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Attitude of secondary school students towards Information and Communication Technology (ICT) in Paschim Bardhaman district

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Abstract

Education is a vital weapon to construct a good nation. Hence every people have to access education. ICT based learning is a new innovation in education which enhances a positive outcome of learning. Learning through ICT is the best way to access education for all. But ICT based learning tools should be properly manage, hence ICT literacy is very much necessary. Using ICT to improve the teaching-learning process can improve quality in education as well as literacy rate of a nation. Hence it is very important to know at first, the knowledge & attitude of students towards ICT. If majority have the positive attitude, then it is very easy to enhance the ICT based learning in every school especially secondary school because this stage is the decisive stage of educational as well as vocational career. Hence this is the first stage of career construction, huge curricular content & examination is held from this period. So, the researcher of this study aims to find out the attitude of secondary school students towards ICT. The descriptive survey method had been used with 200 samples of class IX of both govt. & private secondary schools of Paschim Bardhaman district in West Bengal for this study. The study revealed that according to school type, private school students have more positive attitude than govt. school students. And according to gender type, girl students have more positive attitude than boys' students of Class IX in Paschim Bardhaman district in West Bengal.

Keywords: Attitude; Secondary School Students; Information and Communication Technology (ICT)

1. Introduction

ICT stands for Information and Communication Technology (Shokeen et al., 2022). ICT includes various technological tools & resources like computers, internet, live broadcasting (radio, television) & recorded broadcasting technologies (podcasting, audio & video players) by which we can transmit, store, create & exchange information's through all over the world (Ghosh, 2024). According to Al-Gahtani & King (1999) "ICT has a great impact on how they behave that is attitude towards ICT is an antecedent to and a predictor of ICT usage". The use of ICT encourages changes in values, attitudes and behaviour as well as cognitive and perceptual processes, it also shows that students' learning attitudes and behaviour were changed by using ICT resources such as computers and the internet (De Sousa et al., 2012). Researchers have been interested in attitudes since the beginning of the 20th century, with different thinkers describing it in different ways (Shah & Mattoo, 2017). According to Allport (1935), "Attitude is a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related". Attitude is a psychological construct that refers to a person's mental and emotional characteristics, their view of something, or their personal opinion about it (Ghosh, 2024).

Revolution of technology had been started from very beginning of 21st century. Without the knowledge of ICT, it is quite impossible to compete with the modern world (Keya & Uddin, 2020). Gradually the digital culture flourishes in the world which have changed the way of people live. Through the use of ICT, students are able to interact with others virtually through computers and the Internet and get ideas from various sources including webpages. Also, Students

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were encouraged to use ICT tools for collaborative learning to overcome the challenges they faced when the teacher was physically absent (Dlaska, 2002).

2. Review of the related literature

Ghosh (2024) conducted on the study "*Attitude of secondary school students towards the use of information and* communication technology (ICT) in rural and urban areas of West Bengal: A study". The objective of the study was to investigate how the attitudes of Information and Communication Technology (ICT) Use Among Secondary School Students differ depending on their gender (male and female). This study was conducted with secondary schools in Kolkata and South 24 Parganas districts of West Bengal where ICT facilities are available. In the research paper, a descriptive survey method was used. The analysis of the study revealed that secondary students from all streams had similar demands, hence secondary education should not be changed for them.

Kumari (2024) studied on the research work "Exploring senior secondary school student's attitude towards the usage of ICT tools in education". The objective of this study was to investigate how senior secondary school learners perceive the advantages, disadvantages and general attitudes towards ICT technology in the classroom. Using a combination of surveys, focus groups and qualitative interviews, this study was purposed to determine the factors influencing students' attitudes towards ICT tools and their implications for enhancing the educational experience in senior secondary schools. The research findings provide insightful information for stakeholders, educators and policymakers on how to harness ICT technology to improve student engagement and learning.

