
A Comparative Study of Academic Achievement of CG, CBSE and ICSE Girls Students in Raipur District

*Mrs. Gunjan Sharma, Research Scholar, Department of Education, Kalinga University, Naya Raipur, Chhattisgarh

**Dr. Aditya Prakash Saxena, Supervisor, Department of Education, Kalinga University, Naya Raipur, Chhattisgarh

***Dr. Harsha Patil, Department of Education, Kalinga University, Naya Raipur, Chhattisgarh

Abstract

This study investigates the comparative academic achievement of girl students enrolled in CG (Chhattisgarh State Board), CBSE (Central Board of Secondary Education), and ICSE (Indian Certificate of Secondary Education) schools in Raipur district. Academic achievement, recognized as a vital indicator of educational success and individual progress, is influenced by various psychological, social, and institutional factors. The research utilized a descriptive survey method with a sample of 300 girl students from 15 schools, employing standardized achievement test tools and statistical techniques such as t-tests and ANOVA for data analysis. Three hypotheses were tested to explore significant differences in academic achievement among the three educational boards. The findings revealed no significant difference in academic achievement between CG and CBSE, and between CG and ICSE girl students, suggesting parity in performance across these board patterns. However, a statistically significant difference was found between ICSE and CBSE girl students, indicating that board affiliation may have a measurable impact on performance levels between these two. The results highlight the need for continued investigation into board-level educational practices and their implications on student outcomes. Recommendations include fostering supportive learning environments, parental involvement, and tailored academic interventions to further enhance student achievement.

Key Words: Academic achievement, CG, CBSE and ICSE Students

Introduction

In the modern time, the main aim of education is overall development like physical, mental Emotion, Spiritual, Economical, academic performance. This study was conducted to study the relationship and effects of academic anxiety on the academic achievements of Students. Academic anxiety is one of the important factors to determining the academic achievement of the students and overall development of the students. So, there is need to manage academic anxiety to improve the academic performance. In today's world, getting a good education is one of the best ways to boost your own resources, expose yourself to more chances, and ultimately live a better life. Improving human capital, productivity, and labour remuneration is just as vital as facilitating the acquisition, absorption, and sharing of knowledge, which in turn improves people's quality of life. Education is held dear by the majority of the population as a purposeful end achievement in itself. Therefore for those persons who have been socially, economically and politically excluded, this intrusive factor of increased opportunities can acts as an eventual permanent solution to their plight.

Academic Achievement

Academic achievement holds a cardinal place in the field of education and is considered as the outstanding inducement for the progress of individuals. Academic achievement is the unique responsibility of all educational institutions to promote a wholesome scholastic development of the students. It helps the students to understand the hierarchy based on academic achievement. It is the most desirable outcome of school life. All the activities of school revolve around the scholastic achievement of the students. “Administrators, educators, curriculum planners, teachers and students work to make teaching-learning process feasible for academic excellence. Academic achievement is an index of success of students’ performance, teachers’ efforts and significance of curriculum and educational objectives.

Achievement in the educational situation has frequently been referred to as scholastic achievement or academic attainment. Achievement refers to the level of success and of proficiency attained in some specific area concerning academic work. In the present study, the term academic achievement has been used interchangeably. The world is becoming more and more cooperative. Quality of performance has become the key factor for personal progress, where achievement is a very important variable”.

Among the major developmental tasks confronting the children during the middle childhood years are the development of various intellectual and academic skills and the motivation to master them. “Academic or scholastic achievement has become an index of child’s future in this highly competitive world. It is only a drop in the vast sea of education and great many students would appear not to give themselves credit commensurate with their known or rated abilities. Many times students of undoubted average or abilities excel (Katyal and Bindra, 1995).

The outcome of education determines the level of life, progress and status of the people living anywhere in the world and it is the vital force for the development of human life and society at large. In India, with the march of democracy and the proposals for the compulsory free education at the elementary level as/and a different view of the scope and responsibility of educators has emerged. This goal is envisaged in maximizing the achievement of all children. Early research on the prediction of academic performance focused primarily on intelligence and ability factors as predictors”.

Moreover, achievement during the past and the present has been the main objective of the students. The parents and the teachers expect and try that the achievement of the students should be the highest. On the basis of the achievement, the child is graded and evaluated as high achiever or low achiever. The achievement of the child depends upon the main factors namely upon the child's interest, motivation, adjustment and reading interest. An achievement test used to measure the students' knowledge in a particular subject. How much a student has been benefitted from the learning experiences given to him, this can be evaluated with the help of the achievement test.

