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## **Students Attitude towards using Computer and their Achievement in Computer Application**

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### **Abstract**

*Present study shows the students' attitude towards using Computer & their Achievement in Computer Application. The main objective of this study is to find out the relationship between attitude towards using Computer and Achievement in Computer Application of XI standard students of West Bengal. Descriptive Research Methodology with survey technique has been used in the present study. The present study is quantitative in nature. The researcher has taken 200 samples for this study from 4 districts of West Bengal. An Attitude Scale and an Achievement Test was made to collect data. After analysis the data, it is shown that a very high positive correlation exists between attitude towards using Computer and Achievement Test in Computer Application.*

***Key Words: Attitude, Achievement, Attitude Scale, Achievement Test, Computer Application, XI Standard Students.***

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**Introduction:** Computer is one of the most useful and powerful tool for everyone. As the changes of world is becoming very fast, computers have occupied a powerful place in both societal and educational purpose. Every dimension of modern life involves computer in some way or another. People who do not have any experience about computers face great difficulty in their daily work. Students of all ages require the help of computers to stay up to date. Luckily, most students over the past few decades have had many chances to learn about computers in school. Thus computer education has come to be accepted as an essential element of modern scientific era.

In the present day, the use of computer has great contribution in teaching and learning process, as it facilitates effective teaching and learning. Though it has a lot of applications in various fields, it also has great applications in the field of Education. The use of computers in education opens a new area of knowledge and offers a tool that has the potential to change some of the existing educational methods. The growth and development of computer is really amazing and has a lot of applications in the learning process. It is necessary for every student to know the applications of computer in learning process. If the students develop positive attitude towards the use of computer in learning, then they may try to make use of this technology often in learning and it will in turn make the learning process simple and effective. In modern era, computer helps every student to use their ability to assimilate, evaluate and apply the available information using computers.

National Policy on Education (1992) provided scope for every student to select their own subject of their interest from the list of different subjects available at higher secondary syllabus. National Curriculum Framework (2005) stated that computers and communication technology is a way of

living which provided enough scope for spreading out into unknown realm of computer activity that may emerge in the future.

Attitude is one of the determining factors in predicting people's behavior. That is to say by understanding an individual's attitude towards something, one can predict with high precision the individual's overall pattern of behavior to the object (Ajzen & Fishbein, 1977). Attitude has been defined as "a learned predisposition to respond positively or negatively to a specific object, situation, institution, or person" (Yushau, 2006). Therefore, attitude affects people in everything they do and in fact reflects what they are, and hence a determining factor of people's behavior (Yushau, 2006). Computer attitude has been defined as a person's general evaluation or feeling of favour or antipathy toward computer technologies and specific computer related activities (Smith, Caputi and Rawstorne, 2000).

Computer attitude usually encompasses on users' interaction with computer hardware, computer software, and other persons relating to computers, and activities that involve computer use. Computer-related activities examined are either single instances of behavior (e.g. specific software use) or classes of behavior (e.g. attaining computer related courses)

Wrightstone (1964) stated that attitudes are important in education and they affect learning efficiency. Developing a favourable attitude towards the subject one studies is very important for making one really interested in it. Unless students possess a favourable attitude towards study of Computer Science, they may not be interested in its study, which in turn will affect their learning efficiency. As learning efficiency has been found to reflect on their achievement in Computer Science, the study of higher secondary students' attitude towards computer has been chosen as an independent variable in the study.

Scholastic achievement is related to the acquirement of principles and generalization and the capacity to perform efficiently certain manipulations of objects, symbols and ideas. Measurement of academic performance has been largely confine to the evaluation in terms of information, knowledge and understanding.

Academic Achievement is based on Instructional Objectives which are highly specific and quantifiable. According to Bloom, the Instructional Objectives fall into three domains. They are (a) Cognitive (b) Affective (c) Psychomotor. *Cognitive domain* includes all those activities usually thought of as mental functions, such as the acquisition of knowledge, comprehension, application, analysis, synthesis and evaluation. *Affective Domain* which is based on the principle of 'internalization', contains the following: receiving, responding, valuing, organizing and characterizing. *Psychomotor Domain* is the manipulative or the motor skill area which has seven major categories as perception, set, guided response, mechanism, complex overt response, adaptation and origination.

