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Digital Device usages among Higher Institutions in Manipur

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Abstract: Digital devices such as smart phones, laptops, tablets and desktops computers have become important tools in higher education. Digital devices offer several educational benefits, including easy access to information, flexible learning opportunities, interactive teaching and improved communication between students and teachers. This paper explores to access the digital divide access, usage, types and AI Chatbos usages. Research Methodology: Descriptive survey method is adopted and 379 students respondent were selected randomly from the different institutions of Manipur preparing using 25 items questionnaire through goggle form and personal interaction. Findings: The findings indicate that the respondent population was predominantly composed of female students, postgraduate degree holders, individuals below the age of 25 years, respondents belonging to the OBC category, and students residing in rural areas. A large proportion of respondents also reported family incomes below ₹ 1 lakh per annum. The Chi-square analysis examining the association between digital device availability and socio-economic characteristics revealed a statistically significant relationship only with gender. No significant associations were observed with place of residence, family income, educational qualification, or university affiliation.

Keywords: digital devices, higher institutions, access, academic, usages

Introduction

Digital devices such as smart phones, laptops, tablets and desktops computers have become important tools in higher education. Digital devices offer several educational benefits, including easy access to information, flexible learning opportunities, interactive teaching and improved communication between students and teachers.

The digital divide in India both in the access and usage of ICTs and the internet is real and deep. The digital divide becomes particularly problematic when half of the population neither has access to gadgets and the internet or the technological know-how to move to a digital environment. The challenge of digital inequality is especially relevant in the North-Eastern region of India, where geographical constraints, infrastructural limitations, and uneven development continue to influence access to digital resources. Manipur, like many other states in the region, faces challenges associated with internet connectivity, network quality, electricity availability, affordability of digital services, and access to digital infrastructure. Such challenges may affect students' ability to participate fully in digital learning environments and limit their opportunities for academic engagement and skill development.

The internet has changed business, education, government; healthcare and even the ways in which we interact with our loved ones-it has become one of the key drivers of social evolution. ICT networks and services have changed the way business improve, compete and increase productivity (Jovanovic and Rousseau, 2005; Liao, Wang, Li and Weyman-Jones 2016).

University students constitute an important population for examining the digital divide because higher education increasingly depends on digital technologies for learning, communication, research, assessment, and professional development. Students are expected to access online learning platforms, digital libraries, scholarly

databases, virtual classrooms, and collaborative learning tools as part of their academic activities. In addition, digital competencies have become essential for future employment and career advancement in an increasingly technology-driven economy. Consequently, disparities in digital access, digital literacy, and digital competency may influence students' educational experiences, academic outcomes, and future opportunities.

The reviewed literature shows that digital inequality is especially relevant in higher education because students are increasingly required to use digital platforms for learning, communication, reading, submission of assignments, and research. The studies by Barot (2020) and Banker and Vaja (2020) in the uploaded review stress that higher education students from low-income or rural backgrounds may struggle to access the same resources as their better-connected peers. Gulzar, Mehmood, and Ahmad (2024) further note that the digital divide affects learning outcomes in higher education institutions, while Sai, Lavanya, and Padmanbika (2024) emphasize that unequal access to digital technologies affects education, employability, healthcare, and governance. These studies collectively show that the divide in higher education is not only about whether students can connect to the internet, but also whether they can participate effectively in digital learning environments and achieve comparable educational outcomes.

Objectives:

i) To study the access of digital divide access, usage, types

ii) To explore AI Chatbos usages among university students

iii) To examine the students' availability of Digital Divide among university

Research Methodology:

The present study is descriptive research method and 379 students respondent were selected randomly from the different institutions of Manipur. Questionnaire was used for collecting the data with 25 items through goggle form and personal interaction. Data is analysed with the help of percentage and chi-square method.

Result and Discussions:

