www.ijarp.com ISSN 2456-9992 Page: 01-14
International Journal Advanced Research Publications
Review Article
Volume: 01
Issue: 03

INDIAN DIGITAL RESOURCES AND ONLINE LEARNING: INSIGHTS FROM UNDERGRADUATE STUDENTS OF WEST BENGAL

Mr. Pijus Kanti Paira,*[1] Dr. Nizamuddin Ahmed[2]

[1]Independent Researcher & Assistant Teacher, Debhog SCM Vidyapith, Purba Medinipur, West Bengal, India.

[2]Assistant Professor, Department of Education, Haldia Govt. College, Purba Medinipur, West Bengal, India.

Article Received: 19 November 2025, Article Revised: 09 December 2025, Published on: 29 December 2025

***Corresponding Author: Mr. Pijus Kanti Paira**
Independent Researcher & Assistant Teacher, Debhog SCM Vidyapith, Purba Medinipur, West Bengal, India.
DOI: https://doi-doi.org/101555/ijarp.7211

ABSTRACT:

The rapid shift toward digital education in recent years has significantly impacted teaching and learning practices across India. This study aims to explore the patterns of online learning among undergraduate students in West Bengal, focusing on their access to digital devices, internet connectivity, usage of online platforms, and overall engagement with digital learning resources. The research follows a survey-based approach, conducted between June and September 2025, using a self-designed questionnaire administered to 319 undergraduate students from eleven districts across the state. Purposive sampling was employed for participant selection. In addition to primary data, secondary sources such as research articles, policy documents, and online content were consulted. The findings reveal that a vast majority of students (94.67%) rely on smart phones for online learning, with most using mobile data (86.83%) as their primary internet source. While many students reported good internet connectivity (62.07%), a small percentage still experienced poor or very poor access. YouTube emerged as the most widely used platform (85.59%) for academic purposes, with daily usage reported by over half the respondents (52.98%). However, a significant minority (10.35%) lacked access to any online learning applications. Most students (63.32%) engaged in online learning for 1–2 hours daily, indicating moderate but consistent usage. The study highlights the growing dependence on digital tools for education while also pointing to persistent challenges related to device availability, platform diversity, and connectivity.

These insights can inform educational institutions and policymakers in designing more inclusive and effective digital learning strategies.

KEYWORDS: Digital Resources, Online Learning, NEP 2020, Undergraduate Students.

INTRODUCTION:

Online Learning Platforms and Digital Resources for students have received much attention and have become a rapidly growing topic due to the increased availability of the internet and electronic devices to students. In the last few years, online resources and digital learning for students have received significant attention from stakeholders. Students are now frequent users of the internet and are increasingly having their own online devices. With the popularity and easily availability of the internet, online learning platforms are increasingly popular among students. Today, students spend a substantial amount of time online for their educational purposes.

In post-Covid world, the new situation and realities required a new way in the teaching-learning process. Now days the traditional face-to-face in-person modes of education are replace with alternative modes of quality education, which are technology-based online and digital education. To expand education through online or digital methods, the first focus must be on the Digital India Campaign and the availability of affordable electronic devices like computers, laptops, tabs, and smart phones. To become effective online/digital educators, teachers need useful and suitable training and development.

Nowadays, the Majority of students are shifting speedily from offline to online education among all age group. There are maximum students who use their own smart phones to access regular online learning. There is a need to promote and expand existing e-learning platforms (DIKSHA, SWAYAM, and SWAYAMPRABHA, etc.) so that students can easily popular about them. Most of the students accessed online learning resources from home. Appropriate existing e-learning platforms, such as SWAYAM, DIKSHA, will be extended to provide teachers with a structured, user-friendly, rich set of assistive tools for monitoring the progress of learners. Tools, such as two-way video and two-way audio interface for holding online classes, are a real necessity as the present pandemic has shown. (NEP 2020) With this background, the present study was undertaken with the aim of exploring the patterns, preferences, and challenges associated with online learning among undergraduate students in West Bengal, India.

