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Exploring E-Learning Resource Utilization among Students in Banaras Hindu University: A Usage Pattern Analysis

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ABSTRACT: The COVID-19 pandemic necessitated a transformation in teaching and learning methods, leading to the widespread adoption of E-learning. A study was conducted from February to October 2021, employing a structured questionnaire to assess the usage pattern of E-learning resources among students from various BHU Institutes. The survey included 127 respondents, with representation from the Institute of Agricultural Sciences, Indian Institute of Technology, Institute of Medical Sciences, Institute of Management Studies, Institute of Sciences, and Institute of Environment and Sustainable Development. By employing direct questioning, information on the respondents' usage pattern of E-learning resources was obtained and categorized as either "Used" or "Not used." The study revealed that 95% of the respondents from IIT accessed the internet through tablets and computers/laptops, while 87.50% of the respondents from the Institute of Management Studies did the same. Furthermore, the study identified the primary purpose of internet usage among the respondents. Majority of respondents (96.06%) using the internet primarily for sending emails. It was found that a significant percentage of respondents from IIT and the IMS had access to the internet through tablets and computers/laptops. Moreover, the study highlighted that the majority of the respondents relied on the internet mainly for sending emails. Ensuring the willingness and availability of respondents to participate in the survey was a logistical challenge. This study sheds light on the usage patterns of E-learning resources among students in various institutes at Banaras Hindu University, providing valuable insights into how students utilize the internet for different purposes, including educational activities. Furthermore, the study contributes to the broader discourse on the role of technology in education and the impact of the COVID-19 pandemic on learning practices, highlighting the significance of E-learning as a critical tool in times of crisis and beyond.

Keywords: Covid-19, e-learning, Internet, e-mail and computer.

INTRODUCTION

The COVID-19 pandemic has profoundly impacted the global education system, affecting more than 90% of the world's learners. Traditional learning approaches have proven inadequate during these extraordinary times, leading to the widespread adoption of online learning as a critical means of continuing education. Educational institutions have implemented online learning to mitigate the community spread of the disease (Singh, 2021). The entire education ecosystem has acknowledged the need to adapt teaching and learning methods due to the COVID-19 situation, resulting in the forced adoption of E-learning methods (Sharma and Alvi 2021). According to a UNESCO study, by June 2020, over two-thirds (68.00%) of the global student population had been affected (UNESCO, 2020). The global COVID-19 epidemic led to the closure of schools and universities, impacting approximately 1.2 billion students and youths, with over 32 crore pupils affected by lockdowns in India (Jena, 2020a; Cathy Li and Lalani 2020). To curb the pandemic's spread, most governments temporarily closed educational institutions and shifted to online learning (Jena, 2020b; Aucejo *et al.*, 2020). The impact of information technology on human life is profound, and its role in education is undeniable. Information and Communication Technology (ICT) encompass computer technology, communication technology, and information management technology (Shukla *et al.*, 2022; Rajasheka, 2022; Bahubalendra, 2023; Shukla *et al.*, 2022; Rajashekar, 2022; Bahubalendra, 2023). This shift led to a somewhat forced revolution in E-learning, with digital platforms being used for remote education, especially in developing nations. Lecture delivery mechanisms transitioned to online mode, known as E-learning or internet-based learning (Shelar *et al.*, 2020). Distance learning for higher education in India began with Correspondence Courses in 1962, followed by the creation of a School of Correspondence Courses and Continuing Education at Delhi University in 1962 (Panda and Garg 2019). In recent years, the government has made significant investments in Information and Communication Technology (ICT) within educational

institutions and remains committed to its development. Over the past decade, education authorities have implemented concrete measures to promote computer usage as a means of improving teaching and learning quality (Pathak *et al*., 2017). However, despite its numerous advantages, E-learning has its limitations, such as social isolation, reduced face-to-face interaction between teachers and students, and connectivity issues. Several factors influence the adoption and acceptance of E-learning technology in the teaching-learning process, including perceived ease of use, usefulness, behavioral intention, attitude, self-efficacy, subjective norm, institute climate, and perceived hedonism. Consequently, E-learning developers and providers need a better understanding of how students perceive and react to E-learning to enhance its effectiveness (Koohang and Plessis 2004). Without a positive perception of E-learning among learners, the goal of creating a knowledge-based community remains distant. Adoption is a central concern in E-education or E-learning, as many IT systems fail due to user non-adoption, often because of usability difficulties or user reluctance. Therefore, understanding and creating conditions under which IT systems are accepted by human organizations remain high-priority research issues. Given these circumstances, the current study focuses on the usage patterns of E-learning resources by Banaras Hindu University Institute students.

