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## A Study of ICT Awareness, Proficiency, and Usage among Post-Graduate (PG) Students

Dipankar Paul<sup>1</sup>, Sanjib Kumar Roy<sup>1</sup>

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*Awareness, ICT, Proficiency,  
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### ABSTRACT

ICTs have now become a buzzword in teaching and learning. Historically, technology has been developed to solve problems, improve living standards and increase productivity. In the educational context, the objectives of ICT are to increase productivity and solve teaching-learning problems. Information and communication technologies play a major role in shaping the new global economy and producing rapid changes in society. The purpose of the study is to find out the awareness level of various ICT devices, proficiency of ICT devices, and the usage of various ICT devices by the PG students. This study was descriptive research that adopts the survey method. Here the researcher used simple random sampling to select 50 samples. To conduct the present investigation, the researcher utilized a self-made questionnaire to gather data, it includes 32 items that are divided into three major dimensions on the basis of the research objectives. The researcher used Mean, SD, and t-tests for the statistical analysis of data. After analysis of the data this study found that there is a significant difference between male and female, and no significant difference between urban and rural PG students in the awareness level of various ICT devices. The two groups of students, namely male and female, differ significantly; the other two groups, urban and rural, do not differ significantly in terms of their proficiency in various ICT devices. The study also found that four groups of students namely male, female and urban, rural differ significantly in terms of the usage of various ICT devices.

### INTRODUCTION

Nowadays, we live in a knowledge-based community and a knowledge-based global world, where knowledge is a terrific source of power, wealth, and strength for individuals and nations alike. It is also true that there has been a significant increase in both quality and growth. We require new technologies in order to gain access to and make proper use of this expanding knowledge. Furthermore, simply gaining knowledge is insufficient; we have complete control and mastery over the knowledge-gathering process. It is only possible with the help of information and communication technology. ICTs have now become a buzzword in teaching and learning. The use of ICTs in education is frequently referred to as “information” education. Historically, technology has been developed to solve problems, improve living standards and increase productivity. Therefore, it may also be used with similar views in education. In the educational context, the objectives of ICT have become to increase productivity and solve problems in teaching and learning programs. Information and communication technologies (ICTs) play a major role in shaping the new global economy and producing rapid changes in society. If we focus on the three words behind ICT, they are Information, Communication, and Technology. To help individuals and organizations use information, ICT considers all the uses of digital technologies. It covers any product that will store, retrieve, manipulate, transmit, or receive information electronically in a digital form. The integration of ICTs in teaching and learning is very similar

to the term information of education. The information represents the necessary components, conditions, and catalysts for the modernization of education, which will permit the move from the reproductive model of teaching and learning to an independent model of teaching and learning to an independent model that promotes creativity and information.

### LITERATURE REVIEW

It is an extremely important part of any research as it shows what other researchers have already done and what other researchers are doing contemporarily. In other words, it basically helps the investigator to find various research gaps. It provides methodology, tools used for data collection, and techniques applied for the analysis. Thus, it provides a critical review and appraisal of the related studies and shows how the related studies contribute toward advancing the present knowledge regarding the specific area under investigation.

Investigator has reviewed the literature related to the study in the area of ICT awareness, use, and need of the students. There is a number of studies available on ICT but in this chapter, only those studies reported that are relevant to the present study. The studies have been reported in a precise manner and an attempt has been made to develop a holistic perspective of the findings in order to explain the relationship with the present study. For the above-mentioned purpose, some of the following studies have been reviewed.

Thanuskodi, S., (2018) this paper is an attempt to

<sup>1</sup> Coochbehar Panchanan Barma University, India

<sup>\*</sup> Corresponding author's e-mail: [pauldipankar321@gmail.com](mailto:pauldipankar321@gmail.com)

investigate the use of information and communication technology among the students of rural areas in Tamil Nadu. A survey was carried out for this purpose using a questionnaire tool. The findings indicated that more than half acquired their internet skills through training from college. The results indicated the majority of students used the Internet weekly (56.53%). The study found that most of the respondents (73.91%) used the Internet for literature searches.