National Education Policy (NEP) – 2020: Online and Digital Education: The aims of NEP-2020 are to ensure that all students have equal access to high quality education by developing their digital literacy skills. The students can increase knowledge through digital resources and online learning using existing e-learning platforms such as SWAYAM, DIKSHA, responsibly and safely. The students are able to communicate and represent knowledge in different ways, and critically engage with modern technology through their online and digital education. The NEP-2020 recognizes the importance of digital classrooms, which can provide students with access to quality education and prepare students for the digital world. This can also improve the student's outcomes. It is vital that the utilization of technology for online and digital education sufficiently addresses concerns of equity.

Objectives of the Study:

The study sought to achieve the following objectives:

1. To examine the accessibility of digital devices (such as Smart phones, laptops, etc.) among undergraduate students for the purpose of online learning.
2. To identify the most commonly used types of internet connections and evaluate students' perceptions regarding the speed and quality of their internet connectivity.
3. To understand the primary locations from where students access online learning resources, such as home, college, cyber cafés, or public Wi-Fi zones.
4. To explore the online learning platforms most frequently used by students for academic purposes, including both widely known platforms (e.g., YouTube, Coursera) and institutional platforms (e.g., College LMS).
5. To assess the frequency and duration of students' engagement with online learning platforms on a daily basis.
6. To gather student perspectives on the overall effectiveness and usability of online learning, including factors that support or hinder their learning experience.

Methodology of the Study:

The present study is a survey-type research. The study was conducted during the month of June to September 2025 in West Bengal, India. Primary data have been collected through the self-made questionnaire scheduled from the students who are presently studying in different undergraduate courses across West Bengal by applying the purposive sampling technique. We have received data from 319 students from eleven districts across the state. The secondary data have been collected from different sources like research articles, newspaper

articles, websites, NEP-2020, etc. Then the collected data have been analyzed qualitatively. We highlighted some key features of respondents in the following sub-sections:

a) Background of Respondents:

Table 01 shows characteristics of the study population. It has been revealed from the present study that most of the respondents are female students, who are 85.26% and the male students are 14.74%. There are also no other gender respondents. The girl's students are relatively higher among the general students population. It has been seen from the present study that most of the respondents belong to the age group of 18 to 20 years, which is 86.21%. Ages between 21 to 23 years are less in number, which is only 11.91%. Only 1.88% students are aged below 18 years old. Most of the students belong to the Government College, which is 92.54%. Some of the students (7.52%) also study at a Government-aided College. Only 0.94% is students of private college. So, we found most of the Government College respondents in our study. The semester-wise distribution of students is also shown in Table 01. It has been found that the majority of students (41.38%) study in the 3rd semester. Many students (33.23%) also belong to the 1st semester. Some students read in the 2nd semester (8.15%), 4th semester (14.73%), and 8th semester (2.51%). There are a huge number of respondents who belong to the 1st and 3rd semesters.

Table 01: Background of Respondents

Background		**N**	**Percentage**
Gender	Male	47	**14.74**
	Female	272	**85.26**
Age	Below 18 Years	6	**1.88**
	Between 18 Years to 20 Years	275	**86.21**
	Between 21 Years to 23 Years	38	**11.91**
Types of Institution	Government College	292	**91.54**
	Government-aided College	24	**7.52**
	Private College	3	**0.94**
Semester of Study	1st Semester	106	**33.23**
	2nd Semester	26	**8.15**
	3rd Semester	132	**41.38**
	4th Semester	47	**14.73**
	8th Semester	8	**2.51**

N=319 Source: Primary Data

b) District wise Distribution of Respondents:

We have received data from 319 undergraduate students from eleven districts of West Bengal, India. In this present study, the majority of the respondents (84.95%) reside in Purba Medinipur district. Significant numbers of students belong to Paschim Medinipur (2.19%), Kolkata (4.08%), Howrah (2.19%), and North 24 Parganas (3.76%) districts. There is a very small number of respondents found in Jhargram, South 24 Parganas, Hoogly, Paschim Bardhaman, Dakshin Dinajpur, and Darjeeling districts. The data has been depicted in the following Figure 01.