RESEARCH METHODOLOGY

This study was conducted from February to October 2021 in six institutes of Banaras Hindu University: the Institute of Agricultural Sciences, Indian Institute of Technology, Institute of Medical Sciences, Institute of Management Studies, Institute of Sciences, and Institute of Environment and Sustainable Development. These institutes were purposively selected for the research. The study employed a descriptive survey research design. The total number of respondents was 127, distributed as follows: 21 from the Institute of Agricultural Sciences, 20 from the Indian Institute of Technology, 20 from the Institute of Medical Sciences, 24 from the Institute of Management Studies, 21 from the Institute of Sciences, and 21 from the Institute of Environment and Sustainable Development. The sample size was determined based on several considerations: the study's focus on undergraduate, postgraduate, and Ph.D. students, the effort made to gather responses from postgraduate and Ph.D. students residing in various hostels on the BHU campus, and the use of the whole enumeration method to select the study sample. Respondents were surveyed, and questionnaires were distributed to collect information on their usage patterns of E-learning resources. To ensure a high response rate and prevent misunderstandings during responses, the questionnaire was distributed individually. The collected data were statistically analyzed using frequency and percentage.

RESULT AND DISCUSSION

The usage pattern of E-learning resources by the students was measured by distributing questionnaires among them. The survey includes questions regarding access to the internet and purpose of internet usage.

A. Accessibility of Internet

It was concluded that 95 per cent of respondents from IIT access internet via tablet and computer /laptop followed by 87.50 per cent from institute of Management Studies whereas 30 per cent of respondent from IIT and 28.57 per cent of respondent from IAS using broadband connection at home to access internet. Majority of respondents (100.00%) and 90.75 per cent from IIT and IAS respectively access internet in educational institutes. 25 per cent of respondent from IIT and 16.66 per cent of respondent from Institute of Management Studies access internet via commercial facility (cybercafé). Similar result find by Arun and Jirli (2021); Singh (2021).

Table 1: Distribution of respondents based on way of access internet.

Way of accessinternet	IAS (n=21)	IIT (n=20)	IMS (n=20)	I. Mg. St. (n=24)	I. Sc. (n=21)	IESD (n=21)	Overall (N=127)
	Percentage						
Via-internet enabled mobile phone	100.00	100.00	85.00	100.00	100.00	100.00	97.63
Via a tablet Computer/Laptop	76.19.	95.00	45.00	87.50	71.42	76.19	75.59
At home using broadband Connection	28.57	30.00	10.00	25.00	19.04	9.50	21.25
At home using a dial- up connection	0	20.00	5.00	12.50	9.50	0	7.87
At an educational institution	90.74	100.00	90.00	50.00	85.71	80.95	81.88
Via commercial facility (cyber café)	14.28	25.00	10.00	16.66	4.76	4.76	11.81

From the Table 1 data shows that accessing the internet via internet-enabled mobile phones is the most common mode of internet access across all educational institutions and overall (N=127). The percentages are consistently high, ranging from 85.00% to 100.00%. This trend is in line with the global trend of increasing mobile internet usage due to the widespread availability and affordability of smartphones. The second most popular mode of internet access is through tablet computers or laptops. The percentages vary across

different institutions, with IIT having the highest at 95.00%, and IMS having the lowest at 45.00%. Overall, 75.59% of the respondents reported using a tablet or laptop to access the internet. Result was line with the result of Singh (2021). This trend aligns with the growing popularity of portable devices and their ease of use for browsing and online activities (Statista, 2021). Accessing the internet at home using a broadband connection is a commonly adopted method, although the percentages are lower compared to mobile phones and tablets/laptops. The data shows that IIT has the highest percentage (30.00%), and IMS has the lowest (10.00%). Broadband internet provides higher speeds and more stable connections, making it preferable for tasks that require more bandwidth. Using a dial-up connection to access the internet is almost obsolete, with the percentages being very low for all institutions, ranging from 0% to 20.00%. Dial-up connections are known for their slow speeds and limited capabilities, and most users have shifted to faster broadband connections. Accessing the internet at an educational institution is a common practice, especially for students and academic staff. The percentages are relatively high, ranging from 50.00% to 100.00%, with IIT and IAS having 100.00% usage. Educational institutions usually provide reliable and high-speed internet connections to support learning and research activities. Accessing the internet via commercial facilities like cyber cafes is less popular, with percentages ranging from 4.76% to 25.00%. This trend reflects the increased availability of personal devices and home internet connections, which make commercial facilities less necessary for internet access.

B. Purpose of internet usage

It was observed that out of 127 respondents majority (96.06%) uses internetfor sent an email and 91.33 per cent contributed to social network (e.g. face book, instagram, telegram), 86.61 per cent for online shopping, 78.74 per cent for Written a document using word and processing software, 77.95 per cent for share online image, 74.01 per cent used cloud based storage (e.g. Drop box, Google Drive), 73.22 per cent used for presentation software (e.g. Power Point), 72.44 per cent used online transportation and 64.59 per cent used Performed calculations with spreadsheet software (e.g. Microsoft Excel). However, institute wise observed that all the respondents from IAS, IIT and Institute of Management Studies used to send an email. 95.23 per cent respondents from IAS used to written a document using word and processing software followed by 95.00 per cent in IIT. 91.66 percent respondents from Institute of Management and 80.95 from IAS and IESD Performed calculations with spreadsheet software (e.g.MS excel). 95 per cent respondent from IMS shared an image online followed by 90 per cent from IIT. All the respondents from Institute of Management Studies shopped online followed by 90 per cent from IIT, 91.66 per cent respondents from Institute of Management Studies used online transportation e.g. Ola, Uber followed by 80 per cent from IIT. Result was line with the result of Singh (2021).