“The parents want that their children should climb the ladder of performance to a very high level. This desire for a very high-level achievement puts a lot of pressure upon the students, parents, teachers and schools. It appears that the whole system of education revolves around the academic

achievement of the students. A lot of time and efforts of the educational institutions are used for helping the students to achieve better in their achievement test. Academic achievement refers to the degree or level of success or the proficiency attained in some specific area concerning academic work. It is the student's performance on cognitive tests, according to the standard set for the class. It is a measure of what has been learnt in the academic area.

The development of human resources and maximum utilization of the resources are necessary for the growth and prosperity of any society, more so for a developing nation like ours. The institutions of learning especially the schools are the principal means of socialization to develop children into useful citizens so that they fit into adult roles and also different occupational roles. It is only children who are high in their scholastic achievement who can be molded to occupy strategic position in society and thereby determine the destiny of society (Manocha, 1993). Hence scholastic achievement occupies a very important place in education as well as in the learning process. High achievement in school creates self-esteem and self-confidence in the child. Grade placement whether in a 'slow' or 'fast' section - promotion and marks are the criteria by which children assess their academic achievement. Success is ego-inflating and failure is ego-deflating. Failure not only damages the self-concept but it encourages the development of patterns of behaviour that are harmful to personal and social adjustments. By contrast, success leads to favorable self concepts which in turn, lead to good personal adjustments and favorable social evaluations. These contribute heavily to good future adjustments (Bharati Devi, 1982).

The trend in the scholastic achievement, rate of drop outs, failures and low percentage of 10th and 12th standard students in the examinations was a question for the researcher to probe into the psychological factors that leads to poor achievement. "Children who are high achievers are not necessarily more intelligent than the low achievers (Hurlock, 1978). Intelligence provides insight and direction to the human potential for achieving the goal. Intelligence is related to the process of mental mechanism which is the best way to increase scholastic achievement of the children. Every child in the classroom has within himself a considerable range of talents, it is most important that the school offer a variety of avenues to success. A student's deficiency in academic subject is no reason to assume that he is completely lacking in talent. Every individual can be encouraged to identify and develop his talents to the highest level. The failure of the school to do this deprives the individuals' talents. (Dutt, 1998) Some of the factors may play a pivotal role in determining the success or failure of the students in their academic performance. The classroom tends to be an achievement-oriented settings in which children are urged to do well to meet the high standards of performance (Sud and Prabha, 2003)". "The school age child feels a necessity to develop intellectual skills as a part of a whole network of competencies which contribute to his sense of industry. His response to the experience of the moment, taking account of several aspects of the situation, weighing them, bringing in past experience, and even considering the future. If the child is not encouraged to develop his cognitive abilities and talents to the fullest extent his academic activities will be hindered. The Trend Report of Research in correlates of achievement in the 4th Survey of Research in Education, Vol. I, has revealed that a student is good in memorizing in certain facts, may not be so in practical calculations based on

reasoning. Sustained researches have to be carried out with reference to the different subject of study separately. Such researches may be of great help to the teachers”, school administrators, guidance counselors and other counseling worker putting the aspect clearly, in propagating of education as well as different subjects or study together. It may be said that intensive studies to find out these factors which contribute to achievement in different subjects at various levels have to be undertaken. This needs a planned effort, which calls for interested groups of researches to pull up their efforts to work successfully; in the area of achievement.

If we take a group of students, it is well known that a few students are found to be high achievers on the one hand, and a few are underachievers on the other, while maximum number of students usually appears as moderate achievers. What are the causes behind differences in achievement when the schools provide more or less uniform instructional and environmental facilities? Are these differences due to certain psychological factors or depend upon inherent qualities? Such questions often appear in the minds of educators, educationists and the psychologists. Various investigations have explored numerous factors which are found responsible for academic success and failure.

FACTORS AFFECTING ACADEMIC ACHIEVEMENT

Various investigations have explored numerous factors which are found responsible for academic achievement of an individual. These factors are:

1. School Environment: Dwivedi (2005) conducted a study on influence of school environment and academic achievement of students. The result indicated that the students scored significantly better academic achievement than poor school environment, the students were high approval seeker had significantly greater achievement than the students who were low approval seekers.
2. Gender: The relationship between gender and the academic achievement of students has been discussed for decades (Eitle, 2005). A gap between the achievement of boys and girls has been found, with girls showing better performance than boys in certain instances (Chambers & Schreiber, 2004).
3. Study Habits: Study habits are one of the major factors affecting academic achievement of the students. These are techniques which a student employs to go about his or her studies, which are consistent and have become stereotyped as a result of long application or practice.
4. Class-room size: Class room size has an effect on the academic performance of the student. It is now generally assumed that in the smaller class-rooms, where greater attention is given to each student, foster academic achievement.
5. Teacher: A teacher is the first and most important source of guidance for students. He can guide the student properly only when he understands student thoroughly. Achievement of students largely depends on guidance available to them.
6. Intellectual Abilities: It has been observed that in the absence of intellectual abilities high scholastic achievement is not possible. At the some time more presence of superior intelligence does not ensure higher achievement.