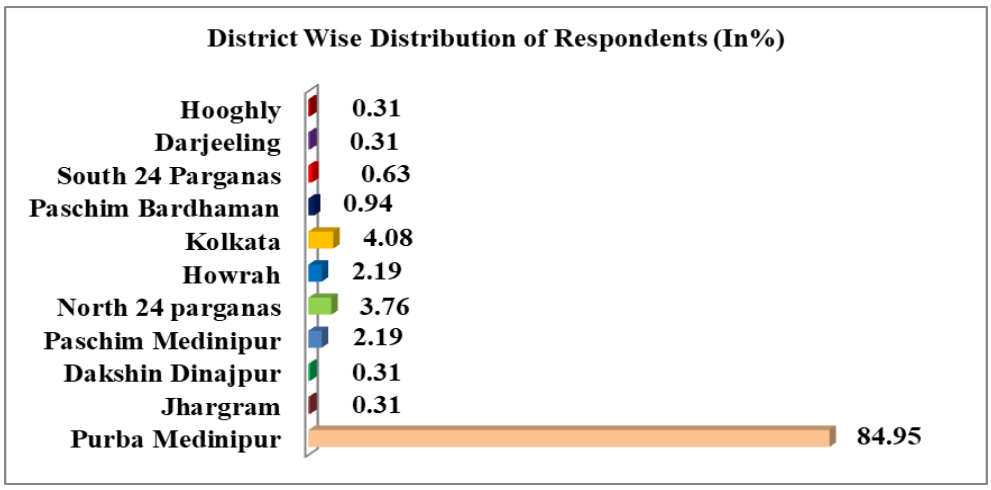

Figure 01: District wise Distribution of Respondents

Source: Primary Data

c) Stream of Study:

It has been revealed from the present study that most of the respondents read in the Arts stream (84.33%). 14.10% respondents are studying in the science stream. Commerce's (0.63%), Professional course (B.Ed. / Law etc.) (0.63%), and Engineering/ Technical (0.31%) students are less in number.

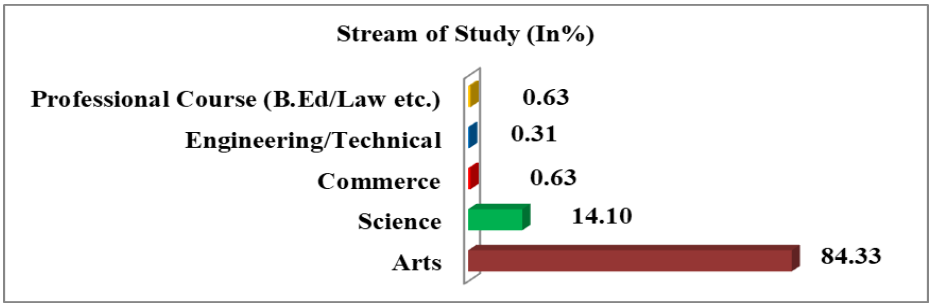

Figure 02: Stream of Study

Source: Primary Data

FINDINGS AND DISCUSSION: The findings of the study along with discussion are given below

1. **Regular Access to a Digital Device for Learning:** Analyzing figure 03, It has been found that most of students (94.67%) used smart phones for regular access to learn. Laptop (2.19%), Desktop (0.94%), and Tablet (0.31%) were also utilized by some respondents as a digital device for learning. Only 1.88% students did not have any kind of digital device for regular access to educational resources. There are maximum students who use their own smart phone to access regular online learning.