Thus Academic Achievement includes the Cognitive, Affective and Psychomotor components. But normally in schools, only certain aspects of the cognitive component are measured through examinations to indicate the academic achievement of students. The practical examinations are also designed to test the knowledge of the skills and not the skills. So the Affective components of learning need proper attention in our schools. The major use of achievement tests is assessing the amount of learning that has taken place in students. It also provides a good source of guidance to the high and low achievers and thereby helps a teacher to design remedial programme.

## Objectives of the study

The following are the objectives formulated for the present study:

- To study the level of Attitude towards using Computer of Higher Secondary students.
- To study the level of Achievement of Higher Secondary students in Computer Application.
- To study the nature of the relationship existing between the Achievement in Computer Application and their Attitude towards Computer.

**Hypotheses:** On the basis of the insights gained from review of related literature on Indian and foreign study, the present researcher has formulated the following hypotheses for verification:

**H<sub>01</sub>:** There would be no significant difference between Boys and Girls in their attitude towards using computer.

**H<sub>02</sub>:** There would be no significant difference between the students belonging to the Rural and the urban areas in their attitude towards using computer.

**H<sub>03</sub>:** There would be no significant difference between the students of Arts group and the students of Science group in their attitude towards using computer.

**H<sub>04</sub>:** There would be no significant difference between Boys and Girls in their score in Achievement in Computer Application.

**H<sub>05</sub>:** There would be no significant difference between the students belonging to the Rural and the urban areas in their scores in Achievement in Computer Application.

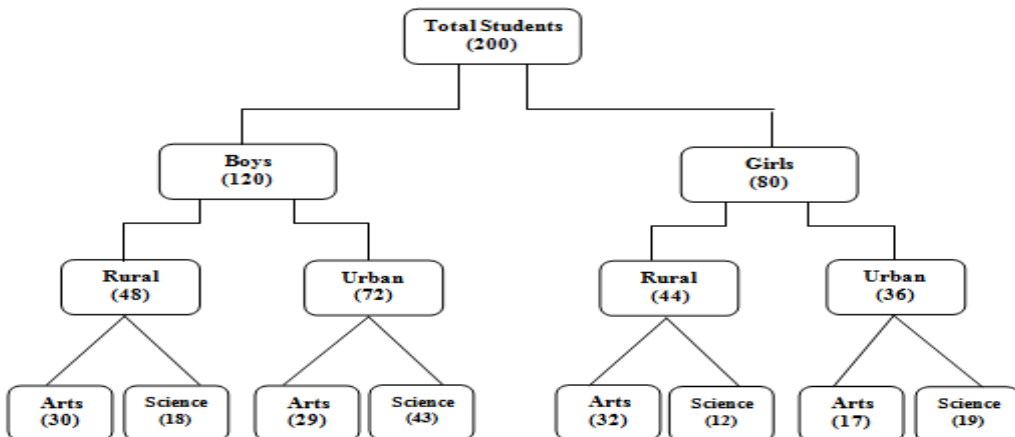
**H<sub>06</sub>:** There would be no significant difference between the students of Arts group and the students of Science group in their score in Achievement in Computer Application.

**H<sub>07</sub>:** There would be no significant relationship between Achievement in Computer Application of Higher Secondary students and their Attitude towards Computer.

## Methodology of the Study

**Sample frame for students:** Simple Random sampling technique has been used in the selection of the sample of 200 students studying at (Standard XI Bengali Medium) Higher Secondary schools situated in different districts of West Bengal, India.

**Figure 1.1: Sample Frame**



**Variables:** The following are the variables used for the present study:

### A. Major Variables

- Attitude towards using Computer
- Achievement in Computer Application

## B. Demographic Variables

- Gender : Boys / Girls
- Locality: Urban / Rural
- Discipline: Arts / Science

## Tools

Two tools have been used in the present investigation. They are as follows:

- Attitude Towards using Computer Scale (ATC)
- Achievement Test in Computer Application (ACA)

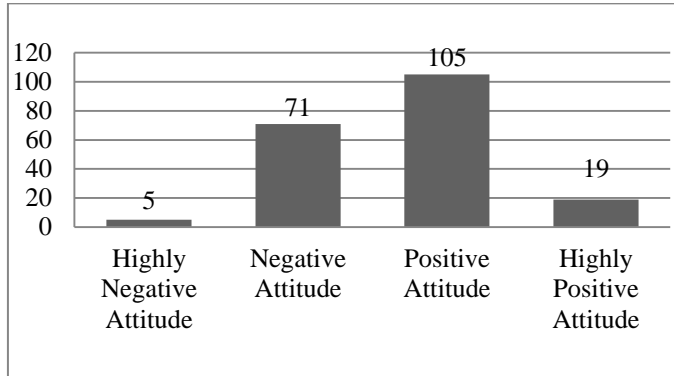
**Description of Attitude towards using Computer Scale (ATC):** A self-made attitude measuring scale had been made for measuring attitude towards using Computer. It consists of 30 items having 5 categories of responses for each viz. 'Totally Agree (TA)', 'Agree (A)', 'Neutral (N)', 'Disagree (D)' and 'Totally Disagree (TD)'. Each answer has been assigned to scores ranging 1 to 5 if the item is positive and in case of negative items the scoring is reverse. The reliability of the developed tool is 0.826 using Cronbach's Alpha.

