coefficient of correlation (r) is 0.061. It is being revealed that there is approximately no correlation between Mathematics achievement and Science achievement of IX grade female students. So hypothesis is accepted.

## Findings and Conclusion

1. There exists a significant difference between male and female students in Science achievement. The male students have more achievement in Science their female counterpart.
2. There exists a significant difference between male and female students in Mathematics achievement. The male students have more achievement in Science their female counterpart.
3. There exists a significant difference between Science and Mathematics achievement of IX grade male students. The male students of IX class had shown equal performance in Science than Mathematics.
4. There exists a significant difference between Science and Mathematics achievement of IX grade female students. The female students of IX class had shown more performance in Science than Mathematics.
5. There exist approximately no correlation between Science and Mathematics achievement of male students of IX grade.
6. There exist approximately no correlation between Science and Mathematics achievement of female students of IX grade.

## References


- Anjum, S. (2017).Study of anxiety in relation to over and under achievement of girls Mathematics at high school level, unpublished M.Ed. dissertation, A.M.U., Aligarh.
- Azzolino, A (1998). "The language of Maths classroom" http:www.mathnstuff.com/papers/lags/pages.
- Campbell, J.R., and Beandry, S.J. (1998). Gender gap linked to differential socialization for high-achieving senior Mathematics students, *Journal of Educational research*, vol. 91, no. 3, pp. 140-147.
- Fennema, E., and Sherman, J. (1987). Sex-related differences in Mathematics achievement and related factors: a further study, *Journal for Research in Mathematics Education*, vol. 9, pp. 189-203.
- Hilton, T.L. and Berglund, G.W. (1974). Sex differences in Mathematics achievement: a longitudinal study, *Journal of Educational Research*, vol. 67, pp. 231-237.
- Rehman, A. (2003) Influencing of attitude, gender, parental education types of school and coaching and guidance on academic achievement in Mathematics of Vth grade students, unpublished M.Ed. dissertation.