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**Awareness and Utilization of ICT Initiatives of  
Ministry of Education, Government of India:  
A Study on Review of Literature**

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**Abstract**

*This literature review explores the awareness and utilization of Information and Communication Technology (ICT) initiatives undertaken by the Ministry of Education, Government of India. The study delves into various research papers, journal articles, government reports, and academic publications to understand the extent of awareness and the level of adoption of these ICT initiatives in the Indian education sector. The ICT initiatives under scrutiny include the National Digital Library of India (NDLI), SWAYAM, ePathshala, IRINS, eShodhasindhu, Shodhaganga, and Virtual Labs etc. Through an extensive literature analysis, this study seeks to identify the impact and effectiveness of these initiatives in enhancing the teaching and learning experiences, promoting digital literacy, and ensuring access to quality educational resources for students and teachers across India.*

**Keywords**

Awareness and Utilization; ICT Initiatives; Ministry of Education; Government of India

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### 1.1. Introduction

In every major and minor research study that has been conducted by an individual, any research group or institute, they should review and evaluate the previous studies done by national and international researchers or research contributors such as students, researchers, faculty members, researcher associates, research enterprises and agencies and identify the previous research works; the significance of studies, objectives studies, research methods, method of data collections, tools used for analysis, acquired sample size, sample techniques, testing hypothesis, analyzed the data results, method of data presentation & standardization of writing style, find the major findings, made suitable suggestions for future development and improvements, impacts on existing conditions and find those research gaps and recommended to fulfil the overlaps in the existing system of research areas in similar to the present study. In this study, the researcher searched and found many research scholarly works available on various digital learning aspects.

### 1.2 Objectives

- To examine the Research studies related to awareness and Utilization of ICT Initiatives of the Ministry of Education, Government of India
- To find out the Research Gap between awareness and Utilization of ICT Initiatives of the Ministry of Education, Government of India

### 1.3. Methodology

For that, the researcher will consult various primary and secondary research articles, books, and reports that were reviewed by consulting the database LISA (both print and online versions), Library and Information Science and Technology (LIST) database, DMOZ-Open Directory Project (ODP) journal directory [<http://www.dmoz.org/>], Directory of Open Access Journals [[www.doaj.org](http://www.doaj.org)], E-LIS: E-prints in Library and Information Science [<http://eprints.rclis.org/>], 'Journal seek directory' Directory of Open Access Journals, NISCAIR-Online periodicals [<http://nopr.niscair.res.in/>], DESIDOC Journal of Library & Information Technology [<http://publications.drdo.gov.in/ojs/>], Google Scholar, Emerald, ProQuest: Journal and Dissertations & Theses Database & Electronic Thesis and

Dissertation (ETD) to give more authenticity to the works by which published from 2015 onwards to 2023. The highly relevant articles/working papers/books/reports/thesis & dissertations will be collected from both full-text print / electronic and abstracting journals and e-databases for further study and reference. Further, the researcher will consult subject and technical experts, teachers, researchers, and others to seek the proper guidance/advice for doing quality research work. This study will collect, review, and present the highly relevant articles/working papers/books/reports/thesis & dissertations.

#### 1.4. Scope of the study

This study is limited to Awareness and Utilization of ICT Initiatives of the Ministry of Education, Government of India research works published from 2015 to 2023.

#### 1.5. Reviewed Research Works

For the research purpose, the researcher searched, retrieved, and reviewed highly relevant articles/working papers/books/reports/thesis & dissertations are presented in the following sections and categories related to the present study.

