

Digital Literacy in Higher Education

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Abstract: *The National Education Policy (NEP) 2020 emphasizes the integration of technology in education to enhance teaching-learning processes, improve access to quality education, and develop 21st-century skills among learners. In the present educational context, it has become essential to examine the relationship between digital literacy and academic achievement among postgraduate students. According to UNESCO, information literacy empowers individuals from diverse backgrounds to seek, evaluate, utilize, and create information effectively in order to achieve their personal, social, occupational, and educational goals. Information literacy is particularly significant in the field of education because students are expected to gather, interpret, synthesize, and present information for academic purposes. Postgraduate students frequently engage in research work, literature review, project preparation, assignment writing, and data collection activities that require extensive use of information resources. In the context of higher education, information literacy has become increasingly important due to the growing use of e-resources, digital libraries, online journals, and internet-based learning platforms. Educational institutions are emphasizing the development of information literacy skills among students to help them become effective learners and competent researchers. Students who possess strong information literacy skills are generally better able to access academic resources, evaluate research materials critically, organize information systematically, and utilize information effectively for academic achievement.*

Keywords: Digital Literacy, Higher Education, e-learning,

I. INTRODUCTION

The National Education Policy (NEP) 2020 emphasizes the integration of technology in education to enhance teaching-learning processes, improve access to quality education, and develop 21st-century skills among learners. In the present educational context, it has become essential to examine the relationship between digital literacy and academic achievement among postgraduate students. According to UNESCO, information literacy empowers individuals from diverse backgrounds to seek, evaluate, utilize, and create information effectively in order to achieve their personal, social, occupational, and educational goals. Information literacy is particularly significant in the field of education because students are expected to gather, interpret, synthesize, and present information for academic purposes. Postgraduate students frequently engage in research work, literature review, project preparation, assignment writing, and data collection activities that require extensive use of information resources. In the context of higher education, information literacy has become increasingly important due to the growing use of e-resources, digital libraries, online journals, and internet-based learning platforms. Educational institutions are emphasizing the development of information literacy skills among students to help them become effective learners and competent researchers. Students who possess strong information literacy skills are generally better able to access academic resources, evaluate research materials critically, organize information systematically, and utilize information effectively for academic achievement. The term “digital literacy” was popularized by Paul Gilster (1997), who defined it as the ability to understand and use information from a variety of digital sources when it is presented through computers and digital networks. According to him, digital literacy includes the ability to access the internet, retrieve information, manage digital content, participate in communication networks, and make informed judgments regarding online information. Gilster emphasized that



digital literacy is not merely technical competence; rather, It is the ability to critically understand and evaluate digital information in meaningful ways.

Another important aspect of digital literacy is digital communication and collaboration. In contemporary education, communication increasingly occurs through digital platforms such as email, social media, online forums, video conferencing applications, and collaborative learning platforms. Digital literacy enables individuals to communicate effectively, participate in virtual teamwork, exchange ideas, and collaborate on academic activities. It promotes interactive learning and strengthens interpersonal and professional communication skills. Various government initiatives such as DIKSHA, SWAYAM, e-Pathshala, PM e-Vidya, and ICT in Schools have further promoted digital learning and technological integration in education.

Ethical and responsible use of digital technology is another essential component of digital literacy. Modern educational practices increasingly involve virtual communication, online teamwork, and collaborative learning activities. Post graduates students use emails, videoconference platforms, discussion forums, cloud based applications and social learning platforms to interact with teachers\, peers and researchers.

Digital literacy encourages flexibility, self-learning, innovation, and adaptability to new technologies and digital tools. Digital literacy also contributes significantly to responsible digital citizenship. It develops awareness regarding cyber safety, online ethics, privacy protection, intellectual property rights, and responsible use of digital technologies. In the Indian educational context, the importance of digital literacy has been strongly emphasized through various educational policies and initiatives.