a) Digital Devices: Access, Usage and Types

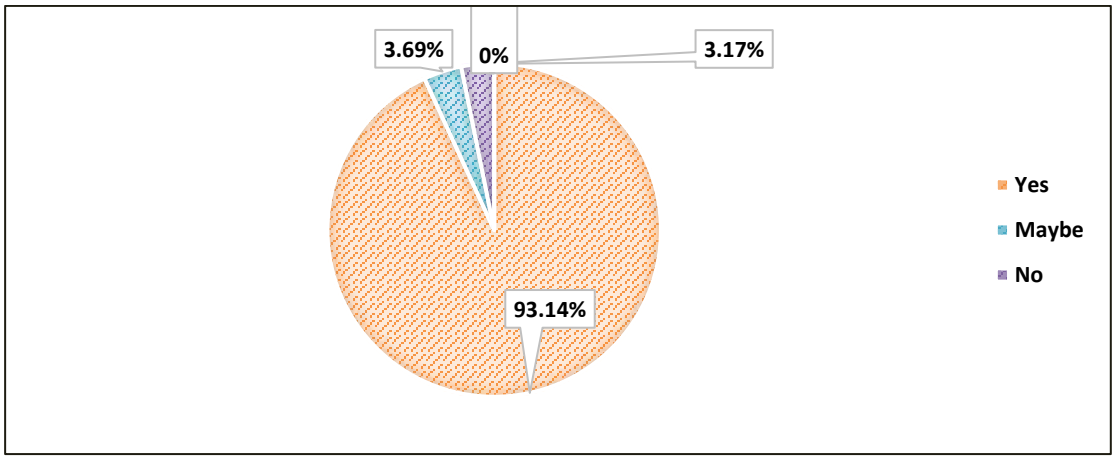


Fig 1. Availability of Digital Devices for Internet Access

Figure 1 illustrates the distribution of respondents by the availability of digital devices for internet access. Out of the total 379 respondents surveyed, individuals who indicated "Yes" constituted the major category and the largest proportion with 353 respondents (93.14%). The second largest group was the "Maybe" segment, which

accounted for 14 respondents (3.69%). The lowest representation was observed in the "No" category, which included 12 respondents, comprising 3.17% of the total population. Respondents with access to digital devices formed the majority of the surveyed population, while those indicating no device availability represented the smallest group.

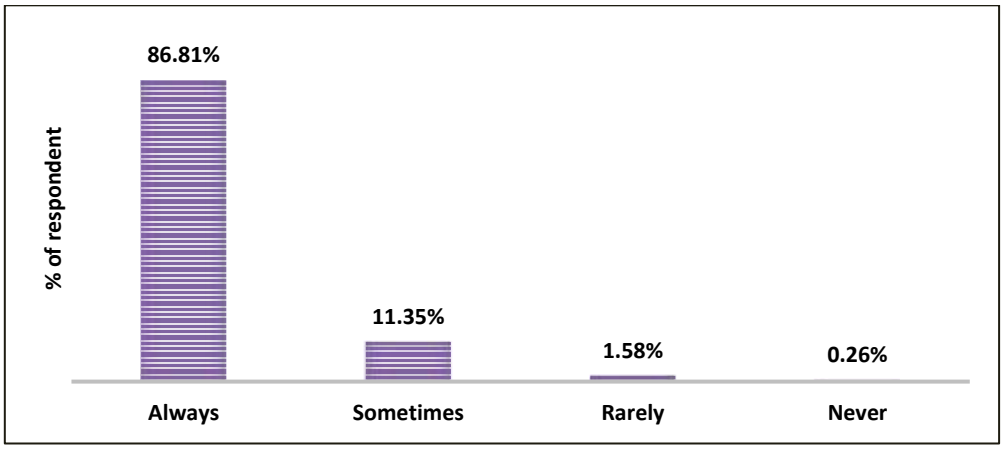


Fig 2. Frequency of Smartphone Usage for Academic Purposes

Figure 2 illustrates the frequency of smart phone usage for academic purposes. Out of the total 379 respondents surveyed, individuals who responded "Always" constituted the major category and the largest proportion with 329 respondents (86.81%). The second largest group was the "Sometimes" segment, which accounted for 43 respondents (11.35%). The "Rarely" bracket represented a smaller segment of the sample with 6 respondents (1.58%). The lowest representation was observed in the "Never" category, which included only 1 respondent, comprising 0.26% of the total population. Respondents who always use smart phones for academic purposes formed the majority of the surveyed population, while those who never use them represented the smallest group.

