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NAVIGATING THE DIGITAL LANDSCAPE: AN ANALYSIS OF DIGITAL COMPETENCY OF SECONDARY SCHOOL STUDENTS

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ABSTRACT

The process of digitalization is applying now a days in almost all aspects of human society. As fast as the process of digitalization is growing the concept of digital competency is also getting importance day by day. During the period of Covid-19 also, digital education has become the major alternative to continue educational activities through the utilization of digital tools and technologies, online learning platforms etc and which is still continuing in the field of education.

This study aims to investigate the digital competency level among the students of secondary school of Kamrup district of Assam. The study was conducted on 200 secondary students of class 10 selected by using stratified random sampling technique. For the purpose of collecting data, a self-constructed Digital Competency test was used. Different descriptive and inferential statistics like mean, t-test, standard deviation etc. were applied for analysing the collected data in SPSS software. It was found in the present study that higher percentage of pupils (72.5%) have average digital competency level. Likewise, significant difference in secondary school students' digital competency with regard to gender, management of school and locality of the school was also identified.

Keywords: Digital Competency, Secondary School Students, ICT, Digital world, Digital Education

1. INTRODUCTION

Information and Communication Technology (ICT) has occupied a very prominent position in every aspect of modern life. The process of digitalization is growing day by day in almost all the fields of human life. Digital transformation has resulted in significant changes in the social, economic, educational, and other domains. It has significantly altered people's daily lives, communication, education, trading, and other day-to-day activities throughout the past few decades

The term 'Competency' in general refers to the ability, skill or capability to perform a specific task or activity in an effective manner. Digital competency implies the ability of an individual to use digital technologies, tools, and resources effectively for problem-solving and productivity. Digital competency refers to the ability to use Information Society Technology (IST) for work, communication and leisure with confidence and critical thinking. It includes the fundamental

skills of ICT like using computers to retrieve, evaluate, store, create, present and exchange information as well as interact with others and take part in collaborative networks via the Internet (European Commission, 2006).

2. RATIONALE OF THE STUDY

Like any other aspects, education sector is also changed by ICT from teaching-learning to assessment and evaluation to a great extent. Today our education system is not only limited to face-to-face teaching-learning environment, but ICT has offered the facilities of online communication among teacher-students, exchange of online learning materials, easy access to MOOCs. NEP 2020 has also prioritized online and digital education in recognition of the growing role of ICT in education. It has suggested a gradual integration of digital education into the curriculum, starting in elementary school and at the high school level also various digital resources like interactive learning tools, simulations, online assessment systems etc. will be accessible for the students. The integration and application of ICT in education have encouraged both the teacher and students to be more engaged in the teaching-learning process. The government of India has launched several digital learning platforms such as National Digital Library of India, NPTEL, e-PG Pathsala, SWAYAM, DIKSHA to provide students and teachers with digital learning resources. However, acquiring digital competency and skills has become highly important for the students for taking the maximum advantage of these digital learning facilities. In this increasingly digital world, proficiency in digital technology is very essential for the academic success and future career prospects of the students. Lack of digital competency among the students may deprive them from the benefits of modern and advanced digital educational resources. Therefore, there exists a greater significance of investigating the digital competency level of the students, which may further give a picture of the existence of digital divide.

3. REVIEW OF RELATED LITERATURE

Hatlevik and Christophersen (2013) in the study entitled 'Digital competence at the beginning of upper secondary school: Identifying factors explaining digital inclusion' found that it is important for schools to identify digital deficiencies and digital achievements of the students to sustain digital inclusion. According to Koskinen (2015), digitalization can support the process of learning and enables the learners to learn at any place at any time. Digital competence, according to Ilomaki et al. (2016), consists of a range of abilities and skills including technological competence, use of digital technologies in an appropriate manner for studying, working and other everyday activities, the capacity to critically evaluate digital technologies, and motivations to participate and commit to digital culture. Kuzminshka, (2018) carried out research on 'Digital competence of the students and teachers in Ukraine: Measurement, Analysis and Development Prospects' and discovered that the level of digital competency possessed by both the teachers and students is above average. Kaur Manpreet & Sharma (2022) carried out a study on 'Digital competence among research scholars in relation to their academic achievement and selected demographic variables'. According to this study, the level of digital competence among research scholars is of different levels and none of them possess a of high level competency in the digital field. Furthermore, no discernible gender difference was found in the study with respect to digital competency. A study on 'ICT competency among teachers of secondary school' was conducted by Reang, Juran Joy & Mohalik, Ramakanta (2023). It was concluded that most of the teachers have low competency in ICT. It was also discovered that, in terms of ICT competency, there are no noticeable differences between male and female teachers, teachers of science and arts, urban and rural

A study of related literature revealed that many studies on digital competency among teachers, research scholars, students of colleges and universities have been undertaken, but relatively few studies have been conducted on digital competency among the secondary school students. Likewise, the number of studies on digital competency is lesser in Assam in comparison to other countries and parts of India. Furthermore, several studies have identified the necessity of digital competency among students in the modern digital world. Therefore, there is a greater significance and relevancy of the present study in today's digital world.