Table 2: Distribution of respondents based on purpose of use of internet.

Respondent purpose of useinternet for	IAS (n=21)	IIT (n=20)	IMS (n=20)	I.Mg.St. (n=24)	I. Sc. (n=21)	IESD (n=21)	Overall (N=127)
	Percentage						
Sent an e- Mail	100	100.00	85.00	100	95.23	95.23	96.06
Written a document usingword processing software	95.23	95.00	40.00	83.33	80.95	76.19	78.74
Used presentation software	90.47	95.00	25.00	95.83	52.38	76.19	73.22
Performed calculations with spread sheet software	80.95	70.00	15.00	91.66	42.85	80.95	64.56
Contributed to Wikipedia	33.33	50.00	60.00	41.66	52.38	42.85	45.66
Published a blogpost	14.28	25.00	5.00	29.16	28.57	23.80	21.25
Shared an image online	80.95	90.00	95.00	70.83	76.19	57.14	77.95
Posted on a microblogging platform	33.33	45.00	30.00	50	14.28	23.80	32.28
Took part ina video chat	38.09	65.00	40.00	75	47.61	66.66	56.69
Contributed to an Internet Forum	42.85	35.00	20.00	58.33	33.33	23.80	37.00
Contributed to asocial network	90.47	95.00	90.00	95.83	90.47	85.71	91.33
Used cloud- based storage	80.95	80.00	50.00	87.50	80.95	66.66	74.01
Shopped Online	85.71	90.00	85.00	100	76.19	80.95	86.61
Filmed and uploaded video content	52.38	60.00	55.00	45.83	42.85	57.14	51.96
Used online transportation	76.19	80.00	65.00	91.66	57.14	61.90	72.44
Used for onlineclasses	100.00	100.00	100.00	100.00	100.00	100.00	100.00

From Table 2, the data indicates that the primary purpose of internet usage across all educational institutions and overall (N=127) is sending emails, with 96.06% of respondents using the internet for this purpose. This highlights the importance of electronic communication in modern society, with email being an integral part of both professional and personal interactions. Word processing using software like Microsoft Word is also a popular activity, with 78.74% of respondents using it for creating documents. This reflects the prevalence of written communication and the need for word processing tools in various academic and professional settings. Presentation software usage is common, with 73.22% of respondents utilizing platforms like Microsoft PowerPoint for creating and delivering presentations. This emphasizes the significance of visual aids and multimedia in conveying information effectively. Spreadsheet software, such as

Microsoft Excel, is widely used for calculations, as indicated by 64.56% of respondents. Spreadsheets play a crucial role in data analysis, financial management, and scientific research. Contributing to Wikipedia, an online encyclopedia was done by 45.66% of respondents, showcasing individuals' engagement in collaborative knowledge-sharing platforms. Sharing images online is a common practice, with 77.95% of respondents participating in this activity. Social media platforms and image-sharing websites facilitate the widespread dissemination of visual content. Participation in video chats was prevalent, with 56.69% of respondents engaging in this activity. Video conferencing has gained tremendous popularity for both personal and professional purposes, especially during the pandemic. Engaging in social networks is highly popular, with 91.33% of respondents being active on platforms like Facebook and Twitter (Statista, 2023). Social networking has revolutionized communication and networking on a global scale. Online shopping is a significant aspect of internet usage, with 86.61% of respondents using e-commerce platforms for purchasing goods and services (Statista, 2023). The convenience and accessibility of online shopping have led to its widespread adoption. The data also reveals that online classes are widely utilized, with 100% of respondents using the internet for educational purposes (Online Learning Consortium, 2023). This highlights the critical role of the internet in facilitating remote learning and educational access. Result was line with the result of Singh (2021).

CONCLUSIONS

The findings of this study shed light on the accessibility of the internet and the diverse purposes for which students utilize it. The prevalence of mobile internet access, along with the adoption of various online activities, reflects the digital transformation in education and society at large. Understanding these usage patterns is essential for educational institutions and policymakers to better cater to the needs of students and support their learning experiences. Further research could delve into the effectiveness of E-learning resources and their impact on student outcomes, ultimately contributing to the ongoing evolution of education in the digital age.

FUTURE SCOPE

Future research in this area should explore the long-term impact of increased internet usage for educational purposes and its implications for traditional classroom learning. Additionally, it would be beneficial to investigate strategies to mitigate the limitations of e-learning, such as social isolation, and to enhance its effectiveness further. Exploring the role of emerging technologies, like virtual reality and artificial intelligence, in online education could provide valuable insights. Furthermore, examining the digital literacy skills and training needed for both educators and students to maximize the benefits of e-learning is a crucial avenue for future research. Finally, comparative studies across different educational institutions and regions could offer valuable perspectives on the adoption of e-learning.

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Conflict of Interest. None.

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