

IMPACT OF COMPUTER ACHIEVEMENT ON SCIENCE AND NON-SCIENCE SUBJECTS AND SOCIAL DEVELOPMENT OF SECONDARY STUDENTS OF WEST BENGAL

SARBARI DATTA ROY MALLICK* & DR. ARJUN CHANDRA DAS**

** Research Scholar, Dept. of Education, University of Kalyani, Kalyani, Nadia, W.B*

***Assistant Professor, Department of Education, University of Kalyani, Kalyani, Nadia, W.B*

INTRODUCTION:

The story of human existence can be properly explained in the term of distinctive stages of development of human communication. It is assumed that, the first stage was probably the Age of Sing and Signal. Now, we are in the Age of Mass Communication. This is a transition began with the emergence of Newspaper. Practically it can be said that the age of mass communication started in the 20th century with the invention of and wide spread adoption of film, radio and television.

But an invention and human adoption is not stopped. The new child is the computer and it is called an 'information society'. Computer and related technologies are reshaping our civilization. Change in civilization and change in ambience have direct effect on human development. The computer gives the notion of fast motion in man. This place has added something new in men in their thought and activity.

In the developed countries are brought under a focus, it will be found that computer is used vastly in perennial life. Some Implications are applicable so far as education system is concerned. For its versatile use every child is given computer lesson. When compared with developed countries our country does not convey a bright picture. But it will be wrong; to say there is no effort to spread the use and application of computer. We may, say about the pilot project on Computer literature studies in School (CLASS) which was initiated in 1984 – 85 in 284 selected Secondary / Higher Secondary schools jointly with the department of Economics. Sixty school teachers provide logistic support to the participating schools. Also Government of India launches some programmes to support the rural areas.

So it is found that in our country, Computer literature Programme was launched in 1980s and at the present moment it has spread vastly. Many people have not only become computer literate but also high profile of computer professionals. The fastness and pace of mind gives a new dimension to our society and has thereby brought a psychosocial changes as the changed mentality is bound to reflect on the social mirror.

Now a days, many educators, parents and legislators and researchers have expressed concern about the effectiveness of using computers in schools. A great deal of research has been conducted during 1970s, 1980s and early 1990s on the effect of computer use on students' achievements, attitudes and other variables such as learning rate.

In recent years, electronic games, home computer and the internet have assumed an important role in our lives. Many researchers try to discuss about the impact of time spent on computers as well as the activities engaged in. Research on the impact of computer use on cognitive skill and academic achievement, social development and relationships and perception of reality is received in many research works. The researcher tries to discuss here about *“impact of computer achievement on science and non science subjects and on social development of secondary students of West Bengal”*.

EMERGENCE OF THE STUDY:

Computer is a much known phenomenon in our everyday life. Students, basically those are in adolescent period, enjoy computer game very much. In fact, sometime they prefer to spend much time on computer games than play with peers. These computer games are mainly destructive in nature. How many you can kill or grasp is the prime and foremost idea of high scoring. Is this hampering their sociability and also academic achievement? This made curious the researcher.

Recently, at Virginia Tech University, a South Korean student named Cho killed many of his classmates and professors on April, 2007. People said that he was a psychic patient. But his destructive nature was hidden until this incident. His only friend was computer. He had no interest to make friends with others. He was a shy and gentle boy to his peers and relatives. They became stunned with his homicidal and suicidal activities. Researcher thought that was there no any influence of computer affinity on Cho?

Many research findings said that computer and sociability is positively correlated. The researcher wanted to know the actual picture of West Bengal where this new comer friend attracts our adolescents.

SIGNIFICANCE OF THE STUDY:

Based on the result of the study it will be understood whether, there is a change in social development of the students, which can be attributed to his/her computer learning abilities. Beside the students taking computer education should be monitored by their parents or guardians in some specific aspects – ability to be sociable, ability to adopt the cultures of the society, ability to develop relationship etc. from judicial point of view, it should also be observed that the computer must not be an obstacle before human social development.

The social development questionnaire constructs by the researcher would be helpful in measuring the social development of the secondary school students.

In the school, the teachers can use this questionnaire to identify the maladjusted students or the students suffering from any social problems, take every possible step to help them in serious cases the teacher might inform students' guardians and advice them to contact a psychiatrists or take adequate steps to overcome their students' problems.

The study would inspire future researchers to study different physical, social, psychological and cognitive changes which may occur due to interaction of different levels of students with computers.