Mandal (2023) conducted on the study "Attitude of Higher Secondary Students towards the use of Information and Communication Technology in West Bengal". The main aim of the study was to explore the perception of higher secondary students among the use of ICT in arts and science streams. The attitude of the students towards ICT was assessed through a quantitative study. The sample consisted of 200 higher secondary students from South 24 Parganas area of West Bengal, selected using stratified random sampling technique. The results of the study, students of higher secondary schools in science and arts streams appear to have a favorable attitude towards ICT.

Mondal (2023) studied on research paper "Attitude of secondary school students towards the use of ICT in class room teaching of Paschim Medinipur district". The purposed of the paper was to explore the attitudes of secondary school students among the use of ICT. Explain the study that compares the attitudes of secondary school students among the use of ICT among boys and girls respectively. The sample of this study was secondary students of Paschim Medinipur district of West Bengal and the design of the study was quantitative. Stratified random sampling method was applied. According to the research of the study, ICT components including both software and hardware are essential for the teaching-learning process, which supports the idea that ICT acts as a tool that provides additional resources for improved instruction of educators and students.

Shah & Mattoo (2017) study on "Attitude of high secondary school students towards information and communication technology (ICT)". The aim of this study was to identify and investigate the attitudes of Information and communication technology (ICT) attitudes among high school students. Descriptive and inferential statistics were used to generalize the results. The findings of the study, officials should encourage millions of individuals to pursue education based on ICT. This is possible if educators start teaching young people about the benefits of ICT; developing curricula and designing them with this mindset in mind is crucial to achieving this.

Suniya & Lhungdim (2017) Observed in their study "Students' attitudes towards the use of ict in secondary schools in Arunachal Pradesh". The purpose of the study was to find out Arunachal Pradesh secondary school students' attitudes about ICT. The students' attitudes were assessed collectively, as well as in relation to gender, ethnicity and school administration style. The research sample, which included 1290 students from 24 secondary schools in Papum Pare, Lower Subansiri and Upper Subansiri districts, was conducted using a quantitative research design technique. According to this study, students' attitudes towards ICT did not vary significantly based on their gender or ethnicity, indicating that encouraging creative ICT programs in schools can support successful learning.

Andoh & Issifu (2015) conducted on the study on "Implementation of ICT In learning: A study of Students in Ghanaian secondary schools". The aim of the study was to find out how secondary school students use ICT and what factors influence their use. Descriptive statistics were used in the study. According to the findings, ICT skills are the most important determinant of students' use of technology. The study's conclusions add to the body of evidence showing that the digital divide still exists.

Many researchers have expressed interest in studying the attitude of secondary school students towards Information and Communication Technology (ICT). Also, some researchers have conducted research on different cities and specific districts of West Bengal. But no such research has been done on Paschim Bardhaman District, so we conduct the research on Asansol city of Paschim Bardhaman district in West Bengal. Asansol is a municipal corporate area in Paschim Bardhaman district. It is a fastest growing city but not as a whole. There are many govt. & private secondary schools located in both rural & urban area. After the inception of ICT in secondary schools, students found learning in a technology-enhanced environment more stimulating & engaging than in a traditional classroom environment in other areas. For this reason, the researcher wants to know that how much ICT is accustomed by the students in the secondary schools of Asansol. Hence the researcher of this study has taken initiatives to investigate the attitude of secondary students towards ICT of Asansol area in Paschim Bardhaman district in West Bengal.

Objectives of the Study

- To study the attitude of secondary school students towards ICT.
- To study the attitude of govt. secondary school students towards ICT.
- To study the attitude of private secondary school students towards ICT.
- To comparison the attitude between Govt. secondary school students and private secondary school students towards ICT.