- Mitrajit Saha, Sayantani Banerjee, Sayak Chakraborty and Debasmita Biswas (2023)<sup>1</sup> conducted a study at Mautala village, South 24 Parganas district of West Bengal, in India. The study aimed to understand how the Digital India initiative has affected the rural landscape, focusing on a particular village. The study's findings revealed that even though villagers of Mautala were aware of the various schemes under the Digital India initiative, only a minimal percentage of them had availed of the facilities and benefitted from them. The inference is that the Government of India needs to look into a lack of proper infrastructure in the implementation of these schemes.
- Govender Reginald (2023)<sup>2</sup> Research has shown that V Labs make learning interesting, engaging, deepen understanding and improve academic performance. The author reported that there was limited to moderate research around the use of V Lab's impact on individual learning resulting in a sense of independence as one navigates and develops knowledge through online experiments without immediate help by the facilitator.
- Raza, M. M., Moid, A., Javed, M., & Jahan, K. (2023)<sup>3</sup> conducted a survey on Awareness and use of E-PGPathshala in the Faculty of Science and Social Science in Aligarh Muslim University. The survey findings show that the majority of students are familiar with e-PGPathshala. Most students utilize this portal since it is convenient and always available to write notes, dissertations, or theses. Most users spent less than an hour on it. The most preferred access point is their room or hostel. The study also discovered that most students considered e-PG Pathshala user-friendly and beneficial. The research also addresses how students look for information, their competence, and their satisfaction with the e-PGPathshala resources.
- Kumar, R., & Garg, N. (2023)<sup>4</sup> Also studied the Status of e-PGPathshala usage pattern among science students regarding Kurukshetra University. This research study investigates how science students at Kurukshetra University, Kurukshetra, use e-PGPathshala. This study result shows that ePGPathshala is an effective way to meet students of Kurukshetra University's learning objectives and complement their traditional learning environments. Even though online platforms provide many opportunities for re-skilling and up-skilling, the UGC encourages individuals to become more aware of leveraging e-learning. Additionally, the study found that the e-PGPathshala is useful for preparing class assignments and serves the purpose of classroom teaching as well.
- Kumar, S., Saini, A., Kumar, V., & Kumar, S. (2023)<sup>5</sup> reviewed the integration and Expansion of ICT-based Initiatives in the Indian Higher Education System. This review chapter was to examine the role of ICT in higher education. This chapter addressed how ICT may promote and revolutionize higher education in India through new government initiatives. Furthermore, the chapter addressed the issues and challenges associated with the use of ICT for educational purposes
- Sibi, M. S., Gohel, G., & Dhane, M. M. (2023)<sup>6</sup> researched Awareness and Motivation in Adopting e-learning Through SWAYAM MOOCS-courses by graduate and postgraduate students. This study found favorable impression indicators for both teachers and students. The findings indicate that SWAYAM is a beneficial tool for staying current on technological and education developments. Long-term learning outcomes from this platform will be favourable.

Practical Implications: The research will serve as a blueprint for developing policies that consider the perceptions of both instructors and students on the beneficial usage of SWAYAM by examining the perception-forming elements.

Social Implications: The research demonstrates a brand-new, constructive social behaviour that instructors and students are modeling toward SWAYAM-based blended learning possibilities. In these trying circumstances, SWAYAM might present itself as a very fruitful educational option. Originality and Value: One of the most crucial factors to evaluate for both instructors and students, particularly for online learning systems like SWAYAM, is perception.