OBJECTIVES OF THE STUDY:

Followings are the objectives of this study:

- 1) To measure computer achievement, academic achievement of science and non-science subjects and social development of the students of secondary level.
- 2) To measure the social development of girls and boys having computer as a school subject in secondary level.
- 3) To find out the difference of social development of secondary students among different strata.
- 4) To find out the difference of computer achievement of secondary students among different boards.
- 5) To correlate the social development and computer achievement of secondary students among different strata.
- 6) To correlate computer achievement and achievement of science and non-science subjects among different strata.

DELIMITATION OF THE STUDY:

The investigation might have been conducted with different facts like different types of schools, large sample, social values, sharing mentality of students, and students' interest towards community and so on. But due to short time span and other unavoidable circumstances, the researchers, in the following way, delimited the study:

- (a) **Population and Sample:** The population of the study included all the students of computer achievement of West Bengal. But the researcher delimited her study by taking sample from Kalyani only. The students of class VIII of four schools were selected for the administration of the questionnaire. Three of these schools were English medium and one is Bengali medium. One school is of CBSC Board, one is ICSC and other two were of WBBSE. One hundred seven of my samples were Bengali medium and two hundred nineteen were English medium students of both boys and girls from secondary school.
- (b) **Tools:** A Social Development Questionnaire for the students of class VIII was developed and standardized by the researcher. The researcher utilized the test retest method of measuring the value of reliability. The researcher used only such tool for measuring the social development. Research selected one broad effective domain, i.e. social development as the subject area for the tool. Within this broad domain she included seven dimensions for measure social development by the students.
- (c) **The variables:** In the study the researcher considered four variables, one is independent variable, i.e., computer achievement and other three are dependent variables, i.e., academic achievement of science and non-science development and Social Development.
- (d) **Hypotheses:** The researcher considered only fourteen Hypotheses in the study though could measure more.
- (e) **Statistical Measures:** The researcher calculated Mean and Standard Deviation as Descriptive Statistics and t-test and correlation as Inferential Statistics.

STATEMENTS OF HYPOTHESES:

Followings are the Hypotheses of the study:

- 0H_1) there exist no significant difference in the mean scores of computer achievement between male and female.
- 0H_2) there exist no significant difference in the mean scores of achievement of science subjects between male and female.

- ⁰H₃) there exist no significant difference in the mean scores of achievement in non-science subjects between male and female.
- ⁰H₄) there exist no significant difference in the mean scores of social development between male and female.
- ⁰H₅) there exist no significant difference in the mean scores of computer achievement between WBBSE and OTHER BOARDS.
- ⁰H₆) there exist no significant difference in the mean scores of achievement of science subjects between WBBSE and OTHER BOARDS.
- ⁰H₇) there exist no significant difference in the mean scores of achievement in non-science subjects between WBBSE and OTHER BOARDS.
- ⁰H₈) there exist no significant difference in the mean scores of social development between WBBSE and OTHER BOARDS.
- ⁰H₉) there exist no significant relationship between computer achievement and achievement of science subjects of other boards.
- ⁰H₁₀) there exist no significant relation between computer achievement and achievement of non-science subjects of other Board.
- ⁰H₁₁) there exist no significant relationship between computer achievement and social development of other boards.
- ⁰H₁₂) there exist no significant relationship between computer achievement and achievement of science subjects of WBBSE.
- ⁰H₁₃) there exist no significant relation between computer achievement and achievement of non-science subjects of WBBSE.
- ⁰H₁₄) there exist no significant relationship between computer achievement and social development of WBBSE.

PRESENTATION OF DATA:

After scoring Social Development test of the sample the researcher arranged the raw data according to different boards and these data were appended in appendix – VI.

The researcher took the data according to different strata, like male–female and WBBSE–Other Board. Then the researcher estimated different descriptive statistics (Mean and SD). The estimated values are shown in the table below:

TABLE: 1 Descriptive Statistics of Different Groups

GROUPS	COMPONENT	MEAN	SD
FEMALE	Computer Achievement	76.91	14.84
	Achievement in Science subjects	62.10	16.01
	Achievement in Non-science subjects	63.96	13.93
	Achievement in Social Development	195.38	17.89
MALE	Computer Achievement	71.55	16.66
	Achievement in Science subjects	58.18	16.04
	Achievement in Non-science subjects	56.77	13.24
	Achievement in Social Development	193.26	17.20
WBBSE	Computer Achievement	64.32	14.67
	Achievement in Science subjects	57.20	13.53
	Achievement in Non-science subjects	61.98	12.43
	Achievement in Social Development	192.11	21.20
OTHER BOARD	Computer Achievement	76.60	15.45
	Achievement in Science subjects	60.64	16.74
	Achievement in Non-science subjects	59.28	14.37
	Achievement in Social Development	194.77	16.30

ANALYSIS OF DATA:

Analysis of 't' test:

Table: 2 Determination of the significance of means scores in computer achievements of boys and girls of secondary students.