2.1. Hypothesis of the Study

- **H_{01}:** There is no clear significant difference between the attitude of class IX Students of Government Schools and Private Schools towards ICT.
- **H_{02}:** There is no clear significant difference between the attitude of class IX Boys & Girls of Secondary School towards ICT.
- **H_{03}:** There is no clear significant difference between the attitude of class IX Boys & Girls of Govt. School towards ICT.
- **H_{04}:** There is no clear significant difference between the attitude of class IX Boys & Girls of Private School towards ICT.
- **H_{05}:** There is no clear significant difference between the attitude of class IX Boys of Govt. School and class IX Girls of Private School towards ICT.
- **H_{06}:** There is no clear significant difference between the attitude of class IX Girls of Govt. School & class IX Boys of Private School towards ICT.
- **H_{07}:** There is no clear significant difference between the attitude of class IX Boys of Govt. School & class IX Boys of Private School towards ICT.
- **H_{08}:** There is no clear significant difference between the attitude of class IX Girls of Govt. School & class IX Girls of Private School towards ICT.

2.2. Research Design

This study employed a descriptive survey design. Descriptive survey was used to gather precise information on the attitude of Secondary School Students towards ICT. It was selected because it was intended to gather information from the class IX students and to gather data at a particular point in time, & use it to describe the nature of the existing conditions.

- **Population** The population of the present study consisted of all the class IX students studying in CBSE and West Bengal Board affiliated secondary schools located in Asansol, Paschim Bardhaman district, West Bengal.
- **Sample and Sampling Techniques** The present study was conducted on a sample of 200 class IX students studying in CBSE board and West Bengal board affiliated secondary schools in Asansol, Paschim Bardhaman, West Bengal. Considering the variables selected for the research work, stratified random sampling method was found to be most suitable. The present study confirmed the sample of secondary school students as 100 government school students and 100 private school students in Asansol, Paschim Bardhaman, West Bengal.
- **Tool Used for the *Study*** A self-developed attitude scale was used to collect data on the attitudes of secondary school students towards information and communication technology (ICT) in Asansol city, West Bengal**.**
- **Scoring Technique** The statements were scored in accordance with general practice by assigning the following numerical weight to the positive and negative statements as shown below.

Table 1 Table of Scoring

Statements	**Response**				
	SA	**A**	**UD**	**D**	**SD**
Positive attitude of items	5	4	3	2	1
Negative attitude of items	1	2	3	4	5

(SA for Strongly Agree, A for Agree, UD for Un Decided, D for Disagree and SD for Strongly Disagree)

2.3. Delimitations of the Study

- This study was conducted only in Asansol city of Paschim Bardhaman in West Bengal.
- This study seeks to study the attitude of secondary school students (Class IX) towards ICT.
- Only two hundred students of class IX from all secondary schools of Asansol have selected for the study.
- In this study, private schools are defined as only CBSC and government schools as only WBBSE schools.

2.4. Data Analysis and Interpretation

Data Analysis Among Class IX Government School Students and Class IX Private School Students Study on Attitude of Secondary School Students Towards ICT. This study was used T-test as inferential statistics to measure the sentiment of both the school students. The data is given in the table below i.e. Mean, SD, T-test.

2.4.1. Hypothesis wise Data Analysis and Interpretations

- **H_{01}**: There is no clear significant difference between the attitude of class IX students of government school & private school towards ICT.

Table 2 Comparison of attitude between Private & Govt. school class IX students

GROUP	**NUMBER**	**MEAN**	**SD**	**df**	**T-test**	**Remarks**
Private school students	100	119.51	15.423	198	7.188	Significant at 0.05 level i.e. **H_{01}** is rejected.
Govt. school students	100	104.86	13.321			

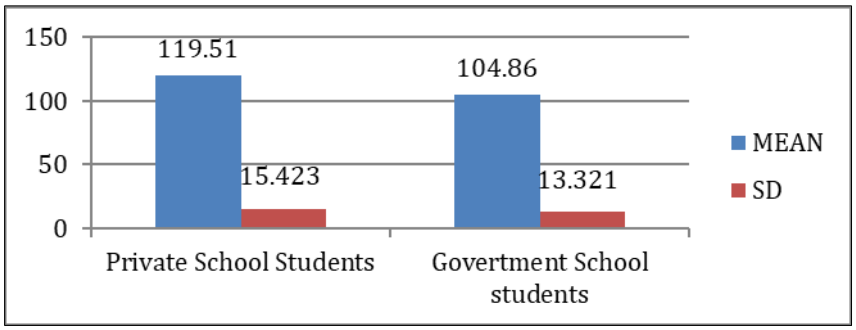

Figure 1 Graphical representation of mean & SD of private & govt. school Class IX students' attitude towards IC)

2.5. Interpretation

From Table No. 2 it is observed that the calculated value (7.188) is 1.97 more than the tabulated value of df (198) at 0.05 confidence level, hence, H_{01} is rejected. From the above table it is seen that there is a significant difference between the attitude of class IX students of private and government schools towards ICT.