- Vasava, AmitbhaiGurjibhai (2023)<sup>7</sup> undertook to study the role of the Academic Bank of Credits (ABC) and National Academic Depository (NAD) in NEP 2020 in the light of the New Education Policy, Academic Bank of Credit, National Academic Depository and DigiLocker giving coverage to developments from 2020 to 2023. In the year 2022, a total of 1,222 educational institutions have registered in the Academic Bank of Credit and 1,224 in the National Academic Depository. In the country, Maharashtra has the highest number of registrations at 110 and Mizoram 3, Goa 3, and Chandigarh 3. In the National Academic Depository, the highest number of registrations has been registered in Maharashtra 1,559 and the least in Andaman Nicobar 2 In the Academic Bank of Credit during the month of April (2022), a total of 87,2550 accounts were opened and credit was deposited in 1,47,322 accounts. 20, 21,550 have been opened in Indira Gandhi National Open University during the year 2023. In the National Academic Depository, Karnataka has more than 100 mark sheets, certificates, and degrees totalling 4,82,21, 955 and Andaman Nicobar has the least. 0 have been deposited in Diu-Daman. Jammu and Kashmir Board of School Education has been the most active with 2,16,171 numbers in the National Academic Depository during the month of April (2022).
- Sukhbir Singh, Sulekha, Mange Ram (2022)<sup>8</sup> also studied Awareness and use of e-PG Pathshala among Postgraduate students of Science stream at Kurukshetra University, The studies showed that e-PG Pathshala has successfully supported Kurukshetra University students' regular learning environment by achieving their learning goals, They have regular opportunities to improve their

skills, yet few people use many of the online learning venues that are available to them. According to the survey, teachers and librarians are crucial in educating students about e-PG Pathshala. The study found that e-PG Pathshala has a significant role in creating class assignments and achieving the goals of traditional classroom instruction. This study reports an original inquiry in Haryana, India, and the writing is based on the analysis.

- Tarika Singh Sikarwari, Monika Gupta and Swati Vishno (2022)<sup>9</sup> Are Teachers Aware Enough for SWAYAM Usage? The study's findings led to identifying six key factors that affect teachers' knowledge of SWAYAM usage. Additionally, it provides useful suggestions that the government might use to improve the use of SWAYAM at the teacher level. The study provides a roadmap for legislators as they create regulations that consider how teachers and students view the usefulness of SWAYAM.
- Newar, P., & Borah, R. (2022)<sup>10</sup> Awareness on National Digital Library of India: An Empirical Study. This study analyzed the awareness of the National Digital Library of India (NDLI) among the students, teachers, and research scholars of India and tried to assess its utilization and backdrops for further improvement. This study detected that the overall level of awareness of NDLI was low (39.3%) among the different groups, and students had the lowest (50.2%) level of awareness among other groups of respondents comparatively. A strong association existed between educational qualification and respondents' level of awareness. Apart from these, the users found the NDLI app useful; 54% of respondents were able to access the required content using the app and 71% of the users rated 'good' the app's performance.
- Singh, Sukhbir., Garg, Neha., and Sharma Chetan(2021)<sup>11</sup> The study examined the awareness and use of e-PG Pathshala among postgraduate students of Kurukshetra University adopting a survey method through a web-based structured questionnaire. The result reveals that 53.62% of respondents are aware of e-PG Pathshala. 67.56% of respondents use e-PG Pathshala for the contents related to their programme syllabus and 40.54% of respondents respond that the quality of e-content is good. This study recommended that the university should conduct training and awareness series for students to make further awareness regarding e-PG Pathshala. Lutfur Rahman, Abdul Moid,