Mondal, M., & Ali, R., (2018) the study's goal is to determine the availability and use of ICT resources during the teaching-learning process in higher secondary schools in West Bengal. A questionnaire prepared in three dimensions (availability of resources, student use, and teacher use) is administered to 144 students for this purpose. This study employs descriptive research and the survey method. The data is analyzed using two types of statistics: descriptive statistics that use mean, standard deviation, and correlation, and inferential statistics that use the t-test in addition to determining which areas have ICT resources and which use the most. At the conclusion of the study, it was discovered that ICT resources are more readily available in urban areas than in rural areas, that there is a difference in ICT use between male and female students, and that there is a low correlation between the use of ICT resources by teachers and students during the teaching-learning process.

Wasif, N. M., (2015) conducted a study in Pakistan to determine the use and impact of ICT in the education sector. He gathered data from 429 respondents from 5 colleges and universities to learn about the use and impact of ICT in Pakistan's education sector. He gathered data from Rawalpindi, Pakistan, using convenient sampling. The findings indicate that having and using ICT improves students' knowledge and learning skills. This suggests that the presence of ICT improves educational efficiency while also obliging policymakers in the education sector. According to Thanuskodi, (2013) e-resources are spreading online and in other formats. This phenomenon is caused by the rapid advancement of information technologies, such as the Internet and digitized techniques. The availability of e-resources (including e-journals, e-books, and so on) is increasing, though no exact number is available. These modifications significantly increase the size of the electronic resource.

Electronic resources have become one of the most important aspects of a digital library. In accordance with the study, slightly more than one-third of respondents (40 percent) spent less than two hours per session on the Internet, followed by those who spent two to three hours per session (29.17 percent). The study also found that 30.83 percent of the 120 respondents used the library's website to search for documents.

According to Jebamalar's., (2013) study of 179 research researchers and users of Arts and Science Colleges associated with Manonmaniam Sundaranar University who used ICT-based resources and services, 31.84 percent of them had sluggish access speeds.

Kamaldeen. O., (2012) investigated Basic Technology Teachers' Awareness and Attitudes toward the Use of Information and Communication Technology for Sustainable Development in the Lagos State Education Districts I, IV, and VI. It was discovered that technophobia, poor use of ICT, operational skills in electronic devices, and students' negative attitudes have nothing to do with teachers' attitudes toward ICT, whereas staff development programs are thought to be relevant to attitudinal change. The study's dataset was gathered via a questionnaire and analysed using descriptive statistics. The findings revealed that while basic technology teachers have a positive attitude toward ICT, they lack adequate information integration methods and techniques.

Jude, & Dankaro., (2012) conducted a study on ICT usage by a teacher at the College of Education in Katsina-Ala, Benue, Nigeria, and discovered that 95.0 percent of the teachers had personal laptops or computers, compared to 87.5 percent of the teachers who did not have access to college laptops or computers. In their offices, 82.5% of lecturers lacked internet access. Radio (90%) and power point presentations (82.5%) were not commonly used in lectures by lecturers.

Florence, N. K., (2011) conducted a study on perceptions of the role of ICT on quality of life in Ugandan rural communities. The study found that ICT adoption and use for improvement are still limited. Furthermore, it concluded that states and policymakers should take a pluralistic approach to ICT provision, focusing not only on availability and affordability but also on increasing people's awareness and agency for development benefits. Gomleksiz., (2004) investigated teachers' attitudes toward the use of technology in the classroom. A total of 150 English teachers were polled on a 36-item scale measuring positive and negative attitudes toward technology use among English teachers. It was discovered that while teachers have positive attitudes toward the use of technology, they do not have or use it at the desired level.

### Research Gap

From the several related works of literature, it is observed that different studies have been conducted on ICT. Everyone gives more importance to the availability and usefulness of ICT. Most of the available studies were reviewed and findings indicated that there may be less research has been conducted on ICT awareness, application, and usage among PG students of coochbehar. So, there is a knowledge gap existing in this area. Keeping this view in the mind, the researcher wants to conduct the study on ICT awareness, application, and its usage among PG students of coochbehar.

### Purpose of the Study

The purpose of the study is to find out the awareness, level of various ICT devices, proficiency of ICT devices, and the usage of various ICT devices by the PG students for their academic purpose.

**Delimitation of the Study**

The present investigator limited the scope of this study by selecting only post-graduate students from the Coochbehar Panchanan Barma University, Coochbehar, West Bengal.

The number of participants in the study was also a limitation, the total number of participants in the study is 50 among all the population.