Measures	Female	Male
N	128	169
M	76.91	71.55
SD	14.84	16.66
SE_D	1.75	
t	3.06**	

** Significant at 0.01 level

Analysis: The ‘t’ value for the H_1 hypothesis is 3.06, which is significant at 0.01 level. So the corresponding Null Hypothesis is rejected.

Interpretation: As the table value was significant and the corresponding hypothesis (H_1) was rejected. So, it can be interpreted that there exist significant mean difference of computer achievement between male and female.

Table: 3 Determination of the significance of means scores in achievement of Science Subjects of boys and girls of secondary students.

Measures	Female	Male
N	128	169
M	62.10	58.18
SD	16.01	16.04
SE _D	1.86	
t	2.06**	

** Significant at 0.01 level

Analysis: The ‘t’ value for the H_2 hypothesis is 2.06, which is significant at 0.01 level. So the corresponding Null Hypothesis is rejected.

Interpretation: As the table value was significant and the corresponding hypothesis (H_2) was rejected. Therefore it can be interpreted that there exist significant mean difference of achievement of Science subjects between male and female.

Table: 4 Determination of the significance of means scores in achievement of Non-Science Subjects of boys and girls of secondary students.

Measures	Female	Male
N	128	169
M	63.96	56.77
SD	13.93	13.24
SE _D	0.69	
t	10.42**	

** Significant at 0.01 level

Analysis: The ‘t’ value for the H_3 hypothesis is 10.42, which is significant at 0.01 level. Hence the corresponding Null Hypothesis is rejected.

Interpretation: As the table value was significant and the corresponding hypothesis (0H_3) was rejected. So, it can be said that there exists significant mean difference of achievement of non- science subjects between male and female.

Table: 5 Determination of the significance of means scores in achievement of Social Development of boys and girls of secondary students.

Measures	Female	Male
N	128	169
M	195.38	193.26
SD	17.89	17.20
SE _D	2.06	
t	1.03*	

* Not significant at 0.05 level

Analysis: The 't' value for the 0H_4 hypothesis is 1.03, which is not significant at 0.05 level, the table value is 1.97. So the corresponding Null Hypothesis is accepted.

Interpretation: As the table value was not significant and the corresponding hypothesis (0H_4) was accepted. Therefore it can be said that there is no significant mean difference of Social Development between male and female

Table: 6 Determination of the significance of means scores in Computer Achievement of WBBSE and OTHER BOARD of secondary students.

Measures	WBBSE	OTHER BOARD
N	231	66
M	76.68	64.32
SD	15.45	14.67
SE _D	2.07	
t	5.93**	

** Significant at 0.01 level

Analysis: The 't' value for the 0H_5 hypothesis is 5.93, which is significant at 0.01 level. Hence the corresponding Null Hypothesis is rejected.

Interpretation: As the table value was significant and the corresponding hypothesis (0H_5) was rejected. Now, it is said that there exist significant mean difference of computer achievement between WBBSE and OTHER BOARD.

Table: 7 Determination of the significance of means scores in achievement of Science Subjects of WBBSE and OTHER BOARD of secondary students.

Measures	WBBSE	OTHER BOARD
N	231	66
M	60.64	57.20
SD	16.74	13.53
SE _D	1.99	
t	1.73*	

*Not significant at 0.05 level

Analysis: The 't' value for the 0H_6 hypothesis is 1.73, which is not significant at 0.05 level, the table value is 1.97. So the corresponding Null Hypothesis is accepted.

Interpretation: As the table value was not significant and the corresponding hypothesis (0H_6) was accepted. So, it can be interpreted that there exist no significant mean difference of achievement of science subjects between WBBSE and OTHER BOARD

Table: 8 Determination of the significance of means scores in achievement of Non-Science Subjects of WBBSE and OTHER BOARD of secondary students.