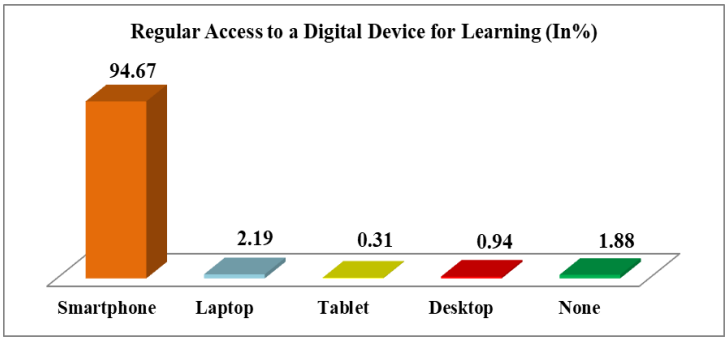

Figure 03: Regular Access to a Digital Device for Learning

Source: Primary Data

2. **Types of Internet Connection Used Most Frequently:**

In this present study, we show that the majority numbers of students (86.83%) used mobile data as an internet connection most frequently. Some of them (10.97%) engaged in Wi-Fi. Some students (2.20%) also expressed that they used the college network as an internet connection most commonly. There are a small number of students who use their college network. The college authority can enhance its internet network for easily accessible and available to the students.

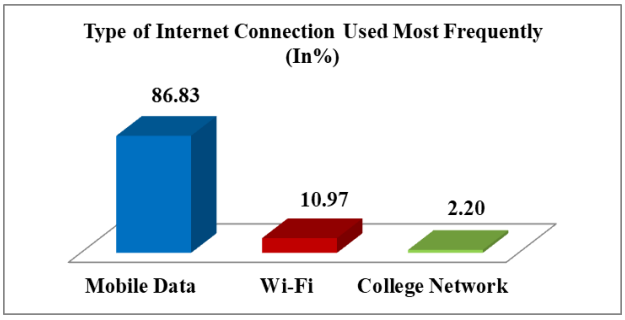

Figure 04: Types of Internet Connection Used Most Frequently

Source: Primary Data

3. Speed of Internet Connection:

In this present study, it has been shown that a huge number of students (62.07%) acknowledge that the speed of the internet connection is good. Some respondents expressed that their internet connection was also very good (11.60%), and average (24.76%). Poor (1.26%) and very poor (0.31%) internet connectivity experience by some students. In this situation government should take necessary action for the availability very high-speed internet facilities available in all school and colleges, which can help students easily, access online learning resources.

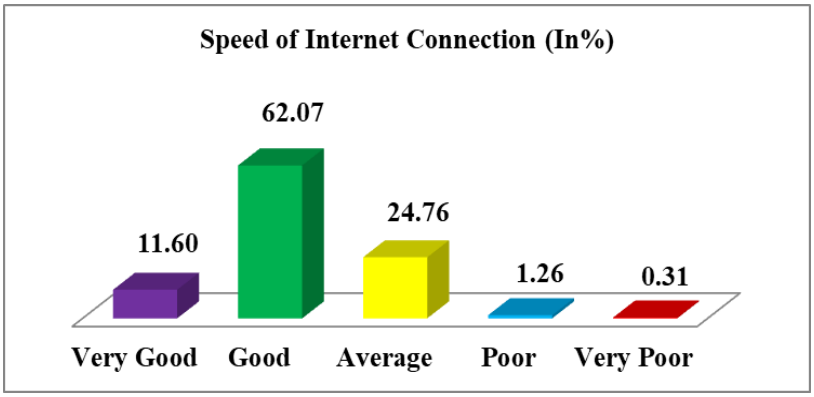

Figure 05: Speed of Internet Connection.

Source: Primary Data

4. Usually Access Online Learning Resource:

It has been revealed from the present study that most of the respondents (88.40%) accessed online learning resource from home usually. Some of the students (5.96%) reported that their online learning resource is college Wi-Fi. To get online learning resource, the respondents used Cyber Café (3.76%) and public Wi-Fi (1.88%).