7. Socio-Economic Background: Socio-economic background of a child plays a significant role in academic achievement. Children coming from good socioeconomic background are often found to be academically better than those who come from poor socio economic background. Socio-economic background seems to influence a student's attitudes, values, motivation etc. and thus influencing his or her his academic achievement.
8. Previous Achievement: The best predictor of future academic achievement is past academic achievement. Research evidence indicates that high school grades correlated more highly with achievement in college than any other factor.
9. Attention and Interest: Meaningless tasks are not interesting and do not catch the attention of the students. To make the process of learning fast, attention and interest of the child is very important.
10. Parent- child relationship: Parent-child relationship has an impact on children's cognitive and language development. Authoritative parenting has been shown to be a significant predictor of self-efficacy and resilience and positively correlates with academic achievement.

Review of related literature

A research on students' self-concept, academic success, and drive to accomplish was carried out by **Gupta (2014)**. Purpose: This study set out to compare different socioeconomic groups of school-aged teenagers in terms of their self-concept, academic success, and drive to achieve. The sample consisted of 846 pupils drawn from 28 different schools in the Indian state of West Bengal. The results showed that out of six measures of self-concept, four of them showed a significant gender difference. There was no substantial gender difference, however, when it came to academic success and achievement drive. Students' academic performance varied greatly according to their caste. There were statistically significant variations in academic success and achievement motivation when controlling for father's education and employment, but no such difference when controlling for self-concept dimensions.

Arul and Deepa (2013) study focused on the link between students in high school and their academic achievement as influenced by their emotional intelligence conducted in the area of Kanyakumari. This study intended to identify a positive relationship between high school students' EI scores and by far its major achievement was the significant correlation between the two when various underlying factors were controlled. Data was collected from 400 pupils from the IX and X standards of the school. Conclusion: High school pupils' emotional intelligence had no discernible effect on their academic performance.

Yousefi et al. (2000) The study has addressed the association of test anxiety with academic achievement of the Iranian high school learners. Study reveals that there is a close association between test anxiety and achievement in the academic studies. Further, there is a considerable gender gap in academic performance, with women generally performing better than men.

Pomerantz et al, (2002) "Gender Differences in Academic achievement and Internal Distress" was the subject of researchers' investigation. The study's overarching goal was to deduce a gender gap trend. While girls outperformed males in all four areas, they were more likely to experience psychological turmoil. Internal discomfort was particularly common among girls who

were performing badly in school. But even academically gifted girls were at a higher risk than their male counterparts.

Objectives

1. To study the academic achievement of CG GIRLS and CBSE GIRLS students.
2. To study the academic achievement of CG GIRLS and ICSE GIRLS students.
3. To study the academic achievement of CBSE GIRLS and ICSE GIRLS students.

Hypotheses

Ho1 There will be no significant difference between academic achievement of CG GIRLS and CBSE

GIRL students.

Ho2 There will be no significant difference between of CG GIRLS and ICSE GIRLS students.

Ho3 There will be no significant difference between academic achievement of CBSE GIRLS and ICSE

GIRL students.

Variables of the study

Dependent Variable:

As part of this study, the dependent variable is - **Students of Different boards**

Independent Variable

For the purposes of this study, the independent variables are – **Academic Achievement**

Operational Definition of Problem

Academic Achievement: Scholastic achievement means the degree or measure up to which the learner has realized certain amount of learning goals that may be minor or major in his or her academic programme. It can be garnered from the grade point average for the students while for institutions, success can be measured using graduation rates.

State board Examination (CG): Madhyamik, Secondary State Certificate, and Higher Secondary Certificate are some of the names given to state board exams. The state education boards of CG are in charge of their administration and conduct.

CBSE Examination: Public and private schools in India are overseen by the Central Board of Secondary Education, more often known as the CBSE.

ICSE Examination: This is a private non-governmental body of education in India, conducting the examinations for Indian Certificate of Secondary Education better known as ICSE for students in tenth grade. In line with the suggestions made by the New Education Policy 1986 (India), it has been crafted to administer an English-medium test within the context of a general education course. Prior to 1986, it was associated with the French Board of Examination.

Limitations and Delimitations of Study:

In the present research the problem relating to Academic achievement of CG, CBSE and ICSE Board students have been studied.