Measures	WBBSE	OTHER BOARD
N	231	66
M	59.28	61.98
SD	14.37	12.43
SE _D	1.79	
t	1.51*	

*Not significant at 0.05 level

Analysis: The 't' value for the 0H_7 hypothesis is 1.51, which is not significant at 0.05 level, the table value is 1.97. So the corresponding Null Hypothesis is accepted.

Interpretation: As the table value was not significant and the corresponding hypothesis (0H_7) was accepted. Now, it can be interpreted that there exist no significant mean difference of achievement of non-science subjects between WBBSE and OTHER BOARD.

Table: 9 Determination of the significance of means scores in achievement of Social Development of WBBSE and OTHER BOARD of secondary students.

Measures	WBBSE	OTHER BOARD
N	231	66
M	194.77	192.11
SD	16.30	21.20
SE _D	2.82	
t	0.94*	

*Not significant at 0.05 level

Analysis: The 't' value for the 0H_8 hypothesis is 0.94, which is not significant at 0.05 level, the table value is 1.97. So the corresponding Null Hypothesis is accepted.

Interpretation: As the table value was not significant and the corresponding hypothesis (0H_8) was accepted. Hence, it can be interpreted that there exist no significant mean difference of achievement of Social Development between WBBSE and OTHER BOARD.

ANALYSIS OF CORRELATION:

Table: 10 Determination of significance of relationship between Computer achievement and achievement in Science subjects of OTHER BOARD.

Measures	Computer Achievement	Achievement in Sc. Sub.
N	66	
r	0.76**	

** Significant at 0.01 level

Analysis: The coefficient of correlation between the computer achievement and achievement in Science subjects is 0.76 which is greater than table value. So, the null hypothesis is rejected.

Interpretation: The coefficient of correlation between the Computer achievement and achievement in Science subjects was greater than the table value. The corresponding hypothesis (0H_9) is rejected. So, researcher can be

interpreted that there exist significant relationship between Computer achievement and achievement in Science subjects of OTHER BOARDS.

Table: 11 Determination of significance of relationship between Computer achievement and achievement in Non-science subjects of OTHER BOARD.

Measures	Computer Achievement	Achievement in Non-sc. Sub.
N	66	
r	0.79**	

** Significant at 0.01 level

Analysis: The coefficient of correlation between the computer achievement and achievement in Non-science subjects is 0.79 which is greater than table value. So, the null hypothesis is rejected.

Interpretation: The coefficient of correlation between the Computer achievement and achievement in Non-science subjects was greater than the table value. The corresponding hypothesis (H_{10}) is rejected. So, researcher can be interpreted that there exist significant relationship between Computer achievement and achievement in Non-science subjects of OTHER BOARDS.

Table: 12 Determining the significant relationship between Computer achievement and Social Development of OTHER BOARD.

Measures	Computer Achievement	Social Development
N	66	
r	0.24**	

** Significant at 0.01 level

Analysis: In this table it is found that the value of 'r' is 0.24 of computer achievement and Social Development which greater than table value .So , the null hypothesis is rejected. **Interpretation:** The coefficient of correlation between the Computer achievement and achievement in Social Development was greater than the table value. The corresponding hypothesis (H_{11}) is rejected. So, researcher can be interpreted that there exist significant relationship between Computer achievement and achievement in Social Development of OTHER BOARDS.

Table: 13 Determination of significance of relationship between Computer achievement and achievement in Science subjects of WBBSE.

Measures	Computer Achievement	Achievement in Sc. Sub.
N	231	
r	0.42**	

** Significant at 0.01 level

Analysis: In the table 13, the 'r' value of computer achievement and achievement in Science subjects of WBBSE students is 0.42 which is greater than table value. Hence the null hypothesis is rejected.

Interpretation: The coefficient of correlation between the Computer achievement and achievement in Science subjects was greater than the table value. The corresponding hypothesis ($^0H_{12}$) is rejected. So, researcher can be interpreted that there exist significant relationship between Computer achievement and achievement in Science subjects of WBBSE.

Table: 14 Determination of significance of relationship between Computer achievement and achievement in Non-science subjects of WBBSE.

Measures	Computer Achievement	Achievement in Non-sc. Sub.
N	231	
r	0.47**	

** Significant at 0.01 level

Analysis: In the table 14, the 'r' value of computer achievement and achievement in Science subjects of WBBSE students is 0.47 which is greater than table value. Hence the null hypothesis is rejected.

