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A Study the Impact of Students' Attitudes Towards Computer Education on their Academic Performance in Secondary School Students

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Abstract - 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. Students' perspectives on the value of computer education in improving their academic achievement in school were investigated. The purpose of this research was to find out whether the gender of students in secondary schools affected their approach to using computers. Students from Ranchi, Jharkhand's secondary schools were the research subjects. There are 25 public schools and 132 private ones there. Ranchi secondary school Students were surveyed using the standardized computer attitude scale instrument detailed under the heading instruments to compile the study's data sample. Purposive sampling was used to identify public, and private schools in addition to schools accredited by the Central and Jharkhand boards of education. Under the watchful eye of the investigator, the Computer Attitude Scale was given to 400 Students from the aforementioned 12 different schools.

Keywords - Computer Education, Teachers, Students, Attitudes, Academic Achievement

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INTRODUCTION

Computers are electronic machines that can read data (input), process it according to predetermined rules (process), generate results (output), and store the results for later use. In today's postmodern world, knowledge is seen as currency of the highest value. The essential actors in the information-based economy are those who either own critical information or know how to acquire & utilize it (Simmons, 2009). He went on to say that the ability to use computers & skills that may be gleaned from doing so are crucial in today's society, impacting not just the workplace but also education, personal finance, and quality of life. Computers play a crucial role in the classroom as a means of increasing efficiency. Word processing, graphics, problem-solving lessons, spreadsheets, databases, networking, & communication are all examples of how computers & modern technology have influenced the classroom. In addition, from the constructivist approach's point of view, computers facilitate the differentiation of student & teacher roles, as well as the implementation of education, by giving all students access to the same high-quality resources and ensuring that they fully comprehend and apply what they are learning.

Students nowadays rely heavily on technological resources to help them understand about modern developments. The shift from teacher-centered to student-centered learning raises concerns about the efficacy of educational technology as it shifts its focus from the teacher to the students. Technology improvements have an impact on many aspects of society & economy, making computers an essential part of modern education. The use of computers in education has led to significant advances in the fields of equipment & programming, word processing, design, individualized training in critical thinking, database management, system administration, media communications, and pedagogical intelligence. In addition, from the constructivist approach's vantage point, computers facilitate the division of labor between students & teachers by standardizing the delivery of clear and actionable instructions that students may follow to improve their learning. The computer facilitates the shift from teacher-centered to student-centered instruction by adding several knowledge dimensions to the pedagogical loop (Forcier, 1996). Because of its focus on the relationship between computer instruction and the academic achievement of Ranchi secondary school students, this research has taken on added significance.

OBJECTIVES OF THE STUDY

1. To assess students' computer education attitudes with home computer access.
2. To compare the perspectives of male & female secondary school students on computer education.
3. To compare the academic achievement of secondary school male & female.
4. To compare the attitudes of students attending public & private secondary schools toward computer education.
5. To identify the Computer education attitude & academic achievement.

HYPOTHESIS

Ho1- There is no significant difference of students' computer education attitudes with home computer access

Ho2- There is no significant difference between the perspectives of male & female secondary school students on computer education.

Ho3- There is no significant difference on the academic achievement of secondary school male & female.

Ho4- There is no significant difference of the attitudes of students attending public & private secondary schools toward computer education.

Ho5- There is no significant on the Computer education attitude & academic achievement.

METHODOLOGY

The methodology followed in the present study is description is presented of the methodology and the procedure used in carrying out the existing study which was to analysis the relationship of the attitude of computer education towards academic achievement. Keeping the objectives in view these details refer to the design of the study, population, sample, and collection of data.

Design of the study

In order to study the attitude towards Computer Education in relation to the Academic Achievement of Secondary School Students Descriptive Survey method is used.

Population of the study

The population of the study was on the secondary school students of Ranchi region, Jharkhand. It consists of 25 government schools and 132 private schools.

Table 1: Enrollment of Secondary Students for the Academic Session of 2021

Gender	Class IX	Class X	Total
Female	5540	3787	9327
Male	5519	3814	9333
total	11059	7601	18,660

Sample

The total population of secondary school students in Ranchi region for the year 2021 is 18,660. However in the study the participant includes 363 secondary school students of Ranchi region. Here 12 schools were identified, which includes 2 government and 10 private schools. Concerning the board it includes 10 Jharkhand Board of School Education and 2 CBSE board. Of these 164 are females and 199 are males.

Table 2 List of Schools Taken For the Sample

S. No.	Name of the school	Board	type	No of Male	No. of female	Total
1	Holy Cross School	State Board	Private	25	25	50
2	Don Bosco School	State Board	Private	7	5	12
3	D A V Alok Public School	CBSE	Private	9	9	18
4	Delhi Public School	CBSE	Private	31	19	50
5	Loreto Convent Ranchi	State Board	Private	53	48	101
6	Surendranat Centenary School	State Board	Private	20	7	27
7	ODM Sapphire Global School, Ranchi	State Board	Private	12	12	24
8	Greenland Public School	State Board	Private	22	19	41
9	Tender Heart Senior Secondary School	State Board	Private	5	4	9
10	Guru Nanak Hr. Sec. School	State Board	Private	9	9	18
11	Government Middle School	State Board	Govt.	6	7	13
12	Government High School Ranchi	State Board	Govt.	9	10	19
Total				199	164	363

Sampling techniques

The sample was selected using simple random and stratified sampling techniques. The population was stratified on the basis of gender and types of school boards.