- Keshwar Jahan (2021)<sup>12</sup> also investigated the use and awareness of e-PG Pathshala among the science postgraduate (PG) students at Aligarh Muslim University (AMU). It is revealed that most of the students are aware of e-PG Pathshala and use it to write thesis/dissertation/notes. It is found from the survey that maximum PG students access e-PG Pathshala from their respective hostel or home. Most students consider e-PG Pathshala useful because of its access and searching capabilities and availability around the clock. The majority of the users are experienced in handling e-PG Pathshala.
- Purkayastha, Nilanjana Sinha, & Manoj Kumar (2021)<sup>13</sup> conducted a study focusing on various aspects of Massive Open Online Courses (MOOCs) in North East India University. The study traced out that digital divide in North East India. Role of Govt. Initiatives, Awareness and perceptions, Barriers and challenges, University initiatives, Student Motivation, Quality of MOOCs, Peer Influence and social factors, and Impact on Traditional Education. MOOCs provide global learning environment that allows accessing the course material anytime, anywhere, connecting other learners, and getting access to the connect without considering any geographical boundaries. MOOCs may also help to increase professional knowledge and increase general competencies.
  - Subaveerapadigan A (2020)<sup>14</sup> carried out a study on the level of awareness of SWAYAM courses. The study reveals that the majority of respondents are aware of the SWAYAM Course. Respondents are aware of these courses through their teachers 74.73% of respondents replied that their university providing an orientation program on SWAYAM. Half of the respondents prefer a word file format for submitting their assignment.
  - Chanchinmawia Manoj Kumar Verma, Manoj Kumar (2020)<sup>15</sup> investigated the awareness and use of e-ShodhSindhu among the faculty members and research scholars of Mizoram University. The study found that a majority 76% of respondents are aware of e-ShodhSindhu library consortium. Whereas, only 24% are not aware. 5. Most respondents 82% know consortium from their friends and colleagues, teacher, self, and library staff, whereas only 18% know from library orientation. Moreover, 14% of the users are unsatisfied with the orientation programme because it's too theoretical and the programme is too short to have practical information. The majority of the respondents are satisfied with the orientation programme offered by the central library of Mizoram University.
  - Ambadka R S (2020)<sup>16</sup> studied the E-learning platform using Swayam and MOOCs among Commerce students focusing on graduation students. The Research was descriptive in nature and data was collected through a structured questionnaire the study concluded that most of the students were unaware of the online platform and they preferred classroom coaching to online coaching. It was further added that there should be collective efforts of Government, Educational Institutions, and corporate bodies to promote these courses and make everyone aware of such courses and their importance in careers.
  - Veeresh B. Hanchinal (2019)<sup>17</sup> The study revealed that, as of 30 Jan 2019, more than 5 million users from 3161 Govt./Govt. aided colleges covered under section 12(B) & 2 (f) of the UGC Act and Non-aided colleges were availing the facility of the NLIST programme. Further, the study revealed that the majority of the respondents said their main purpose of using e-resources through N-LIST was to prepare 'Class Notes' (92) and 'Assignments' (88). However, the situation was still alarming in colleges as many as 89 respondents said they did not know about the e-resources of the N-LIST consortium. Based on the findings the authors suggested that the college libraries should conduct regular training programmes to create awareness and optimum utilization of e-resources, particularly of the N-LIST consortium.
  - Abhishek Kumar, Sanjay Tiwari, and Pallavi (2019)<sup>18</sup> The study found a majority of the viewers/learners were using INFLIBNET platform to view the content; Most of the learners are using YouTube search platform for finding the video as it is the first medium to interact with the YouTube then use suggested video but to improve views and to promote the videos channel need to use different communication medium like- g-mail, social media, blogs etc. According to Google India by 2018, half of the counter will be connected through the internet; from them, more than 80% of them will be able to use the internet by mobile (quartz India). This study also revealed that a maximum number of users were more interested in using mobile for viewing the e-contents.
  - Vanlalpeka, Samuel. (2019)<sup>19</sup> A dissertation research study has demonstrated the awareness and use of e-PG Pathshala by Mizoram University post-graduation (PG) students. The

finding of the study shows that more than half of the post-graduate students are aware of the e-PGPathshala resources and services. Hence, the study suggests that proper guidance and training is required to educate the stakeholders in accessing e-content for their academic and research activities and special education in ICT may need to be given to students by faculties.