To conduct this study, sample has been bounded by certain limitations under which following research has been done

- ✚ This study is limited to 15 schools; 300 Girls students are selected in Raipur city.
- ✚ For this study, the sample has been taken from a few CG, CBSE and ICSE School of Raipur District.
- ✚ For this study, students of the higher secondary level were samples.
- ✚ The age of Girls in the sample is 14 to 18 years.

Sampling

In this study we take 15 school of Raipur city. In this school we randomly selected 300 samples, Boys and Girls both are included in this sample.

Selection of Tools or Instrument:

For academic achievement AliImam, Gyan sing and S.P. singh Science Achievement test tool will be used.

Research method

Descriptive statistics, t-tests and ANOVA are used to draw conclusions.

TESTING OF HYPOTHESES:

H₀₁ There will be no significant difference between academic achievement of girl students of CG and CBSE Board Schools.

Table Number – 3

Results showing the Descriptive Statistics related to academic achievement of the Girl Students of CG and CBSE Board Schools

Academic Achievement	CBSE Board & CG Board	N	Mean	Standard Deviation	Standard Error Mean
	CBSE Board		100	47.74	15.65
CG Board		100	44.96	14.01	1.40

Graph Number – 3

Graph showing the Results of Descriptive Statistics related to academic achievement of the Girl Students of CG and CBSE Board Schools

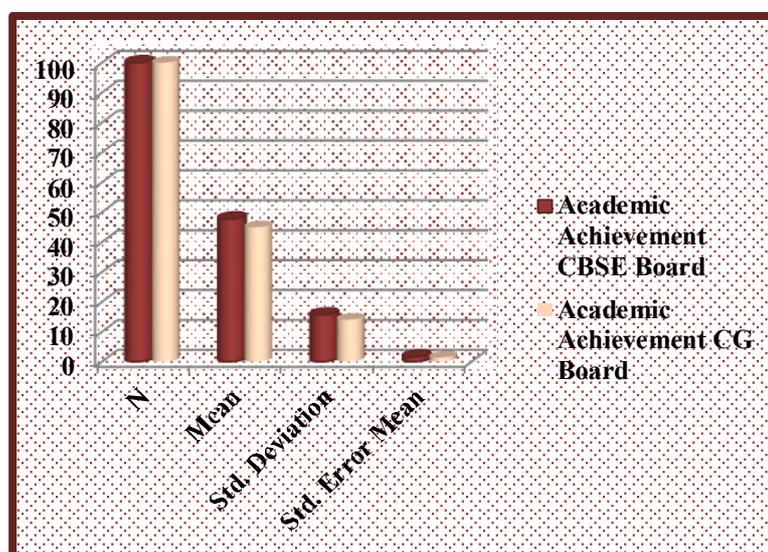


Table Number – 4

Results showing Independent Samples Test pertaining to Academic Achievement of the Girl Students of CG and CBSE Board Schools

Academic Achievement	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Standard Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
	3.21	.075	1.32	198	.187	2.78	2.10	-1.36	6.92

Graph Number – 4

Graph showing Independent Samples Test pertaining to Academic Achievement of the Girl Students of CG and CBSE Board Schools