- **H_{02}:** There is no clear significant difference between the attitude of class IX boys & girls' students of secondary school towards ICT.

Table 3 Comparison of attitude between the Class IX boys & girls towards ICT

GROUP	NUMBER	MEAN	SD	Df	T-test	Remarks
Class IX Boys	121	109.884	16.811	198	2.52	Significant at 0.05 level i.e. **H_{02}** is rejected.
Class IX Girls	79	115.7088	14.461			

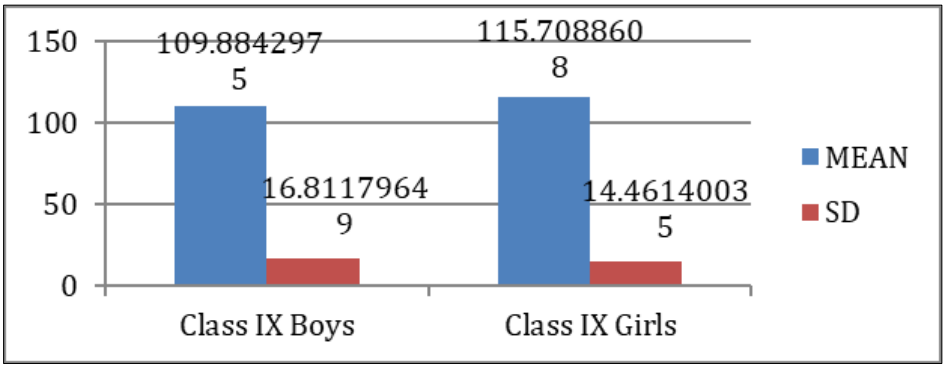

Figure 2 Graphical representation of mean & SD of boys & girls of Class IX students' attitude towards ICT

2.6. Interpretation

From table no.3 it can be seen that the calculated value (2.52) is 1.97 more than the tabulated value of df (198) at 0.05 confidence level, therefore, H_{02} is rejected. From this table it is found that there is a significant difference between the attitudes of boys and girls of class IX of secondary school in Asansol.

- **H_{03}**: There is no clear significant difference between the attitude of class IX boys & girls of govt. school towards ICT.

Table 4 Comparison of attitude between Class IX boys & girls' students of Govt. secondary school towards ICT

GROUP	NUMBER	MEAN	SD	Df	T-test	Remarks
Govt. class IX Boys	66	103.590	14.994	98	1.33	Not significant at 0.05 level i.e. **H_{03}** is accepted.
Govt. Class IX Girls	34	107.323	8.946			

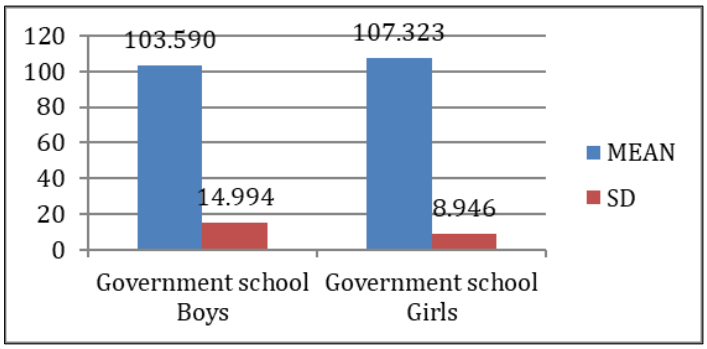

Figure 3 Graphical representation of mean & SD of govt. school class IX boys & govt. school of class IX girls' attitude towards ICT)

2.7. Interpretation

From Table No. 4 it is seen that the calculated value (1.33) is less than the table value of df (98) at 0.05 confidence level, hence, H_{03} is accepted. So, from the above table it is found that both boys and girls of Govt. Secondary School have the same attitude towards ICT.