**Objectives of the Study**

1. To find out the awareness level of PG students in connection with various ICT devices.
2. To know the proficiency of ICT devices among the PG students.
3. To know the usage of various ICT devices by the PG students for their academic purpose.

**Hypothesis of the Study**

On the basis of the above objectives the investigator fixed the following hypothesis:

1. There is no significant difference between male and female PG students in relation to the awareness level of various ICT devices.
2. There is no significant difference between urban and rural PG students in relation to the awareness level of various ICT devices.
3. There is no significant difference between male and female PG students in relation to the proficiency of various ICT devices.
4. There is no significant difference between urban and rural PG students in relation to the proficiency of various ICT devices.
5. There is no significant difference between male and female PG students in relation to the usage of various ICT devices for their academic purpose.
6. There is no significant difference between urban and rural PG students in relation to the usage of various ICT devices for their academic purpose.

**METHODOLOGY**

This study was conducted on ICT awareness, Proficiency, and Usage among Post-Graduate (PG) students. So, the

present trend about the theme was to focus by this study through applying descriptive survey method.

It involves an element of interpretation of the meaning or significance of what is described. Thus, the description is combined with a comparison or contrast involving measurement, classification, interpretation, and evaluation.

**Population of the Study**

The population of the present study is all the Post-Graduate students of Coochbehar Panchanan Barma University, West Bengal.

**Sampling and Sample**

To collect data the investigator used a simple random sampling technique to select samples. A total of 50 participants were selected for this study. From the 50 participants, 25 are male, and the rest of the 25 participants are female. The investigator divided the population into four categories (urban, rural, and male, female). Here the researcher purposively selected the institution.

Participants	Gender		Residence	
	Male	Female	Urban	Rural
50	25	25	33	17

**Tool and Technique**

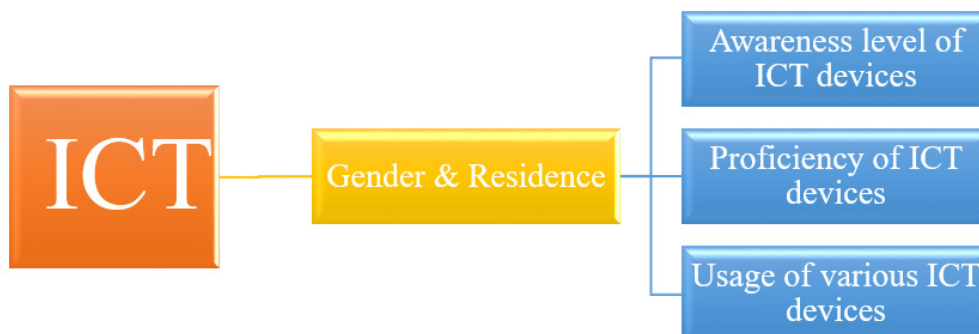
To conduct the present investigation, the researcher developed and utilized a self-made questionnaire, it includes 32 items which are divided into three major dimensions on the basis of the research objectives. Which are listed below –

1. Awareness level of various ICT devices.
2. Proficiency in various ICT devices.
3. Usage of various ICT devices.

**Statistical Technique Used for the Study**

The above figure 1 shows the research model for the present study. Post-Graduate students have different types of ICT skills, like using ICT devices, ICT resources, and their awareness level of ICT. It has a statistical technique

Descriptive Statistic	Inferential Statistic
Mean and S.D	t-test



**Figure 1:** The research model for the present study

specially designed to test whether the means of more than two quantitative populations are equal. For example, the residence is a variable and it can be categorized as urban and rural. Gender is a variable and can also be male and female.