Methods of collecting data

The data for the study was collected from the secondary school students of Ranchi using the standardized computer attitude scale instrument mentioned in the heading tools. Schools were selected by purposive sampling run by private and government as well as schools under the two boards namely Jharkhand Board of School Education and Central Board of School Education. The Computer Attitude Scale was distributed to 400 students of the mentioned 12 different schools which were

administered by the computer teacher and under the close supervision of the investigator. However only 363 students returned the CAS completed filled. The final examination mark sheets of classes IX SSLC, of both NBSE and CBSE was also collected from the respective schools for the study of the student's academic achievement.

ANALYSIS AND INTERPRETATION

Objective 1: To assess students' computer education attitudes with home computer access.

Ho1. There is no significant difference of students' computer education attitudes with home computer access

Table 3: Result of t-test on the accessibility of computers at home as a factor on attitude towards computer education.

Accessibility of computer at home	N	Mean	Std. deviation	df	Computed t	Critical t	Remarks
Yes	281	80.42	8.11	361	4.4827	2.569	Significant at 0.01 level
No	94	74.35	10.64				

Analyzing table 3, it reveals that there is a significant difference on the accessibility of computers at home as a factor in the attitude of students towards computer education [t=4.4827, P <.01] as such the null hypotheses cannot be accepted.

Discussion 1: Research hypotheses one was posed to find out if accessibility of computers at home exercise any influence on attitude towards computer education. It is found that the student's access of computer at home has a significant effect on their attitude towards computer education. A 'yes' for students accessibility have a more positive effect then a 'no' towards computer attitude. Accessibility of computer at home therefore has a positive effect on computer attitude of the students.

Objective 2(a): To compare the perspectives of male & female secondary school students on computer education.

Ho2 (a). There is no significant difference between the perspectives of male & female secondary school students on computer education.

Table 4: Results of t-test on difference on the basis of gender effect on attitude towards computer education.

Gender	N	Mean	Std. deviation	df	Computed t	Critical t	Remarks
Male	199	79.30	9.77	361	0.4032	2.569	Not Significant at 0.01 level
female	164	80.11	8.85				

Analyzing table 4 (a), it shows that gender does not play any significant role on the attitude towards computer education [t= 0.4032, P >.01] as such the null hypotheses cannot be rejected.

Discussion 2(a): Research hypotheses was posed to find out if gender exercise any influence on attitude towards computer education In this result after analyzing the scores of the students it is found that gender does not play any effective role in dividing the attitude. Male and female students have equal attributes.

Objective 2(b): To find out the computer education attitude between high achievers and low achievers.

Ho2 (b). There is no significant difference on the different level of student's academic achievement in their relationship towards Computer Education.

Table 4 (b): Result of t-test on computer education attitude based on the levels of academic achievement.

Level of Academic Achievement	N	Mean	Std. deviation	df	Computed t	Critical t	Remarks
High achievers	104	70.00	9.46	361	8.048	2.589	Significant at 0.01 level
Low achievers	273	45.31	8.85				

Analyzing table 4 (b), it can be observed that there is significant difference from the different levels of academic achievers in their attitude towards computer education [t=8.0483, P <.01] as such the null hypotheses cannot be accepted.

Discussion 2(b): Looking at research question on the existence of attitudinal difference between low and high academic achievers, the result shows that there definitely exists a significant difference between the two levels of achievers. The mean difference falls at [70.00-45.31 =24.69].Those performing well academically tends to have more positive attitude as compared to those on the lower achievement scale.

Objective 3(a): To compare the academic achievement of secondary school male & female.

Ho3 (a): There is no significant difference on the academic achievement of secondary school male & female.

Table 5(a): Results of t-test on the academic achievement between male and female students.

Academic achievement on Gender	N	Mean	Std. deviation	df	Computed t	Critical t	Remarks
Male	199	51.68	12.84	361	0.5387	2.589	Significant at 0.01 level
female	164	52.56	15.73				

Analyzing table 5(a), it is observed that there is no significant difference in the academic achievements of male and female students in their academic performance [t= 0.5387. P>.01] as such the null hypotheses cannot be rejected.

Discussion 3(a): Research hypotheses states on the examination of academic achievement based on

gender. It reflects on the results statistically that there is no difference in academic achievement between male and female students.

Objective 3(b): To find out the academic achievement between government schools and private schools.

Ho3 (b). There is no significant difference on the academic achievement between government and private school students.

Table 5(b): Results of t-test on the academic achievement between government and private schools.