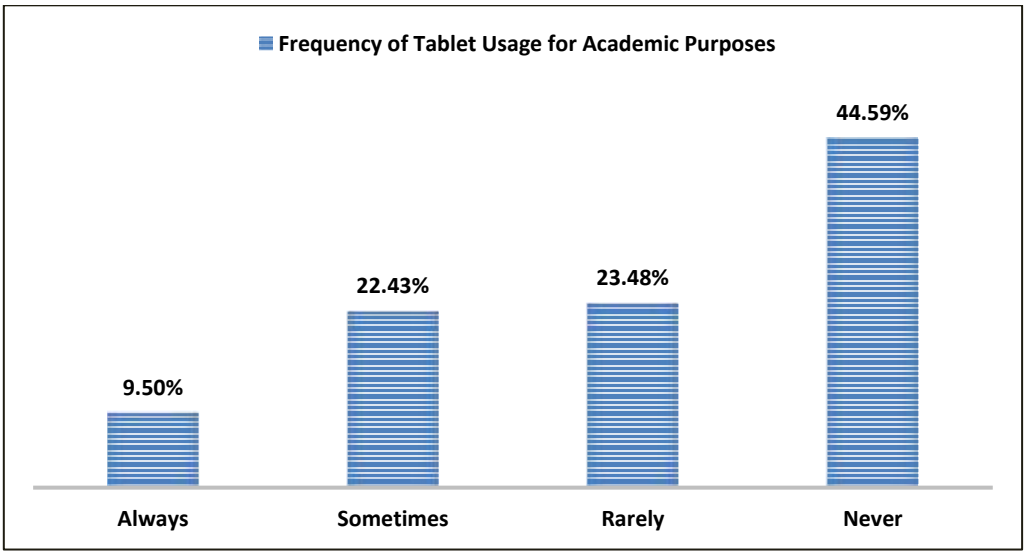


Fig 3. Frequency of Tablet Usage for Academic Purposes

Figure 3 illustrates the frequency of tablet usage for academic purposes. Out of the total 379 respondents surveyed, individuals who responded "Never" constituted the major category and the largest proportion with 169 respondents (44.59%). The second largest group was the "Rarely" segment, which accounted for 89 respondents

(23.48%). This was followed closely by the "Sometimes" bracket with 85 respondents (22.43%). The lowest representation was observed in the "Always" category, which included 36 respondents, comprising 9.50% of the total population. Respondents who never use tablets for academic purposes formed the majority of the surveyed population, while those who always use them represented the smallest group.

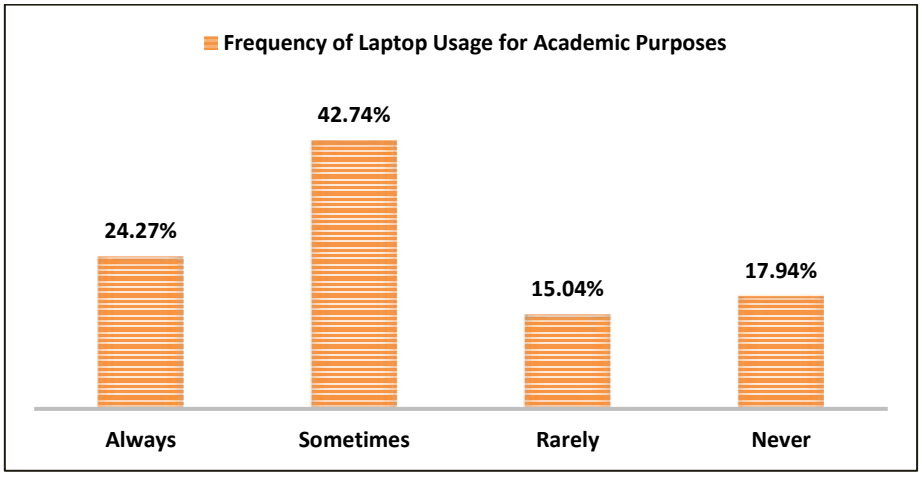


Fig 5. Frequency of Laptop Usage for Academic Purposes

Figure 5 illustrates the frequency of laptop usage for academic purposes. Out of the total 379 respondents surveyed, individuals who reported using laptops "Sometimes" made up the major category and the largest portion of the sample, with 162 respondents (42.74%). The next largest share belonged to those who use them "Always," accounting for 92 respondents (24.27%). On the lower end, 68 respondents (17.94%) stated they "Never" use a laptop for their studies, while the lowest representation was found in the "Rarely" category, which included 57 respondents (15.04%). Overall, the majority of the surveyed population uses laptops on at least some basis for academic tasks, whereas those who use them rarely represent the smallest group.