Interpretation: The coefficient of correlation between the Computer achievement and achievement in Non-science subjects was greater than the table value. The corresponding hypothesis ($^0H_{13}$) is rejected. So, researcher can be interpreted that there exist significant relationship between Computer achievement and achievement in Non-science subjects of WBBSE.

Table: 15 Determining of the significant relationship between Computer achievement and achievement in Social Development of WBBSE.

Measures	Computer Achievement	Social Development
N	231	
r	0.03*	

* Not significant at 0.05 level

Analysis: In the table 15, the value of coefficient of correlation is 0.03 which is lesser than table value. So the null hypothesis is accepted. T

Interpretation: The coefficient of correlation between the Computer achievement and achievement in Social Development was lesser than the table value. The corresponding hypothesis ($^0H_{14}$) is accepted. So, researcher can be interpreted that there exist no significant relationship between Computer achievement and achievement in Social Development of WBBSE.

FINDINGS:

The researcher had formulated fourteen hypotheses. Thus it can be concluded from the study that:

- a) There exists significant mean difference of computer achievement between male and female.
- b) There exists significant mean difference of achievement in Science subjects between male and female.
- c) There is significant mean difference of achievement in Non-science subjects between male and female.
- d) There exists no significant mean difference in social Development between male and female.
- e) There is significant mean difference of computer achievement between WBBSE and other board.
- f) There is no significant mean difference in the case of achievement in science subjects between WBBSE and other board.
- g) There is no significant mean difference of achievement in non-science subjects between WBBSE and other board.
- h) There exists no significant mean difference of social development between WBBSE and other board.
- i) There exists significant relationship between computer achievement and social development of OTHER BOARD.
- j) There exists significant relationship between computer achievement and achievement in science subjects in case of OTHER BOARD.

- k) There exists significant relationship between computer achievement and achievement in non-science subjects in case of OTHER BOARD.
- l) There exists significant relationship between computer achievement and achievement in science subjects in case of WBBSE.
- m) There exists significant relationship between computer achievement and achievement in non-science subjects in case of WBBSE.
- n) There exists no significant relationship between computer achievement and social development of WBBSE.

CONCLUSION:

From the findings of the whole study it could be concluded that there is no significant difference between male and female of achievement in Science, Non-science, Computer and Social Development.

Also there exist no significant difference between WBBSE and OTHER BOARD of achievement in Science, Non-science and Social Development. But in the case of achievement in computer is significantly different between the boards.

The researcher also concluded that computer achievement has relationship with achievement of science and non-science subjects in case of WBBSE and OTHER Board. In this study it was observed that the values of correlation between computer achievement and achievement in science and non-science subjects of OTHER BOARD were 0.76 and 0.79 respectively, where in the case of WBBSE these two values were 0.42 and 0.47 respectively. So, it could be said that the relationship between computer achievement and achievement in science subjects and also computer achievement and achievement in non-science subjects were higher of OTHER BOARD than WBBSE. Though there exists significance relationship between Computer achievement and Social Development of other board, but these two have no relationship in the case of WBBSE.

REFERENCES:

1. Bhatia R.L. and B.N. Ahuja: School Organization and Management. Surajeet Publication, 3rd ed.2002
2. Mangal. S.K.: Advanced Educational Psychology, Prentice Hall of India Pvt. Ltd., 2nd Ed. 2003.
3. MANGAL S. K.: Statistics in Psychology and Education, Prentice Hall of India Private Limited, New Delhi, 2nd Ed, 2005.
4. Sharma. R.N: Philosophy and Sociology of Education, Surajeet Publication, 3rd Ed. 2003.

5. KOTHARI C.R.-RESEARCH METHODOLOGY: Method &Techniques, WISHWA PRAKASHAN, New Delhi.2nd Ed, And 17th Reprint: 1997.
6. Marshall Gordon: A Dictionary of Sociology, Oxford University Press, New York, 2nd ed. 1998.

Internet site:

1. Angrist. Joshua, victor lavy (2001); New Evidence on Classroom Computers and pupil Learning. The institute for the Study of Labour Bonn. Discussion Paper No-362<<http://www.iza.org/html>.>
2. Alliance for Childhood<[http://www. Alliance for childhood.org / projects / computers / computers reports fools gold contents/ html](http://www.Allianceforchildhood.org/projects/computers/computersreportsfoolsgoldcontents/html).>