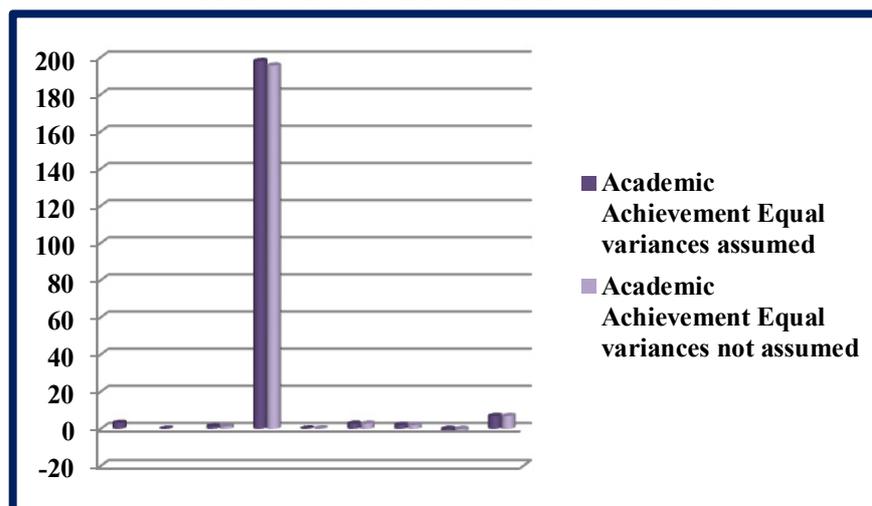


TABLE EXPLANATION

Table number – 3 and graph number – 3 shows the results of analysis of data pertaining to the academic achievement of the Girl Students of CG and CBSE Boards. In regard to the CBSE Board, the mean value, Standard Deviation and Standard Error Mean are found 47.74, 15.65 and 1.56 respectively. Likewise the mean value, Standard Deviation and Standard Error Mean are found 44.96, 14.01 and 1.40 respectively in regard to CG Board. It is clear from the table number – 4 and graph number - 4 that the in relation to the Academic Achievement of the Girl Students of CG and CBSE Boards, the value of Levene's Test for Equality of Variances is found 3.21, the value of mean difference is found 2.78 and the value of standard error difference is found 2.10.

RESULT

Table – 4 revealed that before applying independent t-test, homogeneity of variance was tested by using Levene's Test. It is found insignificant shows both the groups have homogenous variance. The value of t is found 1.32 that is found insignificant, shows no significant difference is found between the CG and CBSE Boards in relation to academic achievement.

CONCLUSION

The results obtained from the analysis of data discovered that no significant difference is found between the girl students of CG and CBSE Boards in relation to academic achievement which indicates the impartiality of both the board patterns. Hence it is inferred that there was no influence of the board patterns (CG and CBSE) on the academic achievement of the girl students.

H₀₂ There will be no significant difference between academic achievement of girl students of CG and ICSE Board Schools.

Table Number – 7

Results showing the Descriptive Statistics related to Examination Anxiety of the Girl Students of CG and ICSE Boards

	ICSE Board and CG Board	N	Mean	Standard Deviation	Standard Error Mean
Academic Achievement ICSE and CG Girls	ICSE Board	100	46.22	14.94	1.49
	CG Board	100	44.96	14.01	1.40

Graph Number – 7

Graph showing the Descriptive Statistics related to Examination Anxiety of the Girl Students of CG and ICSE Boards

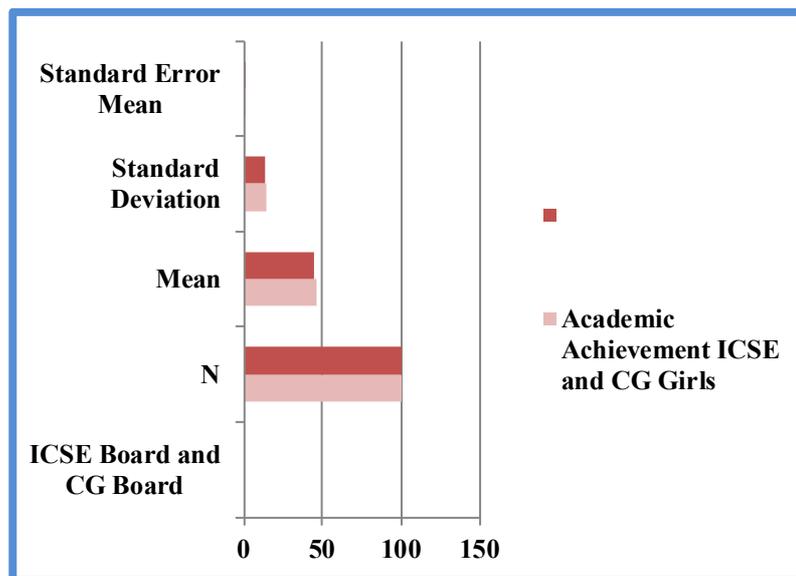


Table Number – 8

Results showing the Independent Samples Test pertaining to Academic Achievement of the Girl Students of CG and ICSE Board Schools

Academic Achievement ICSE and CG Girls	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Standard Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
	.82	.36	.61	198	.53	1.26	2.04	-2.78	5.30

Graph Number – 8

Graph showing the Independent Samples Test pertaining to Academic Achievement of the Girl Students of CG and ICSE Board Schools