The National Education Policy 2020 advocates the integration of technology in education to improve accessibility, quality, and learning outcomes. Government initiatives such as DIKSHA, SWAYAM, ePathshala, PM e-Vidya, and ICT in Schools have further promoted digital learning and technological integration in education. These initiatives aim to equip students and teachers with digital competencies required for the modern educational environment. The COVID-19 pandemic further highlighted the necessity of digital literacy in higher education. During the pandemic, educational institutions shifted from traditional classroom teaching to online learning modes. Post graduate students who possessed adequate digital literacy skills were able to adapt more effectively to virtual learning environments, attend online classes, submit assignments digitally, access e-learning resources, and continue their academic activities without major interruptions.

Academic achievement generally refers to the level of accomplishment attained by students in educational institutions through examinations, assignments, research work, projects, seminars, classroom participation, and other academic activities. It is of ten measured through grades, marks, Grade Point Average(GPA),cumulative performance, and other assessment techniques used by educational institutions. Academic achievement indicates how effectively students have understood and mastered the prescribed curriculum and learning objectives.

The National Education Policy (2020) recognizes that technological competencies and digital learning skills are essential for improving students' academic achievement and preparing them for future challenges. Hence, enhancing digital literacy among postgraduate students may contribute significantly to improving their academic achievement and preparing them for effective participation in the knowledge-based digital society.

II. REVIEW OF RELATED LITERATURE

Bano & Vasantha, (2020) shows a growing preference for digital platforms, with students increasingly enrolling in online courses and utilizing e-content from these resources.

(**Muniyasamy & Jeyshankar**, 2022), These instructional resources make education more accessible especially for populations and locations with limited educational resources**According to the McGrath et al., (2017)** Massive open online courses (MOOCs) become very popularized and famous among students. Students are willing to get quality education through these courses. **Suresh & Srinivasan, (2020)** in their study, stated that MOOCs are courses that anyone can access, anywhere at any time. According to their study, SWAYAM portal provides 2748 MOOCs where about 1.2 crore students are enrolled and about 6.5 lakh student completed their courses.**Das & Saikia, (2014);**



Kumar, (2015); Sengupta, (2015); Sivakumaren, (2015). They postulated that open access platforms for electronic theses and dissertations will boost the rate of research, make it easier to gather necessary data and knowledge, and benefit all academic groups. National Center for Education Statistics found that 67% of higher education institutions offered online courses in 2017. The National Center for Education Statistics in 2019 also reveals data on distance Education enrollment. In 2017, 6,933,081 students were enrolled in any distance education courses, which represents a 4.5% increase from the previous year. It also, found that 34% of all higher education students took at least one distance education course in 2017. Sonkar & Srivastava, (2017) provide a report that highlighted the contribution of ePG Pathshala to the advancement of e-learning and provides a wider access to education worldwide. A digital library known as the NDL India has a collection of 1.26 billion items and 2 crore resource materials, of which 40 lakhs are books (Falak, 2018).

III. THE STATEMENT OF THE PROBLEM:

Thus, the study entitled “Digital Literacy in higher education” is highly relevant in the current educational context. It seeks to explore the influence of digital literacy on academic achievement and aims to contribute to the improvement of higher education, digital learning practices, and educational quality in the rapidly evolving digital society.

IV. OBJECTIVES OF THE STUDY:

To systematically investigate the research problem and navigate the study toward meaningful conclusions, the investigator has formulated the following specific objectives.

To study the different digital platforms initiated by the Government of India for higher education.

To study the various issues and challenges related to the proper implementation of digital initiatives in education.

To ascertain the relationship between digital literacy and the academic achievement in higher education.

Research questions:

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V. ANALYSIS AND DISCUSSION:

A. MEANS OF DIGITAL LEARNING PLATFORMS

PM e-Vidya Program

This program was launched in May 2020 to make e-learning more accessible in nature. It promotes the online learning activities that can be benefitted by approximately 25 crore school students. Online courses are started by top 100 universities under this program in order to enhance the e-learning among students.

Diksha

It was started in September 2017. Digital infrastructure for knowledge sharing (Diksha), is a national portal that offers school curriculum-based learning materials, provide e-content, QR coded digital textbooks in about 18 Indian languages.

