ISSN: 2584-0231(Online)
International Journal of Multidisciplinary Research in Arts, Science and Technology
© IJMRAST | Vol. 3 | Issue 9 | September 2025
Available online at: https://ijmrast.com
DOI: 1https:/doi.org/10.61778/ijmrast.v3i9.189

Knowledge and Attitude towards ICT among Minority Students at Higher Secondary Level in West Bengal: An Analysis

Amir Hossain[1*], Dr. Sanat Kumar Ghosh[2]

[1] Research Scholar, Department of Education, The University of Burdwan, Burdwan, West Bengal, India

[2] Associate Professor, Katwa College, Katwa, West Bengal, India

[1]Email Id: amirhossain.edu@gmail.com

ABSTRACT

The current era is called the 'Era of Information Technology'. Modern people have become dependent on information technology. Its impact is being seen quite clearly in the field of education. Therefore, the research paper was prepared to find out how much students are aware of technology or what their views are on technology. The main objective of this study is to measure knowledge and the attitudes of minority students towards Information Communication Technology. The researcher also wants to compare attitude towards ICT between (a) male and female (b) arts and science (c) urban and rural students at higher secondary minority students. To conduct the study, the researcher adopted some null hypotheses. For this study, Muslim-dominated districts of West Bengal were selected and from there, a few districts were randomly selected. Descriptive and Inferential statistics were used to analyze the data collected from the 100 samples. The study revealed that male students have a better attitude towards ICT than females as well as urban students have better than rural minority students.

Keywords: *ICT, Minority Students, Attitude.*

1. Introduction

In the modern era, information and communication technology has opened a new dimension for human civilization. The digital process has become a force that is having a profound impact not only on education, but also on almost all aspects of people's daily lives. This technology has opened the door to new possibilities in the field of education - simplifying the teaching style, making learning outcomes more effective and helping to build a cooperative education system. The application of technology is transforming the way teaching and learning takes on a new form. Through various applications, this technology is creating opportunities for freedom, flexibility and active participation. As a result, technology-based learning has now become an integral trend around the world. In the eyes of many, the Internet is an open field that overcomes conventional barriers and provides free access to the world of knowledge.

Education and students' academic success are closely related to each other today. However, the reality is that students do not always have a favorable attitude to take full advantage of ICT in the learning process. Nevertheless, ICT is playing an essential role in ensuring the educational progress of students in the modern

education system. Considering its importance, most HS institutions have adopted various strategies and programs to maximize the learning outcomes of students.

As a result, in the context of the academic weakness of minority students at the higher secondary level, a key question arises - do they actually have a positive attitude towards information and communication technology in school education? Finding the right answer to this question is very important for research.

ICT is a complex of platforms and organizations that are used to store, construct, spread, preserve and control information. This includes computers, online networks, media broadcasting, and other modern tools. This technology keeps us constantly connected to and understands information and events happening around the world. ICT has made the internal process of education more effective, engaging and inspiring. (Heredero,2006) In today's era, it has become an essential part of the student's learning process, along with books, journals or other authentic sources.

ICT is an essential part of advanced education, where digital tools such as computers, the Internet, and projectors are used in an integrated manner. This technology is making students' learning multidimensional and relevant. Kent and Fesser (2004) have shown that schools are the main arena for students' technology-based activities.

The accessible internet has accelerated the flow of cognition and innovation around the world and has replaced traditional teaching methods with classrooms equipped with digital tools, making education more visible, dynamic, and participatory.

Statement of the Problem:

"Knowledge and Attitudes towards ICT among Minority Students at Higher Secondary Level in West Bengal: An Analysis."

Importance of the Study:

In recent times, ICT has become an essential component in the field of education.The traditional text-based teaching process has now been integrated with digital media.Here, students are finding new levels of knowledge through online learning opportunities, virtual group discussions, digital assignments, and collaborative activities.