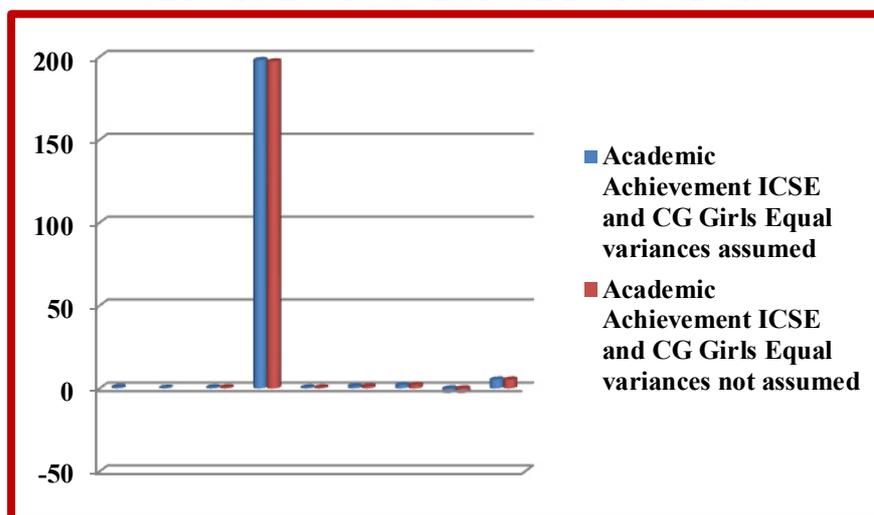


TABLE EXPLANATION

Table number – 7 and graph number – 7 shows the results of analysis of data pertaining to the academic achievement of the Girl Students of CG and ICSE Boards. In regard to the ICSE Board, the mean value, Standard Deviation and Standard Error Mean are found 46.22, 14.94 and 1.49 respectively. Likewise the mean value, Standard Deviation and Standard Error Mean are found 44.96, 14.01 and 1.40 respectively in regard to CG Board.

It is clear from the table number – 8 and graph number - 8 that the in relation to the academic achievement of the Girl Students of CG and ICSE Boards, the value of Levene's Test for Equality of Variances is found .82, the value of mean difference is found 1.26 and the value of standard error difference is found 2.04.

RESULT

Table – 8 revealed that before applying independent t-test, homogeneity of variance was tested by using Levene's Test. It is found insignificant shows both the groups have homogenous variance. The value of t is found .61 that is found insignificant, shows no significant difference is found between the CG and ICSE Boards in relation to academic achievement.

CONCLUSION

The results obtained from the analysis of data discovered that no significant difference is found between the girl students of CG and CBSE Boards in relation to academic achievement which indicates the impartiality of both the board patterns. Hence it is inferred that there was no influence of the board patterns (CG and ICSE) on the academic achievement of the girl students.

H₀₃ There will be no significant difference between academic achievement of Girl students of CBSE and ICSE Board Schools.

Table Number – 11

Results showing the Descriptive Statistics related to Academic Achievement of the Girl Students of CBSE and ICSE Board Schools

	ICSE Board CBSE Board	N	Mean	Standard Deviation	Standard Error Mean
Academic Achievement	ICSE Board	100	46.22	14.94	1.49
ICSE and CBSE girls	CBSE Board	100	47.74	15.65	1.56

Graph Number – 11

Graph showing the Descriptive Statistics related to Academic Achievement of the Girl Students of CBSE and ICSE Board Schools

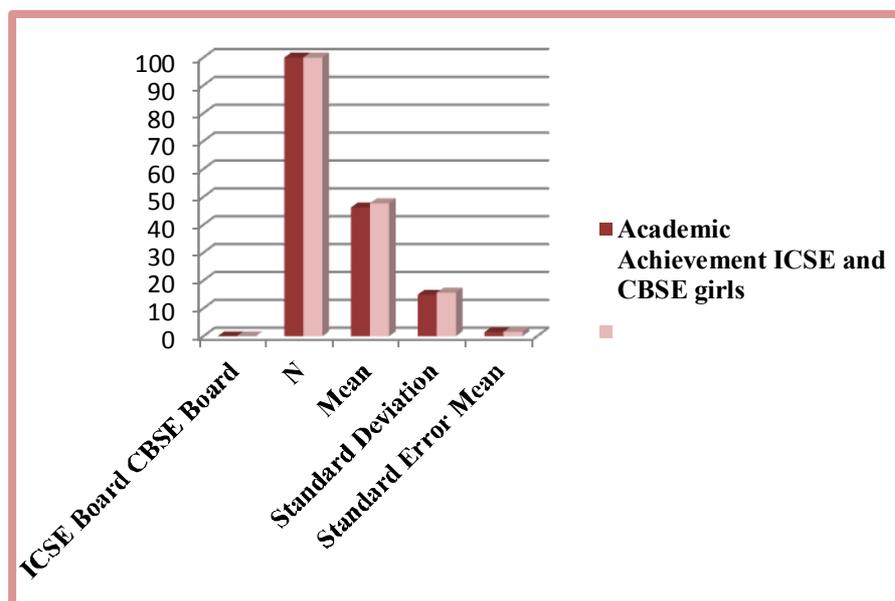


Table Number – 12

Results showing the related to Independent Samples Test pertaining to Academic Achievement of the Girl Students of ICSE and CBSE Board Schools