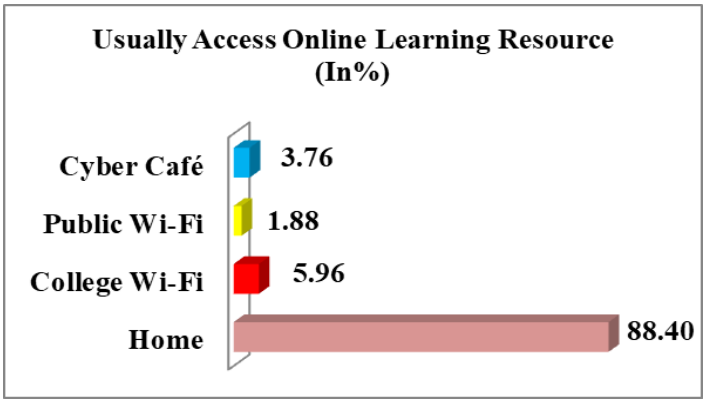

Figure 06: Usually Access Online Learning Resource

Source: Primary Data

5. Most Used Online Learning Platforms:

It has been found from the present study that the majority of respondents (85.59%) are using YouTube as an online learning platform for academic/educational purpose. A significant number of students (10.35%) reported that they did not have any kind of application for using online learning. The rest of the respondents use different online learning platforms, which are SWAYAM (0.31%), Coursera (0.94%), Udemy (0.31%), BYJU'S (0.31%), Khan Academy (0.31%), and College LMS (1.88%). There is a need to promote and expand existing e-learning platforms (DIKSHA, SWAYAM, and SWAYAMPRABHA, etc.) so that students can easily popular about them.

Table 02: Most Used Online Learning Platforms

Platform Name	Percentage of Users
SWAYAM	0.31
Coursera	0.94
Udemy	0.31
You Tube	85.59
BYJU'S	0.31
Khan Academy	0.31
College LMS	1.88
None	10.35

6. Frequency of Using Online Learning Platforms:

It has been revealed from the present study that most of the respondents (52.98%) used online learning platforms daily. 26.32% and 5.96% of respondents spent time in educational/ learning apps several times a week and once a week, respectively. Some respondents (10.66%) used such things occasionally. Only 4.08% respondents used those apps rarely.

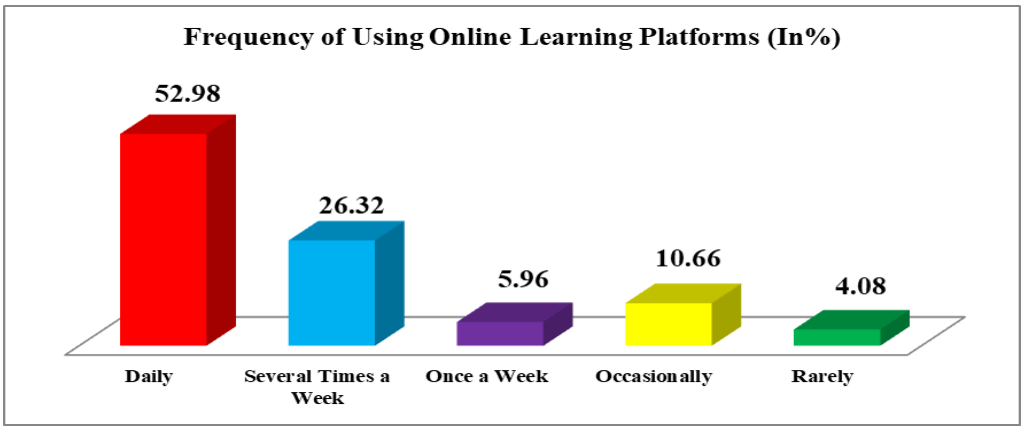

Figure 07: Frequency of Using Online Learning Platforms

Source: Primary Data

7. Average Hours Spent on Online Learning per Day:

In this present study, we show that the majority numbers of students (63.32%) spent time on online learning 1-2 hours daily. Some of them (16.62%) engaged for less than 1 hour per day. Some students also expressed that they used electronic devices for online education or learning purposes 2-4 hours (15.67%) and more than 4 hours (4.39%) daily.