The effectiveness of a technology-integrated classroom in terms of student learning output and technology is largely dependent on the teacher's ability, interest to support and implement ICT.Therefore, specific training and institutional help are necessary to ensure proper use of technology.

In this context, recent psychological studies have developed a vast body of knowledge that examines the influence of psychological predispositions, beliefs, and attitudes on computer use by both students and adults. In particular, researchers have observed how multidimensional components of computer-related attitudes—such as interest, effectiveness, practical utility, and availability—are interconnected with actual use. It is within this overall context that the current research builds its foundation.

Operational Definitions of Important Terms:

- **Knowledge:** By knowledge, we mean being aware of a subject or information, being familiar with one's own experiences and situations, or acquiring a functional skill.Factual knowledge, often known

as declarative knowledge, is related to beliefs that are generally accepted as true and are reasonably distinct from assumptions or personal opinions.

- **Attitude:** 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 can be described as a multidimensional mental organization that integrates an individual's internal tendencies, emotional reactions, culturally embedded preconceptions, stereotypical beliefs, biased views, responses to panic and intimidation and the overall epistemological position formed towards a particular subject.
- **ICT:** ICT is a modern system that is implemented through a combination of computer-based structures and various components. ICT is a vast concept that encompasses almost all communication media and infrastructure used in contemporary society. Among these, mobile phones, TV, computers and satellite-based communication systems are particularly notable. Moreover, technology-based services such as video conferencing, online education and distance learning programs are also considered an important part of ICT. It is noteworthy that ICT is not limited to modern digital technologies; rather, traditional analog technologies are also included in this range, indicating the continuous and inclusive nature of technology development.
- **Higher Secondary:** Higher Secondary is a level consisting of two years after Secondary, i.e. Class XI and Class XII, and acts as a bridge between higher education and secondary education. Students at this level are usually between 16 and 18 years old. At the higher secondary level, there are three types of courses in terms of curriculum, which are divided into Arts, Science and Commerce. In the case of classes XI and XII, evaluation was done through annual examinations, but now in West Bengal, it is divided into semesters like higher education. Currently, the higher secondary level consists of four semesters.
- **Minority Students:** A minority student refers to a person who belongs to a particular community recognized as a religious or linguistic minority at the national or provincial level. This community must have a distinct cultural and social identity and be relatively small in number compared to the local majority population. The central government of India officially recognizes - Muslims, Christians, Sikhs, Buddhists, Zoroastrians (Parsis), and Jains as religious minorities group.

Review of Related Studies:

A review of related literature is an important step in any research. It is the process of identifying, analyzing, and evaluating relevant research, articles, and previous work. It is not just a summary, but also provides evidence, guidelines, and hypotheses for new research. Through the review, the researcher understands the importance of the problem, avoids repetition of previous work, and is able to identify potential research gaps. It is helpful in expanding the context and background of the research and building the basis for subsequent conclusions and hypotheses. As a result, a review of related literature provides a critical perspective to the research and contributes greatly to enriching the body of knowledge.

Title of Study	Author(s)	Year	Objectives	Methodology	Findings
"A Study on Attitude of Secondary School Teachers towards Information and Communication Technology."	Misra,B.	2024	The purpose of this research is to determine the attitudes of teachers towards ICT.	Descriptive Research; Sample 126 Simple Random Sampling,; Questionnaire; Descriptive Statistics	A strong and supportive attitude towards ICT has been observed among teachers.
"A Study of Teachers' Attitude Towards ICT at Senior Secondary Level."	Chauhan,P,S. et.al	2023	The purpose of this study is to measure teachers' attitude towards ICT.	Descriptive Research; Sample 60 Simple Random Sampling,; Questionnaire; Descriptive Statistics	A strong and supportive attitude towards ICT has been observed among teachers.
"A Study on Attitude Towards ICT of Undergraduate Students."	Kumar,R. et.al	2023	The objective of this study was to analyze the attitudes towards Information and Communication Technology (ICT) among undergraduate students.	Descriptive Research; Sample 600 Cluster Sampling; Questionnaire; Descriptive Statistics	A favourable attitude towards ICT has been observed among teachers.
"Attitude of HS students towards the use of ICT."	Mondal,A.K	2023	To examine the attitude of HS students towards ICT.	Descriptive Research; Sample 200; Stratified Sampling; CA Scale; Descriptive Statistics Inferential Statistics	Research has shown that students exhibit favorable attitudes towards the use and adoption of information and communication technology (ICT)