Academic Achievement ICSE and CBSE Girls	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2- tailed)	Mean Differenc e	Standard Error Differenc e	95% Confidence Interval of the Difference	
								Lower	Upper
	.748	.388	-.702	198	.483	-1.52	2.16	-5.78	2.74

Graph Number – 12

Graph showing the related to Independent Samples Test pertaining to Academic Achievement of the Girl Students of ICSE and CBSE Board Schools

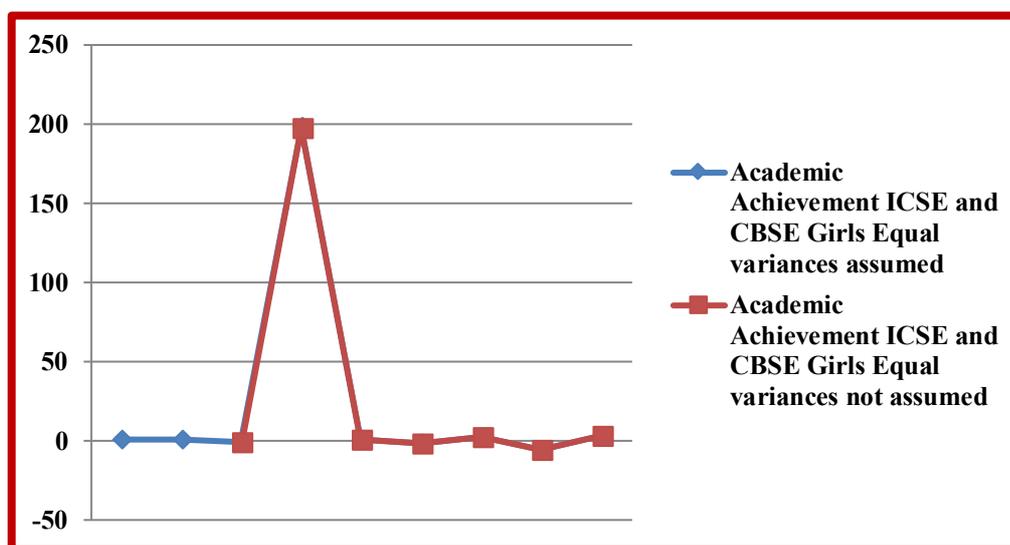


TABLE EXPLANATION

Table number – 11 and graph number – 11 shows the results of analysis of data pertaining to the academic achievement of the Girl Students of ICSE and CBSE Boards. In regard to the ICSE Board, the mean value, Standard Deviation and Standard Error Mean are found 46.22, 14.94 and 1.49 respectively. Likewise the mean value, Standard Deviation and Standard Error Mean are found 47.74, 15.65 and 1.56 respectively in regard to CBSE Board.

It is clear from the table number – 12 and graph number - 12 that the in relation to the academic achievement of the Girl Students of CG and CBSE Boards, the value of Levene's Test for Equality of Variances is found .748, the value of mean difference is found -1.52 and the value of standard error difference is found 2.16.

RESULT

Table – 12 revealed that before applying independent t-test, homogeneity of variance was tested by using Levene's Test. It is found significant shows both the groups have homogenous variance. The value of t is found -.702 that is found significant, shows significant difference is found between the ICSE and CBSE Boards in relation to academic achievement.

CONCLUSION

The results obtained from the analysis of data discovered that significant difference is found between the girl students of ICSE and CBSE Boards in relation to academic achievement which indicates the impartiality of both the board patterns. Hence it is inferred that there was influence of the board patterns (ICSE and CBSE) on the academic achievement of the girl students.

The findings of this study are as follows

First, the results obtained from the analysis of data discovered that no significant difference is found between the girl students of CG and CBSE Boards in relation to academic achievement which indicates the impartiality of both the board patterns. Hence it is inferred that there was no influence of the board patterns (CG and CBSE) on the academic achievement of the girl students. hence, 1nd hypothesis is proved.

Second, the results obtained from the analysis of data discovered that no significant difference is found between the girl students of CG and CBSE Boards in relation to academic achievement which indicates the impartiality of both the board patterns. Hence it is inferred that there was no influence of the board patterns (CG and ICSE) on the academic achievement of the girl students. hence, 2th hypothesis is proved.

Third, the results obtained from the analysis of data discovered that significant difference is found between the girl students of ICSE and CBSE Boards in relation to academic achievement which indicates the impartiality of both the board patterns. Hence it is inferred that there was influence of the board patterns (ICSE and CBSE) on the academic achievement of the girl students. hence, 3th hypothesis is rejected.

Suggestion

- Reward the student's efforts.
- Provide an organized, calming and supportive environment.
- For maximum effectiveness, foster feedback from youths about these interventions.
- It is important for behaviors to be reinforced at home as well as in school therefore parents should be involved in the treatment process.