Academic achievement	N	Mean	Std. deviation	df	Computed t	Critical t	Remarks
Government	32	34.28	13.06	361	1.7768	2.589	Not Significant at 0.01 level
Private	345	53.75	13.23				

Analyzing table 5(b), the results shows that statistically there is no significant difference in the performance level of the academic achievement between government and private school students [t=1.7768, P>.01] as such the null hypotheses cannot be rejected.

Discussion 3(b): As the research hypotheses poses if difference exist between government and private school students in their academic achievement. The results show that there is no significant difference on the type of school attended by the student influencing their academic achievement. Looking at the records of the promotional academic achievements it reflects that a student belonging to government or private institutions does not show much difference in their academic performance.

Objective 4(a): To compare the attitudes of students attending public & private secondary schools toward computer education.

Ho4 (a). There is no significant difference of the attitudes of students attending public & private secondary schools toward computer education.

Table 6(a): Result of t-test on the difference of attitude among students according to the types of Schools.

Students attitude by types of schools	N	Mean	Std. deviation	df	Computed t	Critical t	Remarks
Government	32	71.80	8.88	361	4.086	2.589	Significant at 0.01 level
Private	345	80.41	9.06				

Analyzing table 6(a), it demonstrates that there is a significant difference on the types of schools that is attended by the students and its relevant attitude of the students towards computer education [t= 4.086, P <.01] as such the null hypotheses cannot be accepted.

Discussion 4(a): This research hypothesis poses on the student's attitude based on the type of schools the student attends. It measures the difference between government and private institutions as a dividing line. There is a difference significantly by statistical measurement in the difference of attitude between the two types of school students.

Objective 4(b): To find out the difference in Computer Education attitude between Jharkhand Board of School Education and Central Board of Secondary Education.

Ho4 (b): There is no significant difference between Jharkhand Board of School Education and CBSE Boards School students towards computer education.

Table 6(b): Result of t-test on the difference of attitude based on the type of school Board.

Types of school board	N	Mean	Std. deviation	df	Computed t	Critical t	Remarks
JBSE (state board)	309	79.52	9.12	361	0.4518	2.589	Significant at 0.01 level
CBSE	68	80.46	10.32				

Analyzing table 6(b), it shows that there is no significant difference of the student's Attitude on the basis of the type of board [t=0.4518, P >.01] as such the null hypotheses cannot be rejected.

Discussion 4(b): Research question posed here was to find the difference of computer attitude between Jharkhand Board of School Education and CBSE board students. However the results show there is actually no significant difference in the two existing boards in Ranchi. The curriculum provided in both the board is a sixth IT subject and as an optional paper. The data collected from the respondents shows a total of 363 students, 309 from Jharkhand Board of School Education and 68 from CBSE. However, statistically there is no level of difference in any case and as such the type of school boards has no influence on the attitudinal level in the study undertaken here.

Objective 5: To identify the Computer education attitude & academic achievement.

Ho5. There is no significant on the Computer education attitude & academic achievement.

Table 7: Result of t-test on computer education attitude based on their academic achievement.

Computer attitude in relation to academic achievement	N	Mean	Std. deviation	df	Computed t	Critical t	Remarks
Computer education	363	79.68	9.34	361	5.938	2.589	Significant at 0.01 level
Academic achievement	363	52.11	14.25				

Analyzing table 7, it can be concluded that there is a significant difference on the students attitude towards computer education in relation to their academic achievement [t= 5.938, P <.01] as such null hypotheses cannot be accepted.

Discussion 5: The research hypotheses posed in this discussion is to find if there is any significant difference on the attitude of secondary school students towards computer education in relation to their academic achievement. The table no.4.5 above clearly indicates that statistically there is a significant difference on academic achievement on the secondary students of Ranchi basing on their attitude towards computer education.

DISCUSSION

The study examined the attitude of secondary students towards computer education in relation to their academic achievement.

Eight research hypotheses were formed to find the relationship between:

1. Computer education attitude and accessibility of computers at home.
2. Computer education attitude and gender.
3. Computer attitude and different levels and academic achievers
4. Academic achievements and gender.
5. Academic achievements and types of school.
6. Computer education attitude and types of school.
7. Computer education attitude and different of school boards.
8. Computer education attitude and its relationship with the academic achievement.

CONCLUSION

The present problem under the study as, **"**Study of the attitude towards Computer Education in relation to the Academic Achievement of Secondary School Students in Ranchi region**"** it was seen that there is a rising positive effect towards computer education in relation to the academic achievement. The results of the relationship between home computer availability and over all attitudes toward computer needs to be investigated further to determine if other confounding variables exist, such as primary computer users and the specific types of computer use. Teachers can assign high quality school works so that students are able to use computers at home to complete and spend more time on the computers for school work. It is suggested that on the psychological basis of academic differences and contribution of these factors to computer attitude it requires the attention of researches. This will enable the school counselors and those in charge to design appropriate guidance and counseling programs which can be tailored towards computer education.

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