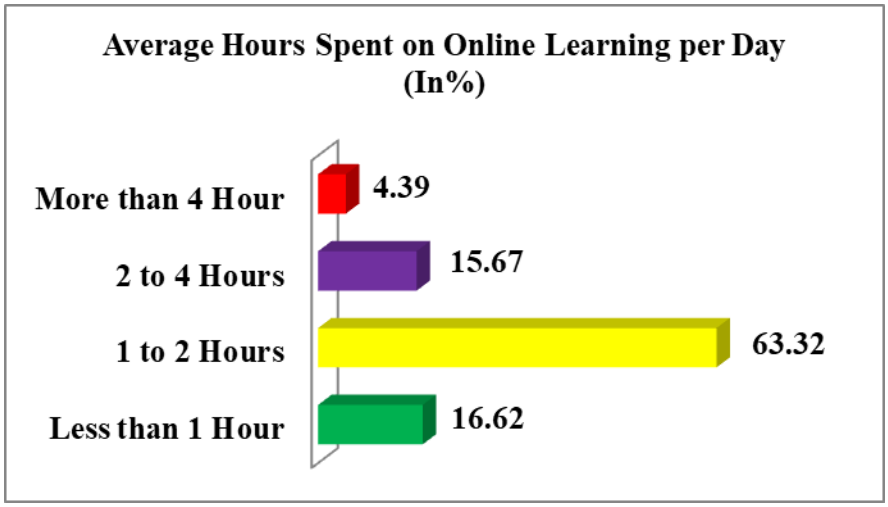

Figure 08: Average Hours Spent on Online Learning per Day

Source: Primary Data

Major Findings: The major findings of the present study are:

1. It has been found that most students (94.67%) use smart phones for regular access to learn.
2. Only 1.88% students did not have any kind of digital device for regular access to educational resources.
3. The majority numbers of students (86.83%) used mobile data as an internet connection most frequently.
4. Some students (2.20%) used the college network as an internet connection most commonly.
5. A huge number of students (62.07%) acknowledge that the speed of the internet connection is good.
6. Some respondents expressed that their internet connection was also very good (11.60%), and average (24.76%).
7. Poor (1.26%) and very poor (0.31%) internet connectivity experience by some students.
8. Most of the respondents (88.40%) accessed online learning resources from home.

9. To get online learning resources, the respondents used Cyber Café (3.76%) and public Wi-Fi (1.88%).
10. The majority of respondents (85.59%) are using YouTube as an online learning platform for academic/educational purposes.
11. A significant number of students (10.35%) reported that they did not have any kind of application for using online learning.
12. The rest of the respondents use different online learning platforms, which are SWAYAM (0.31%), Coursera (0.94%), Udemy (0.31%), BYJU'S (0.31%), Khan Academy (0.31%), and College LMS (1.88%).
13. Most of the respondents (52.98%) used online learning platforms daily.
14. Some respondents (10.66%) used such things occasionally.
15. Only 4.08% respondents used those apps rarely.
16. The majority numbers of students (63.32%) spent time on online learning 1-2 hours daily.
17. Some students used electronic devices for online education or learning purposes 2-4 hours (15.67%) and more than 4 hours (4.39%) daily.

RECOMMENDATIONS:

Based on the major findings of the present study, the following recommendations are proposed to enhance the effectiveness and accessibility of online learning among students:

1. Although a majority of student's access learning through smart phones and mobile data, a notable portion still faces limitations due to average or poor internet connectivity. Educational institutions and policymakers should collaborate with service providers to improve internet infrastructure, particularly in underserved regions, ensuring stable and high-speed connectivity for all students.
2. Since a small percentage (1.88%) of students lack access to any digital device, initiatives such as government-funded device distribution or subsidized purchasing programs should be introduced to bridge the digital divide.
3. As only 2.20% of students commonly used college networks, institutions should consider expanding on-campus internet access or setting up local community learning centers with free Wi-Fi to support those without adequate home connectivity.
4. While YouTube dominates as a learning tool, awareness and training on the use of other reputable educational platforms (e.g., SWAYAM, Coursera, Khan Academy, and BYJU'S) should be increased. Institutions can organize orientation sessions and provide created content to encourage diversified learning sources.