Response	Score	
	Positive Item	Negative Item
Totally Agree (TA)	5	1
Agree (A)	4	2
Neutral (N)	3	3
Disagree (D)	2	4
Totally Disagree (TD)	1	5

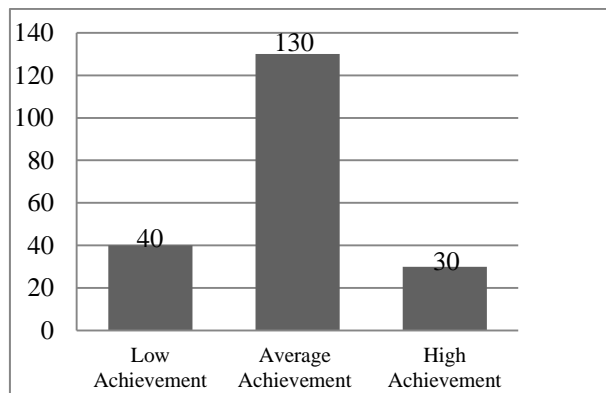
**Achievement Test in Computer Application (ACA):** Achievement Test in Computer Application for Standard had been made for the purpose. The first step in the construction of an Achievement Test is the clear formulation of the objectives that are to be evaluated. The Instructional Objectives of teaching Computer Application used in the present study are based on Bloom's Taxonomy. The test items were prepared covering the entire content included in the West Bengal Higher Secondary Standard XI Computer Application syllabus for the year 2014-15. The whole content of the syllabus is given in terms of marks to the four Instructional Objectives (Knowledge, Understanding, Application, Skills) and also focus of the words in the construction of test items for ensuring clarity and simplicity. Achievement Test in Computer Application contains 30 multiple choice questions for a total of 30 marks. 1 (One) is assigned for each correct answer and 0 (Zero) is assigned for each wrong answer. Therefore, one can get a maximum score of '30' and a minimum score of '0' for this test. It needs 25 minutes for an average student to answer.

**Procedure of Data Collection:** After developing a self-made Attitude Scale and ACA test, data had been collected from different schools of Paschim Medinipur, Howrah, Hooghly & North 24 Parganas districts to get feedback from students. Students (samples) were given one attitude measuring questionnaire and one questionnaire for achievement test in Computer Application each, one for measuring their attitude towards computer in hand and the other one for measuring their marks in Computer Application.

**Figure 1.2: Bar Diagram showing different levels in ATC of the entire sample of students**



**Figure 1.3: Bar Diagram showing different levels in ACA of the entire sample of students**



**Analysis and Interpretation of Data:** The raw data were tabulated in MS Excel 2007 & analyses of data were done through SPSS 20.0 Version. In case of Quantitative study, the test of normality of data is very much essential. If the sample size is less than 2000 then through ‘Shapiro-Wilk Test’, the normality of data is being tested. If the sig.value in Shapiro-Wilk Test is higher than 0.05 ( $p > 0.05$ ), then it can be said that the data are normally distributed.

**Table 1.1: Tests of Normality**

	Shapiro-Wilk		
	Statistic	df	Sig.
ATC	.989	200	.139
ACA	.979	200	.004

(**ATC**- Attitude towards using Computer Scale, **ACA** - Achievement Test in Computer Application)

In the above table, we can see that, the p value of Shapiro-Wilk Test in case of Attitude towards using Computer Scale (ATC) is 0.139 ( $p > 0.05$ ), so we can say that data are normally distributed. But in case of Achievement Test in Computer Application (ACA), p value is 0.004 ( $p < 0.05$ ), so data are not normally distributed.

**Testing of Hypotheses**

(i) **H<sub>0</sub>1:** There would be no significant difference between Boys and Girls in their attitude towards using computer.