3.1. OBJECTIVES

1) To study the level of digital competency of secondary school students of Kamrup district.

2) To compare the digital competency of secondary school students of Kamrup district with respect to:

- Gender,

- Management of school
- Location of school.

Hypotheses

H01. There is no significant difference in digital competency of secondary school students with respect to gender, i.e., male and female.

H02. There is no significant difference in digital competency of secondary school students with respect to management of school, i.e., provincialized and private.

H03. There is no significant difference in digital competency of secondary school students with respect to locality of the school, i.e., urban and rural.

Delimitation of the Study

The present study has been delimited to the students of class X of Kamrup District of Assam only.

4. METHODOLOGY

Method: In order to meet the objectives of the study, quantitative data on secondary school students' digital competency were collected by using descriptive survey method.

Population and sample: All the class 10 students of Kamrup district of Assam are the population of the present study. From the population, 200 students of class 10 were selected from 12 schools of Kamrup district by using stratified random sampling in the following manner

Table 1 Sample of students

Types of management	**Total No. schools**		**No. of students**		**Total No. of students**
			Male	**Female**	
	Urban	**Rural**			
Provincialized	03	03	50	50	100
Private	03	03	50	50	100
Total No. of schools	12		100	100	200

3) **Tool used:** The investigator used a self-constructed 'Digital Competency Test' to assess the students' digital competency. The test was comprised of 30 multiple-choice questions. Items were finalized by calculating the Difficulty Value and Discrimination Index of each item.

4) **Procedure of data collection and techniques of analysis:**

Required data were collected by the investigator by visiting 12 secondary schools of Kamrup district of Assam. After getting permission from the Heads of the institutions, the investigator provided the Digital Competency Test to 200 students of class 10 and instructed them to answer the questions. For the completion of the test, students were provided a total time period of 30 minutes.

Different descriptive and inferential statistics like mean, t-test, standard deviation etc. were applied for analysing the collected data in SPSS software.

Data Analysis and Interpretation

The following table shows the digital competency level of the students of secondary stage of education:

Table 2 Digital Competency level among secondary school students

Range of Raw Scores	Frequency	Percentage	Level
21 and above	11	5.5	Very High
20-18	18	9	High
17-10	145	72.5	Average
09-08	23	11.5	Low
07 and below	03	1.5	Very Low

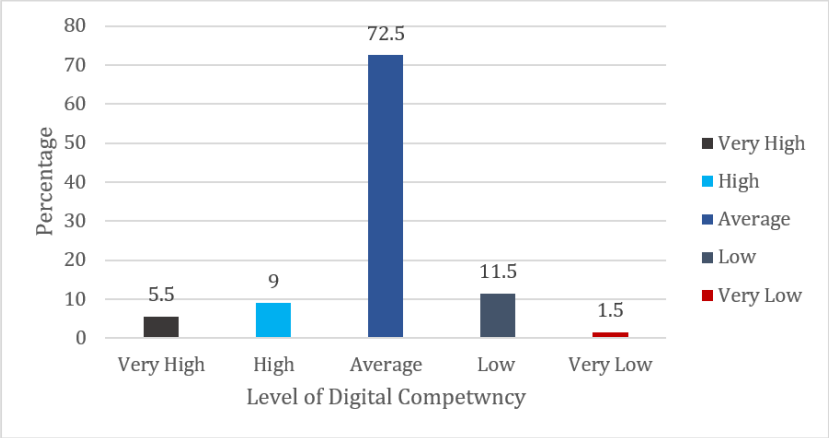

Figure 1 Digital Competency level of secondary school students

Table 2 and Figure 1 indicate that 5.5% of students have very high level of digital competency and 9% of students have high level of digital competency. The percentage of students having average level of digital competency is more, i.e., 72.5%. Again, the percentage of students with low and very low digital competency is 11.5% and 1.5% respectively. Thus, from this result, it can be inferred the digital competency level for majority (72.5%) of the students is average.