**RESULTS**

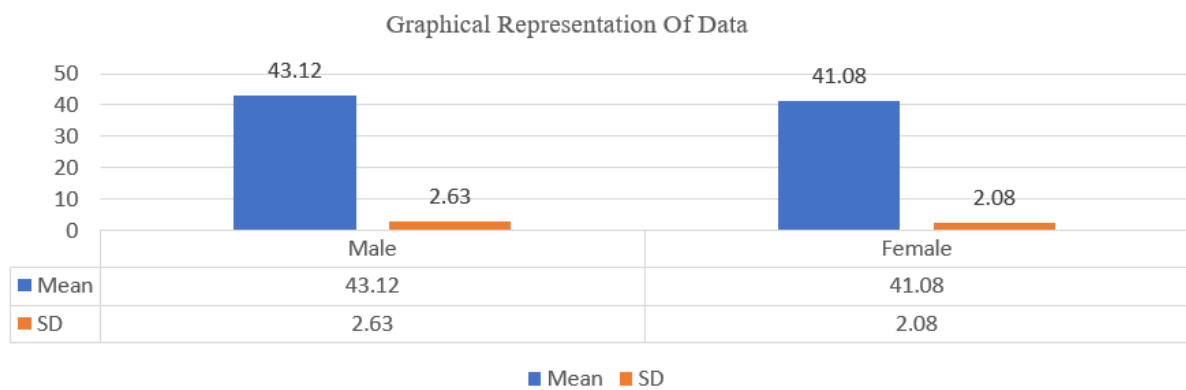
$H_0$ :1: There is no significant difference between male and female PG students in relation to the awareness level of

various ICT devices.

From the above-motined table, it was found that the essential value for judging significance with a degree of freedom of 48 is 2.01 at a 0.05 level of significance and 2.68 at a 0.01 level of significance. Our calculated t-value is 3.04, which is greater than the table value. So, at 0.05 and 0.01 levels of significance, the null hypothesis is rejected. The above-mentioned table also shows that there is a difference in the Mean of the two groups.

**Table 1:** Showing the results of the Mean, SD, and t-value of male and female PG students to know the awareness level of various ICT devices

Group	N	Mean	SD	t-value	Table value	Result
Male	25	43.12	2.63	3.04	2.01 at 0.05 Significance	Significance
Female	25	41.08	2.08		2.68 at 0.01 Significance	



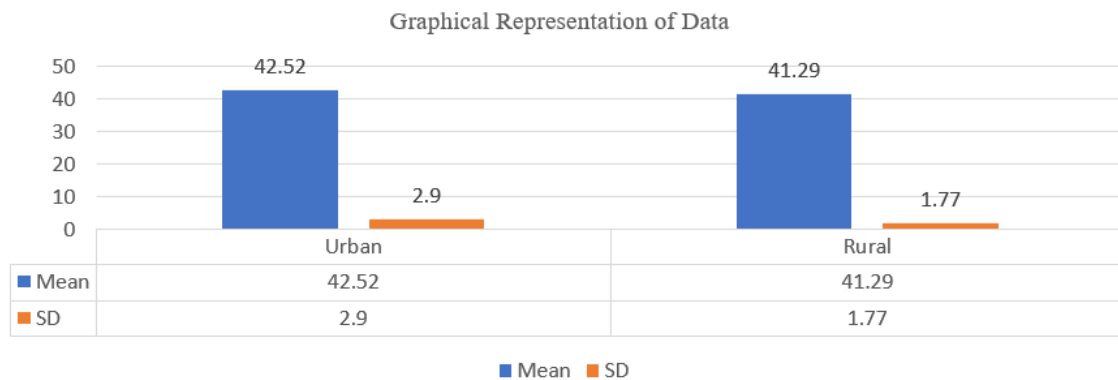
**Figure 2:** Graphical Representation of Data

As a result, it can be concluded that there is a significant difference between male and female PG students in the awareness level of various ICT devices.

$H_0$ :2: There is no significant difference between urban and rural PG students in relation to the awareness level of various ICT devices.

**Table 2:** Showing the results of the Mean, SD, and t-value of urban and rural PG students to know the awareness level of various ICT devices

Group	N	Mean	SD	t-value	Table value	Result
Urban	33	42.52	2.90	0.39	2.01 at 0.05 Significance	No Significance
Rural	17	41.29	1.77		2.68 at 0.01 Significance	



**Figure 3:** Graphical Representation of data

As shown in the table, 2.01 at 0.05 level of significance and 2.68 at 0.01 level of significance are required values for assessing significance with a degree of freedom of 48.