**Table 1.2: Group Statistics of ATC\_Gender**

	Gender	N	Mean	Std. Deviation
ATC	Boys	120	123.58	12.229
	Girls	80	124.50	10.332

**Table 1.3: Independent Samples Test of ATC\_Gender**

	t-test for Equality of Means		
	T	df	Sig. (2-tailed)
ATC	-.557	198	.578

**Interpretation:** The above Independent Samples Test (Table 1.3) shows that P Value = 0.578 ( $P > 0.05$ ). Hence, it is insignificant and  $H_{01}$  is retained. Therefore, it can be said that, there would be no significant difference between Boys and Girls in their attitude towards using computer.

**(ii)  $H_{02}$ :** There would be no significant difference between the students belonging to the Rural and the urban areas in their attitude towards using computer.

**Table 1.4: Group Statistics of ATC\_Location**

	Location	N	Mean	Std. Deviation
ATC	Rural	92	123.59	12.462
	Urban	108	124.25	10.642

**Table 1.5: Independent Samples Test of ATC\_Location**

	t-test for Equality of Means		
	t	df	Sig. (2-tailed)
ATC	-.406	198	.685

**Interpretation:** The above Independent Samples Test (Table 1.5) shows P Value = 0.685 ( $P > 0.05$ ). Hence, it is insignificant and  $H_{02}$  is retained. Therefore, it can be said that, there would be no significant difference between the students belonging to the Rural and the Urban areas in their attitude towards using computer.

**(iii)  $H_{03}$ :** There would be no significant difference between the students of Arts group and the students of Science group in their attitude towards using computer.

**Table 1.6: Group Statistics of ATC\_Discipline**

	Discipline	N	Mean	Std. Deviation
ATC	Arts	108	123.49	11.215
	Science	92	124.48	11.844

**Table 1.7: Independent Samples Test of ATC\_Discipline**

	t-test for Equality of Means		
	t	df	Sig. (2-tailed)
ATC	-.605	198	.546

**Interpretation:** The above Independent Samples Test (Table 1.7) shows that P Value = 0.546 ( $P > 0.05$ ). Hence, it is insignificant and  $H_{03}$  is retained. Therefore, it can be said that, there would be no significant difference between the students of Arts group and the students of Science group in their attitude towards using computer.

**(iv)  $H_{04}$ :** There would be no significant difference between Boys and Girls in their score in Achievement in Computer Application.

**Table 1.8: Test Statistics of ACA\_Gender**

	ACA
Mann-Whitney U	4731.500
Wilcoxon W	11991.500
Z	-.172
Asymp. Sig. (2-tailed)	.863

**Interpretation:** The above test statistics (Table 1.8) shows that the Mann-Whitney U value = 4731.500, Z value = -.172,  $P = 0.863$  ( $P > 0.05$ ). Hence, it is insignificant and  $H_{04}$  is retained. Therefore, it can be said that, there would be no significant difference between Boys and Girls in their score in Achievement in Computer Application.

(v) **H<sub>05</sub>**: There would be no significant difference between the students belonging to the Rural and the urban areas in their scores in Achievement in Computer Application.

**Table 1.9: Test Statistics of ACA\_Location**

	ACA
Mann-Whitney U	4919.500
Wilcoxon W	10805.500
Z	-.120
Asymp. Sig. (2-tailed)	.905

**Interpretation:** The above test statistics (Table 1.9) shows that the Mann-Whitney U value = 4919.500, Z value = -.120, P = 0.905 (P>0.05). Hence, it is insignificant and H<sub>05</sub> is retained. Therefore, it can be said that, there would be no significant difference between the students belonging to the Rural and the urban areas in their score in Achievement in Computer Application.

(vi) **H<sub>06</sub>**: There would be no significant difference between the students of Arts group and the students of Science group in their scores in Achievement in Computer Application.

**Table 1.10: Test Statistics of ACA\_Discipline**

	ACA
Mann-Whitney U	4734.000
Wilcoxon W	10620.000
Z	-.578
Asymp. Sig. (2-tailed)	.563

**Interpretation:** The above test statistics (Table 1.11) shows that the Mann-Whitney U value = 4734.000, Z value = -.578, P = 0.563 (P>0.05). Hence, it is insignificant and H<sub>06</sub> is retained. Therefore, it can be said that, there is no significant difference between the students of Arts group and the students of Science group in their score in Achievement in Computer Application.

(vii) **H<sub>07</sub>**: There would be no significant relationship between Achievement in Computer Application of Higher Secondary students and their Attitude towards Computer.