Further studies can be done on

- ❖ A study of Academic Anxiety among children with learning problems compared to children who succeed academically.
- ❖ A study of the Children's Anxieties (age group 13) to their career self concepts after eight years.
- ❖ A study of the Academic Anxiety among children of working and non-working mothers.
- ❖ A study of Academic Anxiety among children from nuclear and joint families.
- ❖ A study of Academic Anxiety and its effect on academic achievement among primary students.
- ❖ A study of Academic Anxiety and its effect on academic achievement among middle school students.

References

- Agarwal R. R. (2004) '*A study of effect of teaching strategies in relation to creativity on conceptual learning of class XI students of commerce*', NCERT publication, New Delhi.
- Aggrawal, J.C. (2004). '*Psychology of learning and Development*', Shipra Publication, Delhi.
- Allen, D. W. and Ryan, K. A. (1969). *Microteaching*, reading. MA: Addison Wesley.
- Anastasi, A. (1982). *Psychological testing* (8th ed) New York : Macmillan Publishing Co. Inc.
- Ansari, A. M. (1984). *Construction and standardization of achievement tests in general Science for standards, V, VI and VII for children Studying through Hindi as the medium of Instruction in Greater Bombay*, Ph. D. (Education), Born. University.
- Asthana Dr Bipin, Shrivastava Dr Vijaya, Asthana Dr Nidhi, *Research methodology* (2012/2013) Agrawal Publication.

- Asthana, B. (2008), 'Measurement and Evaluation in Psychology and Education', Agrawal Publications, Agra.
- Bachhar, Subrata. "Academic achievement of education subject among high secondary level students in Nadia district, West Bengal." *International Journal of Advanced Education and Research*, Volume 2; Issue 3; May 2017: Page No. 258-261.
- Bachhar, Subrata. "Academic achievement of education subject among higher secondary level students of Nadia district, West Bengal." *International Journal of Advanced Education and Research*, volume 2; issues 3; May 2017: Page No. 258-261
- Batra, S. (2013). 'Effect of mathematical model on the mathematics achievement and reasoning ability of secondary school students'. Unpublished doctoral dissertation, Kurukshetra University, Kurukshetra.
- Bhatnagar, A.B., Bhatnagar, M. Bhatnagar, A., (2003), 'Educational Psychology'. R. Lal Book Dept. Meerut.
- Bloom, B. S. et al. (1956). Taxonomy of educational objectives, Cognitive Domain, New York : David, M. C. Key Cohc.
- Buch, M. B., & Buch, M. P. (1983). Review of studies on the determinants of outcomes at the first level of education with emphasis on disadvantaged, Bangkok, UNESCO-PROAP.
- Cronbach, L. J. & Murwin, J. C. (1960). A model for studying the validity of multiple choice items. *Educational and Psychological Measurement*, 22, 337-352.
- Ebel and Firsible (1991). *Essentials of Education Measurement* (5th ed.) New Delhi: prentice Hall India.
- Grills-Taquechel, A.E. Fletcher, J.M. Vaughn, S.R. & Stuebing, K.K. (2012). Anxiety and reading difficulties in early elementary school: Evidence for unidirectional – or bi-directional relations? *Child Psychiatry & Human Development*, 43, 35-47. Doi : 10.1007/s/10578-011-0246-1.
- Guilford, J.P. (1954). *Fundamental Statistics in Psychology and Education*. New York: McGraw- Hill.
- Kelley, T.L. (1939). The selection of upper and lower groups for the validation of test times. *Journal of Educational Psychology*, 30, 17-24.
- Kothari, C.P. (2009) '*Research Methodology Methods and Techniques*', New Age International Publishers, New Delhi.
- Minimum, W. E.; King, B.M. and Bear, G. (2005). *Statistical Reasoning in Psychology and Education*. New York: John Wiley & Sons.
- Natrajan. B (2015) "Study on anxiety level among school students undergoing higher secondary examination." *International journal of student's research in technology & management vol. 3(3)*.
- Nelson J.M. & Harwood, H. (2011). Learning disabilities and anxiety: A meta-analysis. *Journal of Learning Disabilities*, 44(1), 3-17. Doi: 10.1177/0022219409359939.
- Ojha, V. 2005. Academic Anxiety in Relation to Sex Role Orientation of Early Adolescents between Ages 13-15 Years. Unpublished M.Sc. Dissertation, Jodhpur: JNV University.
- Osica W (2008) Anger, Depression and anxiety in childhood and adolescents. *Journal of health professionals and Researchers*. Vol. 5: 20-24.