5. With over half of the students using online platforms daily, there is a clear shift toward digital learning. Colleges should integrate digital resources into their official curriculum and promote blended learning models to complement traditional teaching.
6. Given that over 10% of students do not use any application for online learning, digital literacy programs should be developed to equip students with the skills needed to navigate and effectively use online learning tools.
7. As most students spend 1–2 hours per day on online learning, it is recommended that faculty and educators design course materials to fit within this window, ensuring content remains engaging and manageable within students' daily routines.
8. With the majority accessing resources from home, educators should provide flexible learning schedules and asynchronous content, accommodating students' varying home environments and responsibilities.
9. The relatively low use of college-provided LMS platforms indicates a need for better implementation and promotion. Training both students and faculty on how to effectively utilize LMS tools could enhance engagement and learning outcomes.
10. Institutions should regularly collect feedback from students on their online learning experiences, helping to identify ongoing challenges and continuously refine strategies to ensure inclusive and effective digital education.

CONCLUSION:

In conclusion, we may highlight that most of the students (94.67%) used smart phone for regular access to learn. The majority of respondents (85.59%) are using YouTube as an online learning platform for academic/educational purposes. A significant number of students (10.35%) reported that they did not have any kind of application for using online learning. The rest of the respondents use different online learning platforms, which are SWAYAM (0.31%), Coursera (0.94%), Udemy (0.31%), BYJU'S (0.31%), Khan Academy (0.31%), and College LMS (1.88%). Appropriate existing e-learning platforms must be more attractive and accessible to students. These platforms must have a well-structured, user-friendly, and rich set of assistive tools for monitoring the progress of learners. It would be wrong to think that a good teacher in a traditional classroom will automatically be a good teacher in an online classroom or on digital learning platforms. So, teachers will undergo rigorous training in learner-centric pedagogy. To become high-quality content creators using teaching platforms and tools, teachers require suitable and effective training. While promoting digital learning

and online education, the importance of face-to-face, in-person, or offline learning is fully recognized.

REFERENCES:

1. Chaurasia, P. (2020). National Education Policy (NEP) 2020: A Boon to Online and Digital Education. *Mizoram Educational Journal*, 6(2). https://www.researchgate.net/profile/PrateekChaurasia/publication/351559324_Mizoram_Educational_Journal_A_National_Refereed_BiAnnual_Journal/links/609d33f9458515c265895106/Mizoram-Educational-Journal-A-National-Refereed-Bi-Annual-Journal.pdf
2. Choubey, A. (2023). Digital learning: Outlook, Viewpoints, and Challenges Transforming Landscape of NEP-2020. *Vidhyayana*- An International Peer- Reviewed E-Journal, 6,701-709. https://vidhyayanaejournal.org/journal/article/view/777
3. Das, M. (2023). Digital Learning in the Context of NEP 2020: A Comprehensive Analysis. *International Journal of Research Publication and Reviews*, 4(12), 1764-1768. https://ijrpr.com/uploads/V4ISSUE12/IJRPR20285.pdf.
4. Gopal, R., Singh, V., Aggarwal, A. (2021). Impact of online classes on the satisfaction and performance of students during the pandemic period of COVID 19. *Educ Inf Technol (Dordr)*, 26:6923–47. https://doi.org/10.1007/s10639-021-10523-1.
5. Government of India (2020). National Education Policy 2020. Ministry of Human Resource Development. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
6. Govinda, R. (2020, December). NEP 2020: A Critical Examination. *Social Change*, 50(4), 603–607. https://journals.sagepub.com/doi/abs/10.1177/0049085720958804
7. Kumar, A. (2022). Digital Education: Vision, Perspectives and Problems in Changing Paradigms of NEP-2020. *BHAVA VEENA*. 19, 9(1).111-117. https://www.researchgate.net/publication/364050731_Digital_Education_Vision_Perspectives_and_Problems_in_Changing_Paradigms_of_NEP-_2020
8. Kumar, S. & Todd, G. (2022). Effectiveness of online learning interventions on student engagement and academic performance amongst first-year students in allied health disciplines: a systematic review of the literature. *Focus Health Prof Educ Multi-Prof J*, 23(3), 36–55. https://doi.org/10.3316/informit.668657139008083.
9. Maheshwari, M., Gupta, A. K., Goyal, S. (2021). Transformation in higher education through e-learning: a shifting paradigm. *Pac Bus Rev Int*, 13(8), 49–63.