**Table 1.11: Correlation between ATC & ACA (Spearman's rho)**

Spearman's rho ( $\rho$ )	0.877**
N <sub>ATC</sub>	200
N <sub>ACA</sub>	200

\*\*Correlation is significant at the 0.01 level (2-tailed).

## Major Findings

The following are important findings of the present investigation:

1. The attitude towards using Computer does not vary significantly with gender.
2. The attitude towards using Computer does not vary significantly with location.
3. The attitude towards using Computer does not vary significantly with discipline.
4. The score in Achievement in Computer Application does not vary significantly with gender.
5. The score in Achievement in Computer Application does not vary significantly with location.
6. The score in Achievement in Computer Application does not vary significantly with discipline.
7. There is very high positive co-relation between attitude towards using Computer and the score in Achievement in Computer Application.
8. Majority of students (40.50%) shows Average level of Attitude towards using Computer.

9. Majority of Boys & Girls students (35.00% of entire sample of Boys & 48.75% of entire sample of Girls) show Average level of Attitude towards using Computer and it also shows that Girls students show better Average level of attitude than Boys students towards using Computer.
10. Majority of Rural & Urban students (39.13% of entire sample of Rural Students & 41.67% of entire sample of Urban Students) show Average level of Attitude towards using Computer and it also shows that urban students show better Average level of attitude than rural students towards using Computer.
11. Majority of Students belonging to Arts & Science discipline (40.74% of entire sample of Arts Students & 40.22% of entire sample of Science Students) show Average level of Attitude towards using Computer and it also shows that Arts students show better Average level of attitude than Science students towards using Computer.
12. Majority of students (41.00%) show an Average level in the Achievement in Computer Application
13. Majority of Boys & Girls students (40.00% of entire sample of Boys & 42.50% of entire sample of Girls) show an Average level in the Achievement in Computer Application and percentage of Girl students is greater than that of Boys in this field.
14. Majority of Rural & Urban students (40.22% of entire sample of Rural Students & 41.67% of entire sample of urban students) show an Average level in the Achievement in Computer Application and percentage of urban students is greater than that of rural students in this field.
15. Majority of Arts & Science students (37.04% of entire sample of Arts Students & 45.66% of entire sample of Science students) show an Average level in the Achievement in Computer Application and percentage of Science students is greater than that of Arts students in this field.

**Contributions of the Present Study:** The present investigation attempts at studying higher secondary students' Achievement in Computer Application and their Attitude towards using Computer and hence it contributes to the field of computer education.

The findings of the present study show that Majority of the students (105 out of 200, 52.5 %) belong to Positive Attitude Level in case of Attitude towards using Computer and majority of the students (130 out of 200, 65%) belong to Average level in case of Achievement in Computer Application. The values obtained in the form of descriptive statistics provide valuable information to the educationists.

This will help them to plan their learning activities for building a better learning environment and improve students' performance in learning Computer Application. The investigation contributes to the field of educational evaluation by the construction and development of tools like Attitude Towards using Computer (ATC) & Achievement Test in Computer Application (ACA).

**Limitations:** Every study has its limitation. The present study had some limitations which were as follows:

1. Limited time frame restricted the size of study area.
2. The selection of schools for this study was not selected with strict randomization.
3. The schools were selected mainly from lower part of West Bengal.
4. The number of students might be increased by taking more school under the study.
5. The sample of the study was selected only from the Govt. aided Bengali medium Higher Secondary school of West Bengal.
6. The data collected through ATC & ACA was self-reported by the students at a particular time. Triangulations were not done to estimate the consistency of students' self-reported data.



**Conclusion:** In the present situation, we require an enhanced set of skills that relate to the effective use of computers and communication technology at higher secondary stage. Acquisition of skills and thorough knowledge in the field of Computer Application will help students to develop right attitude and gain improved interest in Computer Application.

The present study has been undertaken with a view of realizing the importance of educational objectives belonging to cognitive and affective domain in Computer Application education identified by Bloom. Thus it aimed at studying the effect of some positive correlates that promote learning of Computer Application at higher secondary level such as attitude. It has been found that these positive correlates have high positive relationship with the academic achievement of higher secondary students in Computer Application.

Very few studies have come to limelight assisting the scholars interested in studying the factors influencing Achievement in Computer Science in Indian context. The study reveals that majority of students have average level of achievement in Computer Application and hence their achievement in Computer Application needs to be improved in order to cope with the challenges of this branch of knowledge that is growing at a remarkable pace.

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