- **H_{04}:** There is no clear significant difference between the attitude of class IX boys & girls of private secondary school towards ICT.

Table 5 Comparison of attitude between the boys & girls of class IX, private secondary school

GROUP	NUMBER	MEAN	SD	Df	T-test	Remarks
Class IX Boys of Private school	55	117.436	15.841	98	1.496	Not significant at 0.05 level i.e. **H_{04}** is accepted.
Class IX Girls of Private school	45	122.044	14.673			

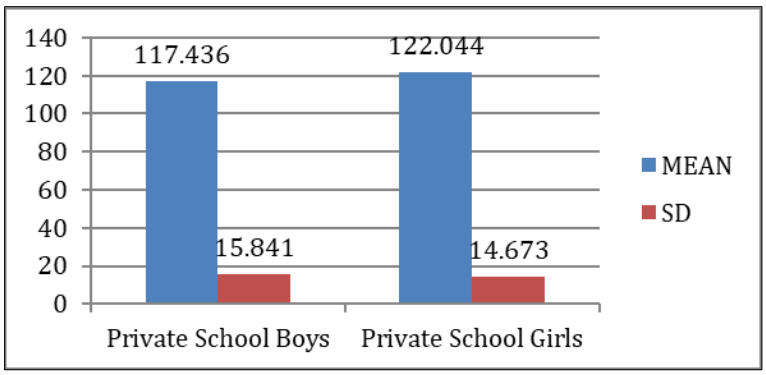

Figure 4 Graphical representation of mean & SD of boys & girls of private school Class IX students' attitude towards ICT

2.8. Interpretation

From table no-5 it is seen that the calculated value (1.496) is less than the table value of df (98) at 0.05 confidence level, therefore, H_{04} is accepted. It is noted from the above table that both boys and girls in private secondary schools have similar attitude towards ICT.

- **H_{05}:** There is no clear significant difference between the attitude of class IX boys of govt. school and class IX girls of private school towards ICT.

Table 6 Comparison of attitude between Class IX boys of Govt. & Class IX girls of private secondary school

GROUP	NUMBER	MEAN	SD	Df	T-test	Remarks
Class IX Boys of Govt. school	66	103.590	14.994	109	6.421	Significant at 0.05 level i.e. **H_{05}** is rejected.
Class IX Girls of Private school	45	122.044	14.673			

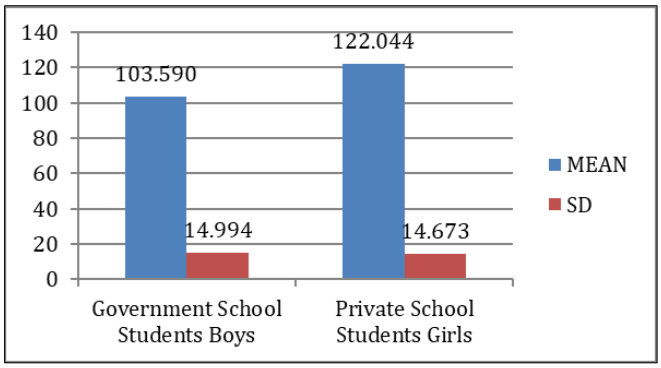

Figure 5 Graphical representation of mean & SD of attitude between Govt. school boys & private school girls of Class IX towards ICT

2.9. Interpretation

From table no-6, it is observed that the calculated value (6.421) is greater than the table value of df (109) at 0.05 confidence level, therefore, H_{05} is rejected. Thus, from the above table it is noted that there is a significant difference between the attitude of class IX boys in government schools and class IX girls in private schools towards ICT.