- Aditi Bhushan, Priya Ranjan Kumar (2018)<sup>20</sup> The study found there are many e-learning projects in India. Still, there is a lack of awareness among learners and they are not able to get the benefits from it. Still, e-PGPathshala is one of the most effective learning and interactive portals for postgraduate students. In a nutshell, the study found that NME-ICT has taken a revolutionary step for enhancing the quality of education with the learning portal of e-PG Pathshala and many others such as NPTEL, NIOS, SWAYAM etc.
- Pramanik, Sharmistha (2018)<sup>21</sup> study examined the user attitude and perception about the SWAYAM resource products and services provided for different layers of information seekers in society. Interestingly, 64% of the respondents were aware of the SWAYAM digital initiative, only 36% were not and most of the respondents felt that the place and visibility of the teacher is still important in today's higher education and research in India. The MOOCs can't replace the personal teaching and practical experience of the respondents, impact of this, 65% of them have favoured the traditional education system, on the other hand, 86% of them are interested in digital modes of education like MOOCs and similar, but the attitudes are even biased that 65% of them don't prefer MOOCs over traditional University process and 68% of the respondents were strongly felt that the language and cultural diversity stands as a major challenge for the extensive implementation of MOOCs. In the same year one more study same kind of conducted by Nayek (2018)<sup>22</sup> to examine the awareness of 'study webs of active-learning for young aspiring minds (SWAYAM): a government of India initiative on E-learning' initiative by the LIS professionals/students from Indian. It is shown that the majority i.e., 98% of LIS professionals and students are interested in registering and making use of SWAYAM resources 68% and facilities. Most respondents have preferred the visual presentations videos for listing expert presentations on various subjective themes and registered for digital library courses.

Most of them felt that alert service is necessary like Coursera.

- Anjuma Saikia (2017)<sup>23</sup> The study revealed that 34% of graduate students received information about N-List e-resources from a Librarian. Of the total respondents, 21% expressed that the Library orientation class was a good platform to learn about N-list e-resources. A majority forming 38% used N-List e-resources daily. Of the total respondents, 49.18% of students used N-List e-resources to update their subject knowledge, while 31.14% used N-List e-resources to complete assignments. It was 25.90% that used the N-List for their project work 72.78% of respondents searched N-List e-resources in the college library while 28.78% searched N-List e-resources in the computer Lab.
- Singh, Balwinder (2017)<sup>24</sup> carried out a study on digital initiatives in the higher education system in India. The study described that digital-virtual-virtual-electronic content, smart classrooms, and different and attractive and advanced digital gadgets are becoming the lifeline of education. In a changing context, almost all countries and their governments have made more investments in the enrichment of higher education and research to digitize the waste of educational materials and disseminate it through ICT platforms. The researcher found that digital initiatives, especially learning initiatives are more essential for developing countries like India, hence, the Government of India focuses on designing and developing different digital platforms to enrich, enhance, and empower of higher education system in India. Further, Gayan & Das (2017)<sup>25</sup> study revealed awareness and attitudes about e-learning facilities and services by the faculty members of Tripura University. It is shown that the highest 96% of the respondents were aware of the e-learning concept which is very encouraging in itself and 76% and 80% of them are aware of study webs of active-learning for young aspiring minds (SWAYAM) and e-PGPathshala resources and facilities. Highest 84% of the respondents have used E-Mails and different search engines get update information about e-learning aspects and it also points out, 52% of respondents willing to join online courses which are available various digital learning platforms, but 84% of respondents are not registered or enrolled any in any e-learning course. Therefore, the study concludes that most of the educational aspirants fail to make use of this online course and engage in continuing