"Effect of ICT-Based Peer Teaching on the Achievement and Retention of Pre-service Teachers."	Fernandes,R.	2023	The aim of this research was to examine the impact of ICT-based peer teaching on the knowledge acquisition and retention of pre-service teachers.	Experimental Research; Sample 80 Achievement Test; Inferential Statistic	The results of the study indicate that: (i) ICT-based peer instruction is more effective than traditional techniques in increasing pre-service teachers' success in educational assessment.
"A study of the Attitude Towards ICT among B.Ed Students Teachers in Namakkal district."	Arthi, S. et. al (2016)	2016	To find out the attitude of students in different dimensions.	Descriptive Research; Sample 724; Simple Random Sampling,; Questionnaire Descriptive Statistics	Male Students had a better attitude in respect to female students.

Objectives of the study

The objectives of the Study are as follows.

1. To Explore Attitude towards ICT of higher secondary minority students.
2. To measure knowledge on ICT of higher secondary minority students.
3. To find out and compare the attitude towards ICT between male and female higher secondary minority students.
4. To find out and compare the attitude towards ICT between arts and science higher secondary minority students.
5. To find out and compare the attitude towards ICT between urban and rural higher secondary minority students.

Research Questions:

1. What kind of attitudes do minority higher secondary students have towards information and communication technology?
2. How much knowledge of ICT do minority students at the higher secondary level have?

Research hypotheses

The following hypotheses were formed for this study.

H_{01}: There is no significant difference in attitude towards ICT between male and female higher secondary minority students.

H_{02}: There is no significant difference in attitude towards ICT between arts and science higher secondary minority students.

H_{03}: There is no significant difference in attitude towards ICT between urban and rural higher secondary minority students.

- **METHODS AND MATERIAL**

Population and Sample:

The population of the study is considered to be all minority students of higher secondary level in West Bengal. From this population, 100 students have been selected as a sample. The students have been collected from different schools and madrasas. A simple random sampling method has been used to avoid bias, which ensures the reliability of the results.

Variables: Knowledge and Attitude towards ICT

- **Sample technique:** The random sampling technique will be adopted for this study.
- **Tool used:**
  - Achievement Test on ICT.
  - Attitude towards ICT developed by the Researcher.
- **Validity and reliability**: Content validity has been determined for this study. A split-half method was followed to determine reliability of the test and the value was found 0.76 which means a positive correlation exists between two sets of tests.

Statistical Techniques used

Descriptive Statistics-The researcher used

- Mean
- Median
- Standard Deviations

Inferential statistics-The researcher used

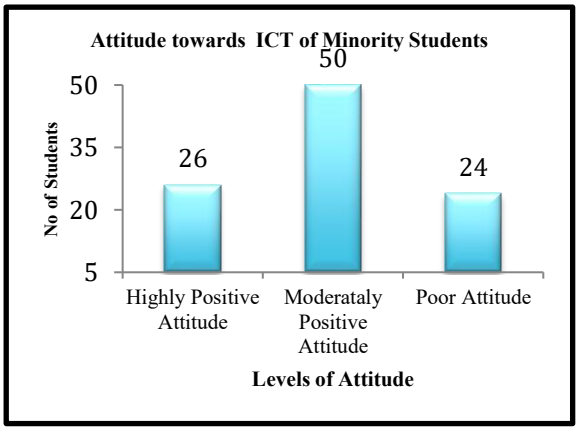
- t-test
- Correlation

2. RESULTS AND DISCUSSION

Analysis (objective-1): Explore Attitude towards ICT of higher secondary minority students.