SWAYAM

SWAYAM was launched in 2017. Its full form is Study Webs of Active learning For Young Aspiring Minds. It provides a platform for online courses. These courses are for students of 9th to 12th class and UG and PG students. It also provides certificate courses of different subjects.

Total 20370 courses are available and 6.7 crore students enrolled till on September 2026. Total 62.8 lakhs certificates have been provided in September, 2026. Currently, 1,780 courses are underway. 5.18 million names have been registered, and 1.52 million certificates are being issued. Approximately 295 universities and other institutions have approved SWAYAM courses for credit transfer, and numerous others are in the process of doing so. The Faculty Development Programmes (FDP) is also being developed through SWAYAM. Fifteen lakh untrained teachers got trained under DEIED programme of NIOS delivered through SWAYAM. With the use of SWAYAM's MOOC platform, the government has initiated the Annual Refresher Programme in Teaching (ARPIT), a significant and unique program for the online professional development of 15 lakh higher education faculty members. The courses hosted on



SWAYAM are in 4 quadrants: video lectures, specially prepared reading material that can be downloaded/printed, self-assessment tests through tests and quizzes and an online discussion forum for clearing the doubts.

SWAYAM PRABHA

The SWAYAM PRABHA is a group of 40 DTH channels dedicated to telecasting of high-quality educational programmes on 24X7 basis using the GSAT-15 satellite. Every day, there will be new content for at least (4) hours which would be repeated 5 more times in a day, allowing the students to choose the time of their convenience. The channels are uplinked from BISAG-N, Gandhinagar. The contents are provided by IITs, UGC, CEC, IGNOU. The INFLIBNET Centre maintains the web portal.

e-Pathshala Portal:

The National Council of Educational Research and Training (NCERT), the Ministry of Education, and the Indian government collaborated to create ePathshala. It was introduced in 2015 and gives students, instructors, researchers, and parents access to digital textbooks, audio files, videos, journals, and other educational resources.

V. NATIONAL ACADEMY DEPOSITORY (NAD):

It is the online storehouse of all academic awards. It consists certificates, diplomas, degrees, mark sheets etc. in a single platform.

MOOCsonSWAYAM

The Indian government created SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds), an online learning portal that offers Massive Open Online Courses (MOOCs). It provides free online courses for professional growth, higher education, and schooling. The platform gives students access to high-quality instructional materials at any time and from any location.

NISHTHA

A large-scale teacher training initiative called NISHTHA (National Initiative for School Heads' and Teachers' Holistic Advancement) was introduced in 2019 with the goal of enhancing school education through integrated teacher training. The program's objectives are to improve instructors' pedagogical talents, critical thinking skills, and use of digital technology in teaching and learning processes.

ICTinSchools Programme

In order to encourage computer-assisted learning and the development of digital skills in secondary school students, the Information and Communication Technology (ICT) in Schools Program was created in 2004 and amended in 2010. By giving kids from all socioeconomic and geographic origins access to ICT resources in schools, the program seeks to close the digital divide.

NCFTechPlatform

The Government of India suggested creating various National Curriculum Frameworks (NCFs) for school education, teacher education, early childhood education, and adult education in line with NEP 2020. The National Informatics Center (NIC) and the National Council of Educational Research and Training (NCERT) are creating a comprehensive digital platform to help this process by facilitating resource sharing, research activities, surveys, and consultations amongst states and Union Territories..

VI. NATIONAL DIGITAL LIBRARY OF INDIA (NDLI INDIA):

It is digital library where all the books of library are digitally uploaded in a single platform i.e. NDL. It provides different types of digital contents like books, journals, articles, thesis, audio, videos, and other educational materials. It is a single window search facility.

e-Shod Sindhu (ess):

It is a national consortium for higher education electronic resources in India that provides member institutions with affordable, current, and archival access to over 10,000 to 15,000 core and peer-reviewed journals, plus various bibliographic, citation, and factual databases. In 2023, the consortium used central funds to subscribe to 21 resources



(including over 10,000 publications and four databases) for qualified universities and CFTIs who indicated their needs via the e-Shodh Sindhu site. More than 217 universities, 4200+ colleges covered by Sections 12(B) and 2(F) of the UGC Act, and 98 Centrally Funded Technical Institutions (CFTIs), such as IITs, IISc, NITs, IIMs, IISERs, IIITs, and others, are still served by e-Shodh Sindhu.