To meet objective 2 i.e., to compare the secondary school students' digital competency with respect to gender, management of school and location of school, the following tables and figures are prepared.

Table 3: Mean difference in Digital Competency level between male and female students

Gender	Number of Students	Mean	S.D.	SEm	t- value	Table value at 0.05 level	df
Male	100	15.66	2.75	.275	3.58	1.98	198
Female	100	12.21	2.98	.298			

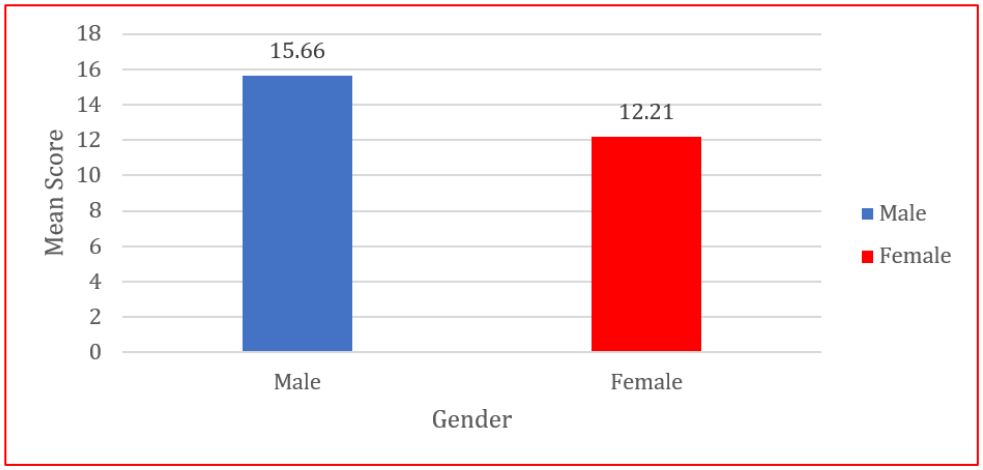

Figure 2 Mean difference in Digital Competency level between male and female students

Table 3 and Figure 2 shows the comparison between the male and female students of Kamrup district of Assam with regard to their digital competency. From the same Table it is observed that the calculated "t" value is 3.58 is higher than the table value 1.98 at 0.05 level of significance. Hence, the null hypothesis. "There is no significant difference in digital competency of secondary school students with respect to gender, i.e., male and female" is rejected. Therefore, it can be concluded that the mean scores of digital competency of male and female secondary school students of Kamrup district differ significantly.

Further, the male students' mean score on digital competency is 15.66, which is greater than the female students' mean score on digital competency, i.e., 12.21. Therefore, it can be stated that the male students of secondary schools are found to be digitally more competent than female students.

Table 4: Mean difference between students of

Management of school	Number of Students	Mean	S.D.	SEm	t- value	Table value at 0.05 level	df
Provincialized	100	13.84	2.68	.268	5.65	1.98	198
Private	100	16.03	2.80	.280			

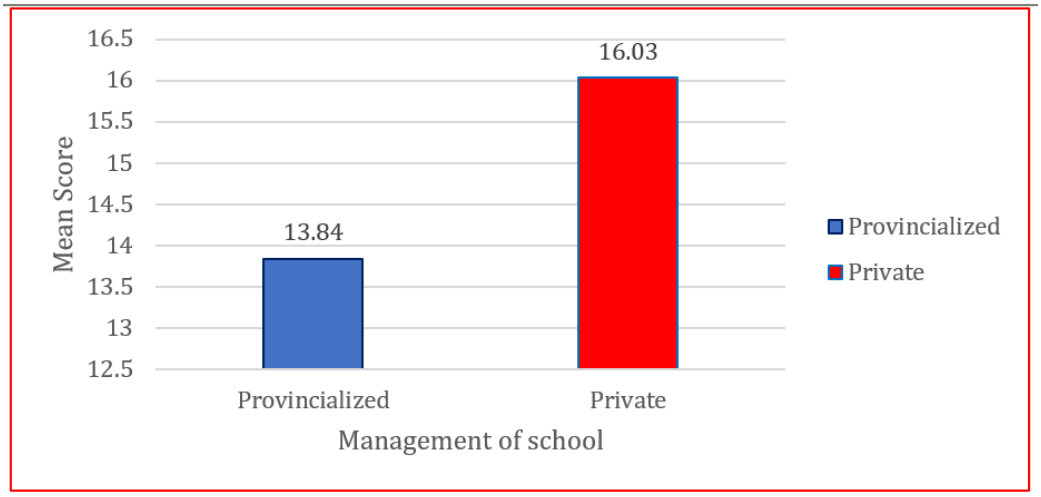

Figure 3 Mean difference between students of provincialized & private Schools with respect to Digital Competency level