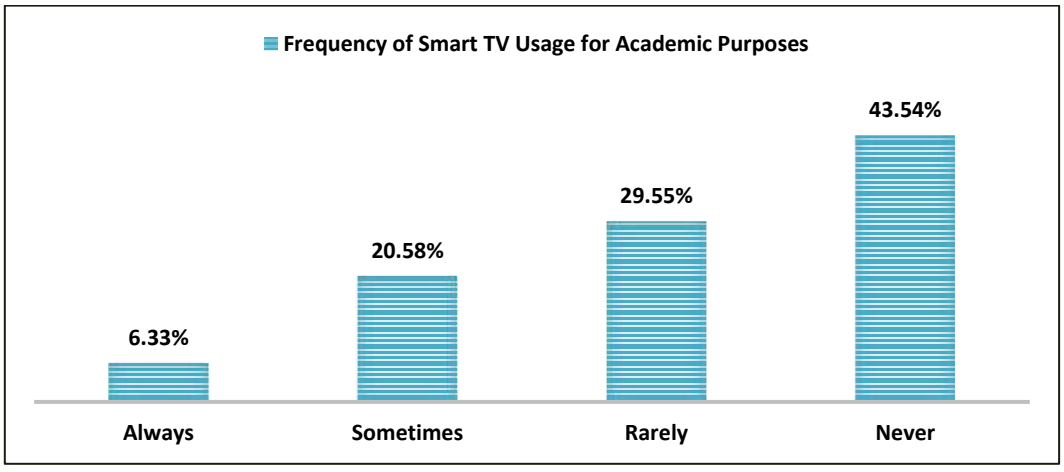


Fig 6. Frequency of Smart TV Usage for Academic Purposes

Figure 6 illustrates the frequency of Smart TV usage for academic purposes. Out of the total 379 respondents surveyed, individuals who reported "Never" using a Smart TV made up the major category and the largest portion of the sample, with 165 respondents (43.54%). The next largest share belonged to those who use them

"Rarely," accounting for 112 respondents (29.55%). On the upper end, 78 respondents (20.58%) stated they use a Smart TV "Sometimes" for their studies, while the lowest representation was found in the "Always" category, which included 24 respondents (6.33%). For instances; where respondents utilize external streaming sticks or non-television screens for their coursework, these entries are accommodated under an implicit "Other" context within alternative technical media. Overall, the majority of the surveyed population never uses Smart TVs for academic tasks, whereas those who always use them represent the smallest group.

b) AI Chatbot Usage

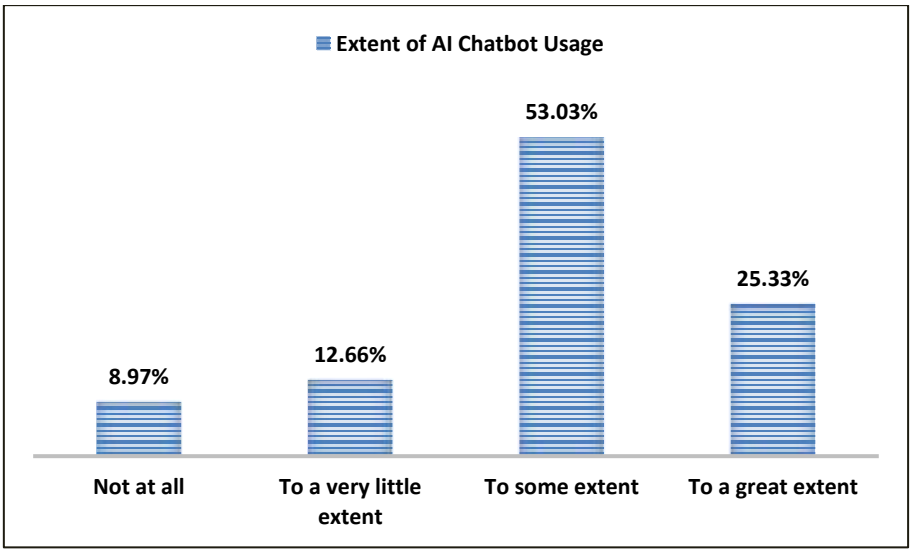


Fig 4.19 Extent of AI Chatbot Usage

Figure 4.19 illustrates the extent of AI chatbot usage reported by the participants based on the survey data in image_80a2aa.png. Out of the 379 total respondents, individuals who use AI chatbots "To some extent" formed the major category and the highest proportion, with 201 participants (53.03%). The second most frequent response was "To a great extent," which was selected by 96 individuals (25.33%). On the lower end of the usage spectrum, 48 respondents (12.66%) indicated they utilize these tools "To a very little extent." The lowest representation was found in the "Not at all" category, which accounted for 34 respondents, comprising 8.97% of the total study population. Taken as a whole, the majority of the surveyed population engages with AI chatbots to at least some degree, whereas those who do not use them at all represent the smallest group.

c) Digital Divide among university students

Table 1.1 Association between Availability of Digital Devices and Socio-economic Characteristics

Variable	χ^2	p-value	Significant (5%)
Place of Residence	4.588	0.332	No
Gender	29.279	0.000	Yes
Family Income	11.214	0.190	No
Educational Qualification	3.141	0.791	No
University	4.866	0.301	No

Table 1.1 presents the results of the Chi-square test examining the association between the availability of digital devices and selected socio-economic characteristics of the respondents. Among the variables considered, gender was found to have a statistically significant association with the availability of digital devices at the 5 per cent level of significance ($\chi^2 = 29.279$, $p = 0.000$). This indicates that the availability of digital devices varied significantly across gender categories.