- **H_{06}**: There is no clear significant difference between the attitude of class IX girls' students of govt. school & class IX boys' students of private school towards ICT.

Table 7 Comparison of attitude between Class IX girls of Govt. & Class IX boys of private secondary school

GROUP	NUMBER	MEAN	SD	Df	T-test	Remarks
Class IX Girls of Govt. school	34	107.323	8.946	87	3.398	Significant at 0.05 level i.e. **H_{06}** is rejected.
Class IX Boys of Private school	55	117.436	15.841			

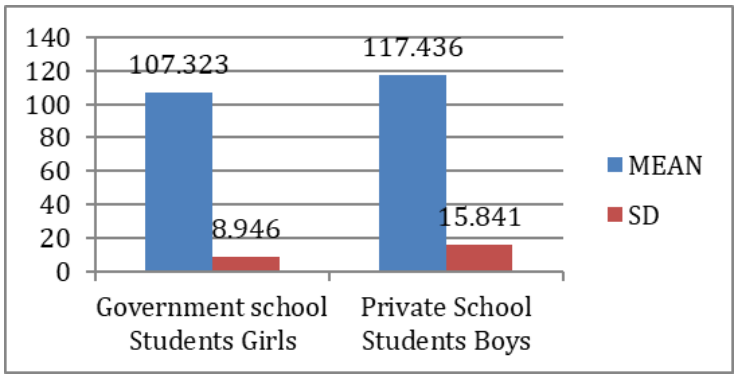

Figure 6 Graphical representation of mean & SD of govt. school girls & private school boys of class IX students' attitude towards ICT

2.10. Interpretation

From Table No. 7, it is seen that the calculated value (3.398) is more than the table value of df (87) at 0.05 confidence level, hence, H_{06} is rejected. Thus, it is found from this table that there is a significant difference between the attitude of class IX girls of government schools and class IX boys of private schools towards ICT.

- **H_{07}**: There is no clear significant difference between the attitude of class IX boys of govt. school & the class IX boys of private school towards ICT.

Table 8 Comparison of attitude between Class IX boys of Govt. & Class IX boys of private secondary school

GROUP	NUMBER	MEAN	SD	Df	T-test	Remarks
Class IX Boys of Govt. school	66	103.590	14.994	119	4.929	Significant at 0.05 level i.e. H_{07} is rejected.
Class IX Boys of Private school	55	117.436	15.841			

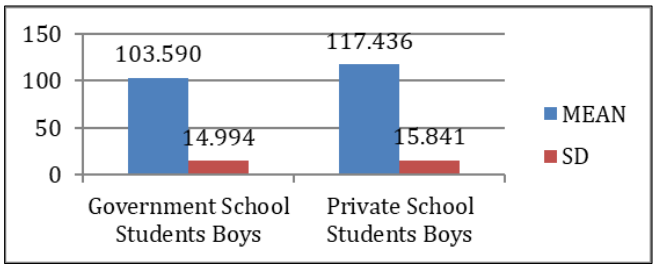

Figure 7 Graphical representation of mean & SD of class IX boy students of private & govt. school of class IX students' attitude towards ICT)

2.11. Interpretation

From Table No. 8 it is seen that the calculated value (4.929) is more than the table value of df (119) at 0.05 confidence level, hence, H_{07} is rejected. Thus, it is found that there is a significant difference in the attitude of class IX boys of both government and private secondary schools towards ICT.

- **H_{08}**: There is no clear significant difference between the attitude of class IX girls of govt. school & the class IX girls of private secondary school towards ICT.