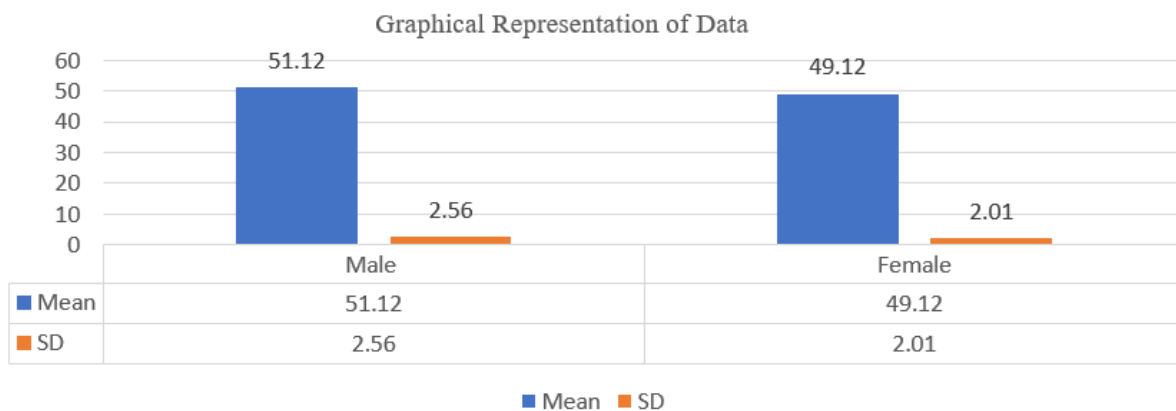
The “t” value we calculated is 0.39, which is lower than the table value, As a result, the null hypothesis cannot be rejected at 0.05 as well as 0.01 level of significance. The

hypothesis is therefore accepted. Though the above table shows a slight difference in the Mean of the two groups, still it is not significant at any standard level of significance. As a result, we can conclude that the two groups of students, urban and rural, do not differ significantly in

terms of their awareness of various ICT devices. H0.3 There is no significant difference between male and female PG students in relation to the proficiency of various ICT devices.

**Table 3:** Showing the results of the Mean, SD, and t-value of male and female PG students to know the proficiency of various ICT devices.

Group	N	Mean	SD	t-value	Table value	Result
Male	25	51.12	2.56	3.08	2.01 at 0.05 Significance	Significance
Female	25	49.12	2.01		2.68 at 0.01 Significance	



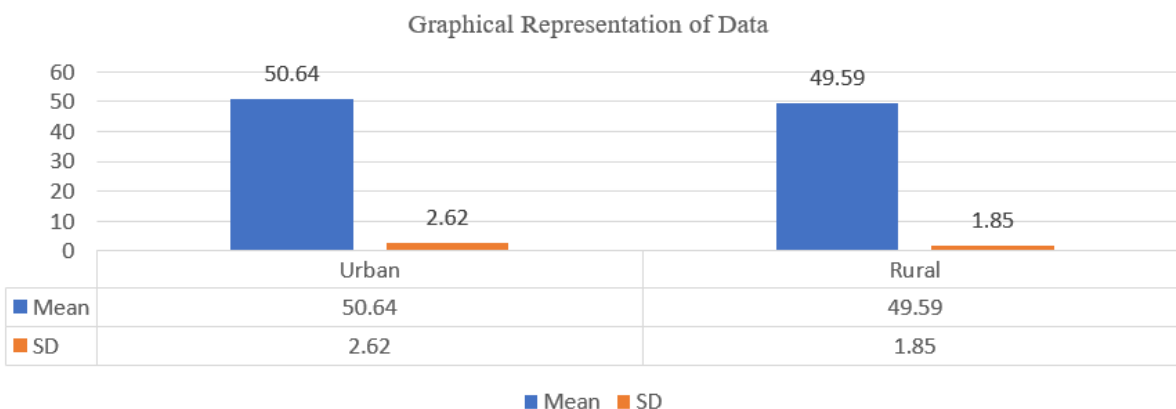
**Figure 4:** Graphical Representation of Data

From the above-motoned table, it was found that the essential value for judging significance with a degree of freedom of 48 is 2.01 at a 0.05 level of significance and 2.68 at a 0.01 level of significance. Our calculated t value is 3.08, which is greater than the table value. So at 0.05 and 0.01 levels of significance, the null hypothesis is rejected. The above-mentioned table also shows that there is a

difference in the mean of the two groups. As a result, it can be concluded that there is a significant difference between male and female PG students in relation to the proficiency of various ICT devices. H0.4 There is no significant difference between urban and rural PG students in relation to the proficiency of various ICT devices.