Table 4 and Figure 3 indicate the comparison of digital competency between the secondary school students studying in provincialized and private schools of Kamrup district of Assam. According to Table 4, the calculated "t" value 5.65 is higher than the Table value 1.98 at 0.05 level of significance. Hence, the null hypothesis, "There is no significant difference in digital competency of secondary school students with respect to management of school, i.e., provincialized and private" is rejected. Therefore, it can be stated that there are significant differences in the mean scores of digital competency between the students studying in provincialized and private secondary schools of Kamrup district.

Further, the mean score of digital competency of private school students is 16.03, which is higher than the mean score of provincialized school students, i.e., 13.84. Hence, it may be concluded that the level of digital competency of private school students is higher than the provincialized school students.

Table 5 Mean difference in Digital Competency level between the

Locality of School	Number of Students	Mean	S.D.	SEm	t- value	Table value at 0.05 level	df
Urban	100	16.30	2.57	0.257	7.38	1.98	198
Rural	100	13.57	2.66	0.266			

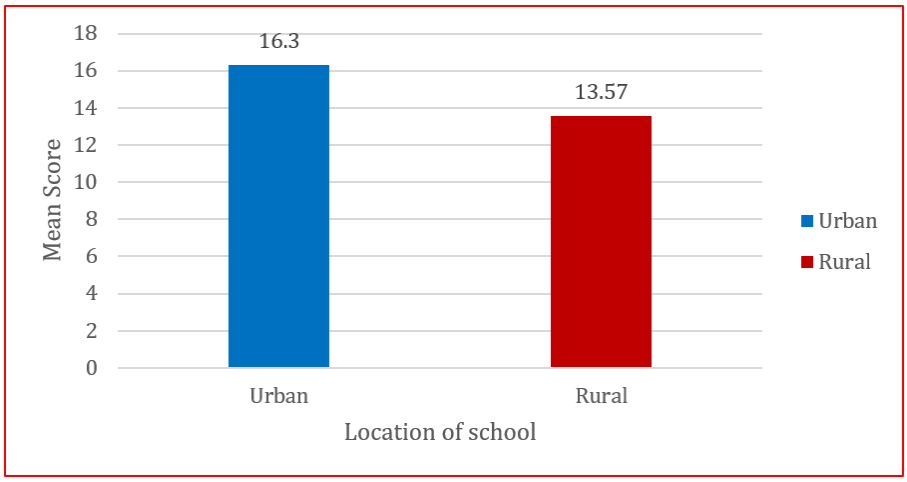

Figure 4 Mean difference in Digital Competency level between the students of urban and rural schools

Table 5 and Figure 4 indicate the comparison of digital competency among the students of Urban and Rural secondary schools of Kamrup district of Assam. From the same Table, it is found that the calculated "t" value 7.38 is higher than the Table value 1.98 at 0.05 level of significance. Thus, the given null hypothesis. "There is no significant difference in Digital competency of secondary school students with respect to locality of the school, i.e., urban and rural" is rejected. Hence, it can be concluded there is significant difference between the students of urban and rural schools in terms of their mean scores of digital competency.

Further, students of urban schools have higher mean score for digital competency, i.e., 16.30 than the students of rural schools, i.e., 13.57. It shows that the digital competency level of the urban school students is more than the students of rural schools of Kamrup district of Assam.

5. MAJOR FINDINGS

Based on the analysis of data, the key findings of the present study on digital competency among secondary school students of Kamrup District are discussed below:

- According to the findings of the study 72.5 percent of secondary school students or majority of the students possess an average level of digital competency.

- The study also shows that male students of secondary schools of Kamrup district of Assam possess higher level of digital competency than the female students.
- It was also discovered in the study that students of private schools have higher level of digital competency than that of the students of provincialized schools.
- The present study reveals a significant difference between the schools located in rural and urban areas. Students of urban schools demonstrate higher level of digital competency than the students of rural schools of Kamrup district of Assam.