10. Mohon, S. (2022). NEP 2020: Use of Technology in Education. Sumedha Journal of Management, 11(3), 75-79. https://www.proquest.com/docview/2671715406?fromopenview=true&pq-origsite=gscholar&sourcetype=Scholarly%20Journals.
11. Mondal, G. C. et al. (2023). National Education Policy 2020: Initiatives for Reforming Curriculum and Pedagogy in Online and Digital Education. *International Journal of Research and Analytical Reviews*, 10(2), 389-400. https://www.researchgate.net/publication/370872857_National_Education_Policy_2020_Initiatives_for_Reforming_Curriculum_and_Pedagogy_in_Online_and_Digital_Education
12. Muralidharan, K. et al. (2022). The New Education Policy 2020, digitalization and quality of life in India: Some reflections. *Education Sciences*, 12(2), 75. https://www.mdpi.com/2227-7102/12/2/75
13. Paira, P.K. & Ahmed, N. (2025). Awareness and Understanding of Social Media: A Study on Undergraduate Students of West Bengal, India. *International Journal of Scientific Research and Engineering Development*, 8(3), 399-407. https://ijsred.com/volume8/issue3/IJSRED-V8I3P55.pdf
14. Paira, P.K. & Ahmed, N. (2025). Using of Social Media: Insights from Undergraduate Students of West Bengal. *International Research Journal of Education and Technology*, 8(4), 2656-2665. https://www.irjweb.com/USING%20OF%20SOCIAL%20MEDIA%20INSIGHTS%20FROM%20UNDERGRADUATE%20STUDENTS%20OF%20WEST%20BENGAL.pdf.
15. Rajabalee, Y. B. & Santally, M. I. (2021). Learner satisfaction, engagement and performances in an online module: Implications for institutional e-learning policy. *Educ Inf Technol (Dordr)*, 26(3), 2623–56. https://doi.org/10.1007/s10639-020-10375-1.
16. Sarkar, M. B. (2023). Online and Digital Education in The Light of National Policy on Education 2020: An Interpretation. Multidisciplinary Approach to Sustainable Development Goal (SDG), *Selfypage Developers Pvt. Ltd*. ,8, 74-80. https://www.researchgate.net/publication/372079252_Online_and_Digital_education_in_the_light_of_National_Policy_on_Education_2020An_interpretation
17. Singh, N. & Srivastava, N. (2022). Encumbrances in digitalization of education: A schema of NEP. *Management Journal for Advanced Research*, 2, 5-9. https://mjar.singhpublication.com/index.php/ojs/article/download/18/349?inline=1

18. Taygi, J. (2023). Online and Digital Education under National Education Policy Ensuring Use of Technology. International Journal of Education, Arts, Humanities & Social Sciences, 1(1). https://www.researchgate.net/publication/392601200_Online_and_Digital_Education_Under_National_Education_Policy_Ensuring_Use_of_Technology
19. Weerarathna, R.S. et al. (2023). Effect of E-learning on management undergraduates' academic success during COVID-19: a study at non-state Universities in Sri Lanka. *Heliyon*, 9(9), e19293. https://doi.org/10.1016/j.heliyon.2023.e19293.