Global Initiative of Academic Networks (GIAN):

GIAN is launched in higher education in order to gain an international experience in education system and encourage the engagement for innovative work by a talented scientist and entrepreneur. To facilitate global academic cooperation by means of shared teaching and research interactions, offering students and professors from India and beyond a platform for convergence for sustained collaboration aimed at improving the standard of higher education

Shodh Gangotri:

It is a platform where researcher uploaded their thesis in a full text that is helpful for other scholars. It is an electronic version of approved synopsis that is submitted by the research scholar for Ph.D. programs.

Digi locker:

It is a platform for a verification of certificates issued by government. It is linked with Aadhar card. Main components of a digi locker are repository, access gateway and digi locker portal.

VII. B. VARIOUS ISSUES AND CHALLENGES RELATED TO DIGITAL LEARNING IN HIGHER EDUCATION

Low Engagement with SWAYAM Prabha: The minimal viewership of SWAYAM Prabha channels suggests a need to revisit its content delivery model. Its reliance on scheduled programming may not align with students' demand for flexibility and self-paced learning.

Limited Use of the National Academic Depository: The low adoption of the National Academic Depository could stem from limited awareness or its perceived irrelevance for currently enrolled students. Its utility in securely storing educational records may not be immediately apparent to all users.

ICT Integration in Curricula: While 60% of respondents report having ICT in their coursework, a significant 40% do not. This highlights disparities in digital literacy training and the need for consistent integration of ICT education across academic programs.

Internet facility: Reliable and high-speed internet access is crucial for online learning. Students in areas with poor internet connectivity are struggling with accessing course materials, participating in online classes, or engaging in collaborative projects

Electricity issue: In most of the areas, frequent power outages and unstable electricity are major issues that interrupt digital learning sessions. Without regular supply of electricity, it becomes difficult to continue study with electric gadgets, particularly in regions with unreliable power supply.

Lack of proper infrastructure: Many educational institutions lack the essential infrastructure, including up-to-date classrooms with digital equipment, efficient internet connectivity, and maintenance assistance. This is especially true in underprivileged areas. This can hinder the effective use of digital resources.

Functioning of website & Problem related to econtent: Technical problems like slow loading times, frequent crashes, or bugs are the major issues faced by the students while using websites or online platforms. Many websites and educational apps have disorganised e-content (digital textbooks, videos, interactive modules). They are outdated, poorly designed, and not aligned with the curriculum, making it less effective or engaging.

Lack of motivation: Digital learning can be less motivating for some students who might miss the structure and social interaction of traditional classrooms. The lack of face-to-face engagement with peers and teachers can affect motivation and participation.



VIII. LACK OF INTEREST

Some students may find digital learning less engaging compared to traditional methods. Without interactive or stimulating content, they might struggle to stay interested and focused on their studies.

Lack of proper gadgets: Access to appropriate technology, such as computers, tablets, or smartphones, is essential for digital learning. Students without these devices or with outdated technology may face difficulties in accessing online materials and participating in digital activities.

Lack of face-to-face interaction: Digital learning often lacks the personal interaction that traditional classrooms provide. This can affect students' social development, communication skills, and the ability to receive immediate feedback from teachers and peers. Health issues: With the continuous use of online mode of learning, students may suffer from many health issues like headache, back pain, blurred vision etc. it become very necessary to balance the both online as well as offline mode of education.