Implication:

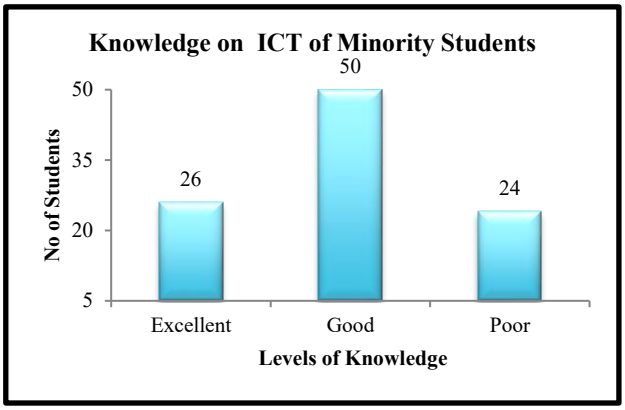
The present study collected data from 100 minority students at the higher secondary level. Based on the collected data, the students' attitudes towards ICT were classified into three different levels. The results show that 26 students showed a very positive attitude. On the other hand, 51 students expressed a moderate level of positive attitude. However, it can be observed that the remaining students had a very negative attitude. These results clearly indicate that although a large proportion of students have a positive attitude towards ICT, there is still a significant number of students who are reluctant or have a negative attitude.



Analysis objective-2: Measure Knowledge on ICT of higher secondary minority students.

Implication:

The current study measured ICT knowledge based on data from 100 students at the higher secondary level. The results show that 26% of the students were excellent, 50% of the students were good, and the remaining students demonstrated low level knowledge.



Hypothesis Test:

Ho1 :"There is no significant difference in **'Knowledge & Attitude Towards ICT'** between male and female higher secondary minority students."

Group Variable	N	Mean	SD	SEM	t Value	Remarks
Male	46	181	14.3	0.96	3.55	Significant
Female	54	177	13.8	0.62		

Implications: The result shows that it is statistically significant at 0.05% level, as calculated t-Value is greater than table value. So according to rules of hypothesis testing, the null hypothesis is rejected. Therefore, there are differences exist between male and female minority students on the basis of 'Knowledge & Attitude Towards ICT'. Male minority students (Mean 181 SD 14.3) have better 'Knowledge & Attitude Towards ICT' than female minority students (Mean 177 SD 13.8).

Ho2 : "There is no significant difference in **'Knowledge & Attitude Towards ICT'** between arts and science higher secondary minority students."

Group Variable	N	Mean	SD	SEM	t Value	Remarks
Arts	60	178	13.4	0.66	0.95	Not Significant
Science	40	179	14.7	0.83		

Implications: The result shows that it is statistically not significant at 0.05% level, as calculated t-Value is less than table value. So according to rules of hypothesis testing, the null hypothesis fails to reject. Therefore, there are no differences exist between arts and science minority students on the basis of 'Knowledge & Attitude Towards ICT'

Ho3 :"There is no significant difference in **'Knowledge & Attitude Towards ICT'** between Urban and Rural higher secondary minority students."

Group Variable	N	Mean	SD	SEM	t Value	Remarks
Urban	35	183	13.7	0.83	6.69	Significant
Rural	65	176	13.6	0.65		

Implications: The result shows that it is statistically significant at 0.05% level, as calculated t-Value is greater than table value. So according to rules of hypothesis testing, the null hypothesis is rejected. Therefore, there are differences exist between rural and urban minority students on the basis of 'Knowledge & Attitude Towards ICT'. Urban minority students (Mean 183 SD 13.7) have better 'Knowledge & Attitude Towards ICT' than rural minority students (Mean 176 SD 13.6).