In contrast, place of residence ($\chi^2 = 4.588$, $p = 0.332$), family income ($\chi^2 = 11.214$, $p = 0.190$), educational qualification ($\chi^2 = 3.141$, $p = 0.791$), and university affiliation ($\chi^2 = 4.866$, $p = 0.301$) did not show statistically significant associations with the availability of digital devices, as their respective p-values were greater than 0.05. Therefore, no significant relationship was observed between the availability of digital devices and these socio-economic characteristics among the respondents included in the study.

Table 1.2 Associations between Digital Divide Indicators and Place of Residence

Digital Divide Indicator	χ^2	p-value	Significant (5%)
Internet Speed Satisfaction	10.655	0.222	No
Affordability of Internet Services	0.706	0.951	No
Access to Scholarly Journals	5.065	0.281	No
Availability of ICT Centres	2.476	0.290	No
AI Chatbot Usage	1.8459	0.933	No

Table 1.2 presents the results of the Chi-square analysis examining the association between selected digital divide indicators and the place of residence of the respondents. The findings show that none of the digital divide indicators exhibited a statistically significant association with place of residence at the 5 per cent level of significance.

Among the indicators examined, internet speed satisfaction recorded a Chi-square value of 10.655 with a p-value of 0.222, indicating the absence of a significant association. Similarly, affordability of internet services was not significantly associated with place of residence ($\chi^2 = 0.706$, $p = 0.951$). Access to scholarly journals also showed no statistically significant relationship ($\chi^2 = 5.065$, $p = 0.281$).The analysis further revealed that the availability of ICT centres was not significantly related to place of residence, as evidenced by a Chi-square value of 2.476 and a p-value of 0.290. Likewise, AI chatbot usage did not vary significantly across different places of residence ($\chi^2 = 1.846$, $p = 0.933$).

Findings

The findings indicate that the respondent population was predominantly composed of female students, postgraduate degree holders, individuals below the age of 25 years, respondents belonging to the OBC category, and students residing in rural areas. A large proportion of respondents also reported family incomes below ₹ 1 lakh per annum. These characteristics provide the socio-economic context within which digital access and usage patterns may be understood. The analysis of digital device availability suggests that most respondents had access to at least one digital device for internet use. Smartphones emerged as the most frequently used device for academic purposes, with a substantial majority reporting regular use. In contrast, tablets and Smart TVs were used less frequently for educational activities, while laptops occupied an intermediate position, with many respondents reporting occasional or regular use. These findings suggest differences in the educational role played by various digital devices among the surveyed students. AI chatbot usage was also found to be relatively

common among the respondents, with most students reporting usage to some extent or to a great extent. At the same time, a smaller group reported limited or no use of such tools, indicating differences in the adoption of emerging digital technologies. The Chi-square analysis examining the association between digital device availability and socio-economic characteristics revealed a statistically significant relationship only with gender. No significant associations were observed with place of residence, family income, educational qualification, or university affiliation. Similarly, the analysis of selected digital divide indicators and place of residence did not reveal statistically significant associations. Within the scope of the variables examined, these findings suggest that place of residence was not significantly related to internet speed satisfaction, affordability of internet services, access to scholarly journals, availability of ICT centres, or AI chatbot usage among the respondents included in the study.

Conclusions

From the above discussion, it can examine the socio-economic characteristics of 379 university students and assessed selected dimensions of the digital divide. The respondent population was largely composed of female students, postgraduate degree holders, individuals below 25 years of age, respondents belonging to the OBC category, and students from rural areas. A majority of respondents also reported family incomes below ₹1 lakh per annum. It showed that access to digital devices was widespread, with smartphones serving as the primary device for academic activities. Tablet and Smart TV usage for educational purposes was relatively limited, while laptop usage was more moderate. Most respondents reported knowledge of internet access and expressed satisfaction with internet speed. The Chi-square analysis indicated that gender was significantly associated with the availability of digital devices, whereas place of residence, family income, educational qualification, and university affiliation were not significantly associated with device availability. Furthermore, no significant association was observed between place of residence and the selected digital divide indicators considered in the study. Overall, the socio-economic profile of respondents and their patterns of digital access, connectivity, affordability, resource availability, and technology usage. It can establish the empirical background for the subsequent results which further examine the determinants and implications of the digital divide among university students.

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