Table 9 Comparison of attitude between Class IX girls of Govt. & Class IX girls of private secondary school

GROUP	NUMBER	MEAN	SD	Df	T-test	Remarks
Class IX Girls of Govt. school	34	107.323	8.946	77	5.165	Significant at 0.05 level i.e. H_{08} is rejected.
Class IX Girls of Private school	45	122.044	14.673			

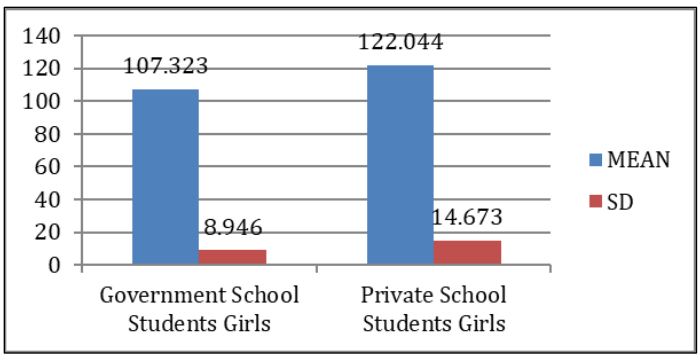

Figure 8 Graphical representation of mean & SD of the school of private & govt. girl of class IX students' attitude towards ICT

2.12. Interpretation

From Table No. 9 it is seen that the calculated value (5.165) is more than the table value of df (77) at 0.05 confidence level, H_{08} is rejected. Thus, it is found that there is a significant difference in the attitude of class IX female students of both government and private secondary schools towards ICT.

3. Findings of the Study

Findings are systematically arranged here in accordance with the hypothesis has mentioned below:

- Significant difference is found between the mean of attitude scores towards private and government ICT Secondary school students. This means that ICT is influenced by the type of school. Based on the results, it can be found that the groups, private and government. Secondary school students are significantly different in their attitude towards ICT. Private school students have more favorable attitude towards the use of ICT than government. School students This means that the types of schools play a major role in the attitude towards ICT.
- Significant difference is found between the mean of attitude scores of secondary school boys and girls towards ICT. This means that ICT is influenced by their gender. Based on the results, it can be found that boys and girls from both private and public groups. Secondary schools differ significantly in their attitude towards ICT. Secondary school girls have more favorable attitude towards the use of ICT than secondary school boys. This means that gender plays a major role in shaping the attitude towards ICT.
- No significant difference was found between the mean of attitude scores towards ICT of boys and girls of Govt. Secondary Schools. Based on the results it can be said that boys and girls of students of Govt. Secondary Schools are not significantly different in their attitude towards ICT.
- No significant difference was found between the mean scores of attitudes towards ICT of boys and girls in private secondary schools. Based on the results, it can be said that both the groups, i.e. boys and girls in private secondary schools, are not significantly different in terms of their attitude towards ICT.
- Significant differences were found between the mean of attitude scores towards ICT of government. Secondary school boys and private secondary school girls. Based on the results, it can be found that the groups, private school girls and government. Secondary schools' boys are significantly different in their attitude towards ICT. Secondary school girls' students of private schools have more favorable attitude towards the use of ICT than government secondary school boys' students.
- Significant differences were found between the mean of attitude scores towards ICT of boys in private secondary schools and girls in government secondary schools. Based on the results, it can be found that the groups, boys in private secondary schools and girls in government secondary schools are significantly different in their attitude towards ICT. Boys in private schools have more favorable attitudes towards the use of ICT than girls in government secondary schools.
- Significant differences were found between the mean of attitude scores towards ICT of boys from both private and government. Secondary schools. Based on the results, it can be found that the students of secondary boys from both private and government. Secondary schools differ significantly in their attitude towards ICT. The students of secondary boys from private schools have more favorable attitude towards the use of ICT than the students of secondary boys from government. Schools.
- Significant differences are found in the mean of attitude scores towards ICT of girls from both private and government. Secondary schools. Based on the results, it can be found that girl students from both private and government. Secondary schools differ significantly in their attitude towards ICT. Secondary school girls from private schools have more favorable attitudes towards the use of ICT than those from government. Schools.

4. Conclusion

After the research work researcher come to this point that according to types of school, private secondary school students have more favorable attitude than the govt. secondary school students towards ICT. According to gender, girls have more favorable attitude than boys in this secondary stage towards ICT. So, from this study in Asansol every secondary school teacher, parents of secondary school students should aware to develop the positive attitude towards ICT among boys of class IX and govt. secondary school students.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclsoed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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