6. DISCUSSION

Digitalization has become pervasive across all the aspects of educational process viz, admission, attendance, examination results, online classes and so on in the recent years. The present study identified that the digital competency level of the students of secondary stage of Kamrup district is average. Only 5.5% of students possess very high level digital competency and 9% possess high level of digital competency. However, in this present era of rapid digitalization, this percentage of digital competency among students is very low. For this scenario, we could not only blame the students. There may be a number of reasons like lack of proper digital facilities and access in the schools, lack of digitally trained teachers, more emphasize on traditional teaching methods, lack of digital literacy programme, language barrier etc., which may cause the absence of required among the students. Numerous studies have identified significant difference in digital competency between male and female students. Maria Soledad Ibarra et al. (2017) conducted a research study which identified that the score of males in ICT knowledge and use is higher than females. This fact was further supported by the findings of the present study, which indicates that male students have a higher level of digital competency than female students. Lack of interest among female students towards digital technology and activities may be a major cause of this difference. Likewise, differences in digital competency between the students studying in provincialized and private schools have also been identified by the present study. Private schools are able to make their students digitally more competent than the provincialized schools. Generally, we can observe that the infrastructure facilities and resources of private schools are often better than provincialized or government schools. Further, the present study identified that students of urban area schools have higher level of digital competency than that of the students of rural area schools. One of the major causes of this gap can be identified in the work of Kumar, B.T. Sampath & Kumara, S.U. Shiva (2018), where it was identified that in rural areas only 20.66% of students used computers, while in urban areas 69.70% of students used computers for various academic activities. Besides this, other causes like poor digital infrastructure, lack of trained teachers, lack of awareness among parents, poverty of parents etc. in rural areas also contribute to the development of digital divide between the schools of rural and urban areas in terms of digital competency of the students.

6.1. EDUCATIONAL SIGNIFICANCE OF THE STUDY

This study provides valuable and significant inputs to the students, teachers, educational administrators, educators, policy makers for improving the students' digital competency in this rapidly evolving digital landscape. The present study identified that the level of digital competency of secondary school students is average and there are significant differences in digital competency between male and female students, students studying in provincialized and private schools and students of urban and rural schools. Hence, these results may draw the attention of the concerned authorities to increase and improve the digital facilities in schools for the students so that they may get the opportunity of improving their digital skills and competency. The findings drawn from the present study will be useful for addressing the issue of digital divide in education. Furthermore, the present study may also make the teachers alert to acquire the necessary digital knowledge and skills for incorporating technology into their teaching practices effectively. Investigating the digital competency level of the students of secondary stage can help the curriculum reformers also to include essential digital skills across various subjects. Hence, we may draw the conclusion that the present study has a greater educational implication.

7. RECOMMENDATIONS

- The government should try to provide the schools with a variety of digital facilities as much as possible for improving the digital competency level of the students.
- All the students are need to be encouraged to use various digital tools and platforms for their learning purposes.
- It must be ensured that teachers are well-trained in using digital tools effectively. For this, continuous teacher training programme on the application of ICT should be organized by the concerned authority.
- ICT should be included as an essential component of the secondary education curriculum, which will enable the students to perform various digital tasks effectively.
- Since in this study a significant difference has been found between male and female students with respect to their digital competency, it may be recommended to encourage the female students to involve themselves in various digital activities with full confidence.

8. CONCLUSION

In today's digital world, acquisition of digital knowledge and skills has increasingly become an essential requirement for the students, especially in the educational field. Now a days knowledge is not only limited to the pages of a book. Today students can access a large amount of knowledge and information from every corner of the world with a single click. However, students must have to equip themselves with the necessary digital knowledge and skills for taking the benefits of all these facilities. Therefore, an attempt has been made in the present study to investigate the digital competency level of the secondary school students of Kamrup district of Assam. From the study, it was identified that the level of digital competency for the majority of secondary school students is average. Male students possess higher level of digital competency than their female counterparts. Likewise, students of provincialized schools, which are even run by government funds, are lacking in digital competency in comparison to the private school students. This aspect should be focused by the government and maximum financial and other facilities should be provided to the provincialized schools to improve their digital infrastructure. Likewise, it was also identified in the present that students of urban area schools possess higher level of digital competency in comparison to the students of rural area schools. Therefore, special attention should be paid by the government to the schools of rural area to improve their digital facilities and infrastructure. Hence, we may conclude that teachers, educators, authorities, policy makers, government must take various attempts to make all students highly competent in the digital field, and in this way help them to prepare for their future academic and professional life in this rapidly evolving digital landscape.

CONFLICT OF INTERESTS

None.

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None.

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