**Table 4:** Showing the results of the Mean, SD, and t-value of urban and rural PG students to know the proficiency of various ICT devices

Group	N	Mean	SD	t-value	Table value	Result
Urban	33	50.64	2.62	1.6	2.01 at 0.05 Significance	No Significance
Rural	17	49.59	1.85		2.68 at 0.01 Significance	



**Figure 5:** Graphical Representation of Data

As shown in the table, 2.01 at 0.05 level of significance and 2.68 at 0.01 level of significance are required values for assessing significance with a degree of freedom of 48. The “t” value we calculated is 1.6, which is lower than the table value, As a result, the null hypothesis cannot be rejected at 0.05 as well as 0.01 level of significance. The hypothesis is therefore accepted. Though the above table shows a slight difference in the Mean of the two

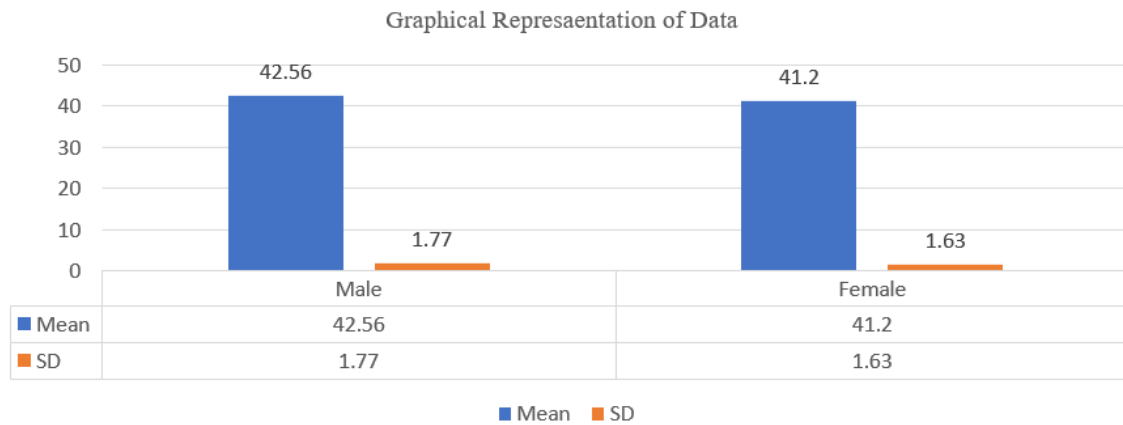
groups, still it is not significant at any standard level of significance.

As a result, we can conclude that the two groups of students namely urban and rural, do not differ significantly in terms of their proficiency of various ICT devices.

H0.5 There is no significant difference between male and female PG students in relation to the usage of various ICT devices for their academic purpose.

**Table 5:** Showing the results of the Mean, SD, and t-value of male and female PG students to know the usage of various ICT devices for their academic purpose

Group	N	Mean	SD	t-value	Table value	Result
Male	25	42.56	1.77	2.89	2.01 at 0.05 Significance	Significance
Female	25	41.20	1.63		2.68 at 0.01 Significance	



**Figure 6:** Graphical Representation of Data

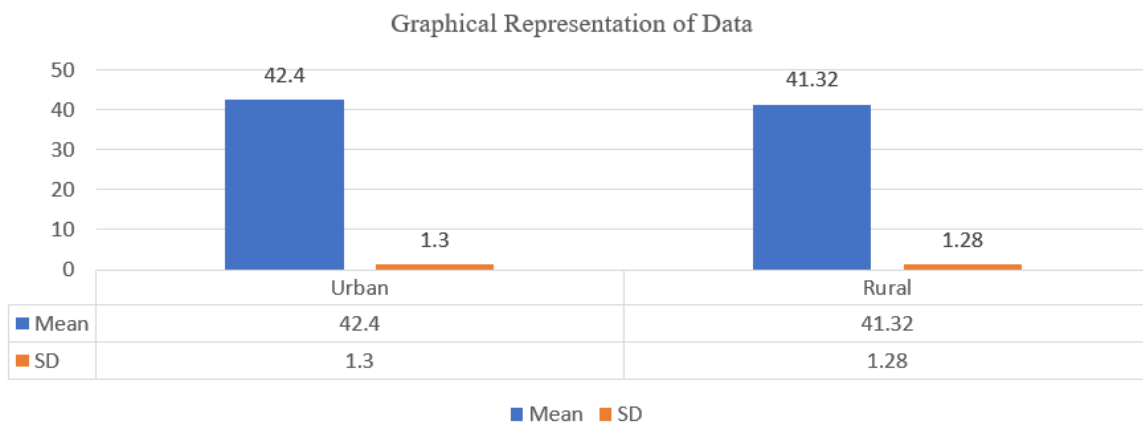
As shown in the table, 2.01 at 0.05 level of significance and 2.68 at 0.01 level of significance are required values for assessing significance with a degree of freedom of 48. The “t” value we calculated is 2.89, which is higher than the table value, As a result, the null hypothesis is rejected at 0.05 as well as 0.01 level of significance. Though the above table shows a slight difference in the Mean of