Major Findings:

1. There are differences exist between male and female minority students on the basis of 'Knowledge & Attitude Towards ICT'. Male minority students (Mean 181 SD 14.3) have better 'Knowledge & Attitude Towards ICT' than female minority students (Mean 177 SD 13.8).
2. There are no differences exist between arts and science minority students on the basis of 'Knowledge & Attitude Towards ICT'
3. There are differences exist between rural and urban minority students on the basis of 'Knowledge & Attitude Towards ICT'. Urban minority students (Mean 183 SD 13.7) have better 'Knowledge & Attitude Towards ICT' than rural minority students (Mean 176 SD 13.6).

Limitations of the study:

1. The study is limited to three independent variables: i. Gender (male and female), ii. Residence (rural and urban), iii. Stream (Arts and Sciences)
2. Dependent variable: Students' Knowledge and Attitude towards information and communication technology.
3. Geographical scope of the study: Two districts of West Bengal.
4. The sample size is 100 students.

3. CONCLUSION

Gender and residential differences in knowledge and attitudes towards Information and Communication Technology (ICT) among minority students can be observed. The analysis shows that male students show relatively better attitudes towards ICT than female students. No significant differences were observed between arts and science students in terms of subject matter. In addition, urban students have more active and positive attitudes towards ICT than rural students, reflecting the influence of educational and technological facilities in the city.

4. REFERENCES

[1]. Abraham, J., & Wadhwani, R. (2013). ICT integration in in-service teacher education programmes. International Journal of Information and Computation Technology, 3(9), 901–908.

[2]. Allport, G. W. (1935). Attitudes. In C. M. Murchison (Ed.), Handbook of social psychology (pp. xx–xx). Winchester, MA: Clark University Press.

[3]. Appavoo, A., & Shailja, S. (2013). The impact of ICT on achievement of students in chemistry at secondary level of CBSE and UP Board in India. International Journal of Science and Research, 2(8), 126–129.

[4]. Arthi, S., & Tamilselvi, B. (2016). A study of the attitude towards ICT among B.Ed student teachers in Namakkal District. International Journal of Multidisciplinary Research and Development, 3(8), 81–84.

[5]. Ashley, W. (2016). 10 reasons today's students need technology in the classroom. Retrieved from http://www.seccuredgementworks.com/10-reasons-todays-students-need-t

[6]. Devi, S., Rizwaan, M., & Chander, S. (2012). ICT for quality of education in India. International Journal of Physical and Social Sciences, 2(6).

[7]. Dixit, M., & Kaur, M. (2015). Attitude of teacher trainees towards ICT teaching. International Journal of Pure and Applied Researches, 1(1).

[8]. Gardner, R. C. (1985). Social psychology and second language learning: The role of attitudes and motivation. London, England: Edward Arnold.

[9]. Grimus, M. (2000). ICT and multimedia in the primary school. In 16th Conference on Educational Uses of Information and Communication Technologies, Beijing, China.

[10]. Gross, B., Garcia, I., & Escofet, A. (2012). Beyond the net generation debate: A comparison of digital learners in face-to-face and virtual universities. International Review of Research in Open and Distance Learning, 13(4), 190–210.

[11]. Hew, K. F., & Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. Educational Technology Research and Development, 55(3), 223–252.

[12]. Kumar, R., et al. (2023). A study on the attitude towards ICT of undergraduate students. International Journal of multidisciplinary research 4(2).36-41.

[13]. Misra, B. (2024). A study on the attitude of secondary school teachers towards information and communication technology. *International journal of multidisciplinary education and research.* 9(2).37-39.

[14]. Mondal, A. K. (2023). Attitude of HS students towards the use of ICT. Journal of Social Science, 3(2).21-30

Cite this Article

***Amir Hossain, Dr. Sanat Kumar Ghosh, "Knowledge and Attitude towards ICT among Minority Students at Higher Secondary Level in West Bengal: An Analysis"**, International Journal of Multidisciplinary Research in Arts, Science and Technology (IJMRAST), ISSN: 2584-0231, Volume 3, Issue 9, pp. 45-53, September 2025.*

***Journal URL:** https://ijmrast.com/ **DOI:** https://doi.org/10.61778/ijmrast.v3i9.189*