Shortage of digitally trained teachers: Teachers need to be trained not only in how to use digital tools but also in how to integrate them into their teaching methods effectively. A lack of digital training can impact the quality of instruction and hinder the overall learning experience

C. Digital literacy and academic achievement:

Digital literacy and academic achievement are positively correlated with each other. In this regard **Tondeur, M. J. (2016)** conducted a study entitled “**Digital Literacy Positively Influences Students' Self-Efficacy and Autonomous Learning**” to investigate the relationship between digital literacy, self-efficacy, autonomous learning, and academic performance. This also showed that promoting digital literacy not only improves academic performance directly but also enhances students' motivation and independent learning abilities. **Carretero, A. S. (2017)** conducted a study entitled “**The European Digital Competence Framework for Citizens and Academic Outcomes**” This empirical study showed that a significant association between advanced digital competence and higher academic achievement. Students with greater proficiency in information literacy, communication, content creation, safety, and problem-solving were more likely to achieve distinction-level academic performance. The researcher concluded that digital competence is an important predictor of educational success and recommended integrating the Dig Comp framework into higher education curricula. **Son, B. J. (2017)** conducted a study entitled “**Undergraduate Students in North America Exhibited Moderate to High Levels of Digital Literacy and Grade Correlation**”. The findings of this study indicated that digital literacy contributes significantly to academic success and emphasized the need to strengthen digital competencies in higher education. **Spante, L. M. (2018)** conducted a study entitled “**Impact of Digital Literacy on Academic Achievement: Evidence from an Online Course**”. The researcher concluded that digital literacy plays a important role in determining students' success in technology-supported learning environments and recommended strengthening digital competence through systematic training and curriculum integration. **Victor, Ajibola and Ujir Hamimah, (2025)** suggested that digital competence strongly predicts academic performance and that most undergraduates exhibit advanced proficiency in essential digital skills. Above Several studies established a significant positive relationship between digital literacy and academic performance among college and university students. These studies consistently reported that students with higher digital literacy levels achieved better GPA scores, demonstrated stronger learning adaptability, and performed more effectively in blended and online learning environments.

IX. IMPORTANCE OF DIGITAL LITERACY

The importance of **Digital literacy** has become increasingly evident in recent years, particularly in light of the COVID-19 pandemic, which forced many educational institutions to

Shift to online teaching and learning. Some key reasons why online education is important:

1. **Enhanced Access:** Digital literacy allows students to access educational opportunities from anywhere, overcoming geographical barriers and expanding educational access to a wider range of students.



2. Cost-Effective: Online education can be more cost-effective than traditional education, as it eliminates the need for physical classroom space and can reduce travel and other associated costs. A study by the Babson Survey Research Group found that the average cost per credit for online courses was 29% less than for traditional courses.

3. Flexibility: Digital literacy offers greater flexibility, allowing students to learn at their own pace and on their schedule. This is particularly important for non-traditional students, such as working adults, who may need to balance their studies with work and family obligations.

4. Improved Learning Outcomes: Research has shown that online education can be just as effective as traditional classroom instruction in terms of student learning outcomes. A study by the Department of Education found that students in online courses performed better than those in traditional face-to-face courses, on average.

5. Technological Advancements: Digital literacy has benefited greatly from technological advancements, such as video conferencing and interactive multimedia tools, which enhance the learning experience and provide opportunities for more engaging and interactive learning experiences.

X. CONCLUSION

The different Digital platforms such as DIKSHA, SWAYAM, ePathshala, PM e-Vidya, and ICT in higher education have promoted digital learning and encouraged the effective use of educational technologies in India. Although digital literacy positively influences academic achievement, certain challenges may also affect this relationship. Issues such as lack of digital infrastructure, inadequate internet connectivity, and limited access to technological devices, insufficient training, and the digital divide among students may hinder effective utilization of digital resources. The present study seeks to examine the relationship between digital literacy and academic achievement among postgraduate students and contribute to the existing body of educational research.

Digital learning helps educational institutions to increase access to higher education by overcoming many barriers to higher education. An educational institution has the option to adopt and implement different types of digital learning. The decision-makers must remember that each type of digital learning in higher education has its pros and cons. Hence, they need to choose cloud-based elearning solutions that support multiple digital learning models and techniques.

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