the two groups. As a result, we can conclude that the two groups of students namely male and female differ significantly in terms of the usage of various ICT devices for their academic purpose.

H0.6 There is no significant difference between urban and rural PG students in relation to the usage of various ICT devices for their academic purpose.

**Table 6:** Showing the results of the Mean, SD, and t-value of urban and rural PG students to know the usage of various ICT devices for their academic purpose

Group	N	Mean	SD	t-value	Table value	Result
Urban	33	42.40	1.30	3	2.01 at 0.05 Significance	Significance
Rural	17	41.32	1.28		2.68 at 0.01 Significance	



**Figure 7:** Graphical Representation of Data

As shown in the table, 2.01 at 0.05 level of significance and 2.68 at 0.01 level of significance are required values for assessing significance with a degree of freedom of 48. The “t” value we calculated is 3, which is high than the table value, As a result, the null hypothesis is rejected at 0.05 as well as 0.01 level of significance. Though the above table shows a slight difference in the Mean of the two groups.

As a result, we can conclude that the two groups of students namely urban and rural differ significantly in terms of the usage of various ICT devices for their academic purpose.

## DISCUSSION AND FINDINGS

### Objective 1

Learning is facilitated by ICT when students are knowledgeable or experienced about the availability of information and communication technology (ICT) devices that can be utilised to quicken and simplify their learning. Students who are aware of the availability of information and communication technology (ICT) devices are more likely to use them. Thus, the study's first objective was to determine the awareness of ICT devices among postgraduate students that ICT could help them with their learning. On the basis of data analysis, the investigators clearly found that the majority of postgraduate students in this survey were aware of the various ICT facilities utilised in their learning, but there were differences in their awareness.

The researchers found that there is a difference in the awareness level of various ICT devices between male and female PG students. But there is no difference in the awareness level of various ICT devices between urban and rural PG students.

### Objective 2

Another objective of the study was to know the proficiency of ICT devices. Here the data collected by the investigators specifically represented that the students need to be proficient in using ICT devices to acquire adequate information for their learning. The capacity to achieve a goal with the highest level of accuracy and the least amount of time and effort highly depends on their proficiency. Many postgraduate students who participated in this study were proficient in using different ICT devices for learning, however, there were differences exist of their proficiency.

The study established that male and female PG students differed in their proficiency in using various information and communication technology (ICT) devices. It is also measured that there is no difference in the proficiency of various ICT devices between urban and rural PG students.

### Objective 3

The last objective of the study was to investigate whether postgraduate students have the necessary skills to learn through the use of ICT devices. After careful organization

and interpretation of the data the investigators innovated that depending on their competence in using ICT devices, postgraduate students considered ICT facilities to be useful and simple to use. It was found that the majority of postgraduate students had basic skills in the use of ICT for their academic purposes.

In addition, this study also reveals that there is a difference in the usage of various ICT devices among male and female, urban and rural PG students.

## CONCLUSION

The future roadmap of ICT-based education depends on the speed of broadband penetration, availability of web-enabled and mobile-compatible learning content, and maturity of consumers in accepting the digital format of education. To boost students' learning, the instructor should be in a position to integrate modern teaching and learning techniques with technology. Technology may set new standards for student education and learning experiences. To make ICT an effective and integral tool of education, monitoring, and evaluation must be a priority. The urban-rural, male-female divide in terms of awareness, access, equity, and resources will continue to be the main issues that Indian educators will have to address as the needs of the learning community will change on a priority basis.

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