- learning and survive in a competitive world, in this case, the consult leads, persons, and systems need to take about promoting the ICT facilities and services. One more similar study was carried out by Singh, Gaurav., & Chauhan, Rashmi. (2017).<sup>26</sup> conducted a study on awareness of Massive Open Online Courses (MOOCs) among the D.El.Ed and B.Ed teacher educators of educational institutions affiliated with the National Council for Teacher Education (NCTE). It is found that 75.6% of respondents are aware of MOOCs and 84.4% of the teacher educators are in opinion that MOOCs can be used for continuous professional development of in-service teachers, but 34.52% of teacher educators don't know for what SWAYAM stands, they only aware about the SWAYAM product, services and offered various level courses, but don't know about objective and visionary concerns of SWAYAM! It is not the fault or weakness of teacher educators, because MOOCs are in their initial phase in India, hence, the Government of India needs to take necessary steps to promote and integrate MOOCs in Higher Education Institutions. Also, Sonkar & Srivastava's (2017)<sup>27</sup> study explores the awareness and use of open courseware by post-graduation students of B.R Ambedkar University, Lucknow. The study analyzed awareness, level of knowledge, source /channels of awareness, place and time of access, preferred types of materials, impact factors on use, frequency and purpose of use, level of satisfaction about the e-PG Pathshala information products, services and online courses.
- Sowbhgyawati Gupta (2017)<sup>28</sup> examines the use and awareness of e-ShodhSindhu E-journals Consortium. The study also examined the influence of the Consortium on the users' research and identified the difficulties faced by the research scholars while accessing the Consortium. The study came out with a set of suggestions to enhance the use and awareness of the e-ShodhSindhu E-journals Consortium. The most common problem faced by the users was that of accessing full-texts of papers (75 percent) while it was 49 percent of the respondents stated limited number of terminals as a major barrier to use of e-journals. Of the total, 36 percent of respondents opined that only core journals (Physical Sciences) were available. Around 30 percent complained about the computer systems' slow internet connectivity and slow speed. Respondents forming 10 percent emphasized the need for User training.
  - Dhanani et al (2016)<sup>29</sup> study analyzed the awareness and utilization of Massive Open Online Course (MOOCs) and online video series facilities by GMERS Medical College, Valsad, Gujarat faculty members. Results of the study revealed that, highest 64% of the respondents were using Internet more than 5 hours week, 63.89% of the respondents were using online messaging and discussion tools such as email, Google and yahoo, blogging, forums etc., 25% respondents were aware of availability of offline video series. But most the online learning tools such as MOOCs and educational video series level of awareness is very low by the faculty members. Hence, the user awareness, user education and continued education programmes (CEP) have most important to spread awareness about this free online learning tool such as MOOC and educational video series.
  - Narayanaswamy B.V. (2016)<sup>30</sup> conducted a study collecting data from the students and faculty members of 15 randomly selected Degree colleges affiliated to Bangalore University located in and around Bangalore. As per the statistics available in the N-LIST website 629 colleges in the state of Karnataka have registered under the Programme, out of which 120 Degree colleges in Bangalore registered. A majority of Students and Faculty Members 77 (N= 77) formed 57.03 percent were found to be aware of the N-LIST Services. Of the total respondents, a majority of students and faculty Members (N= 79) forming 58.51 percent had an awareness regarding N-LIST e-Resource Services rendered by Library Professionals. Regarding the use frequency, of the total respondents, 28.14 percent (N= 38) used the NLIST once a week. Of all the available journals in the NLIST, the one that ranked atop the list was Economic and Political Weekly.

#### **1.6. Research Gap of Awareness and Utilization of ICT Initiatives of Ministry of Education, Government of India**

Research gap in the context of the literature review could be identified as follows:

- **Limited Research on ICT Initiatives in University Libraries of Karnataka:**

The existing literature does not sufficiently cover the specific utilization and awareness of ICT initiatives implemented by the Ministry of Education, Government of India, within

university libraries in Karnataka. While there is a general understanding of ICT adoption in education, a more focused study is needed to evaluate how these initiatives are utilized and perceived by university library users in Karnataka state.

➤ **Insufficient Focus on User Assessment:**

The reviewed literature provides an overview of ICT initiatives in education but lacks an in-depth user-focused assessment, particularly within the context of university libraries in Karnataka. Understanding how users perceive and utilize these initiatives is critical for optimizing their effectiveness and tailoring them to the specific needs and preferences of the user community.

➤ **Need for Comparative Analysis with Other States:**

The literature predominantly focuses on the ICT initiatives in the education sector at a national level or provides a general overview of Karnataka's education system. However, a dearth of comparative studies analyze the implementation and impact of these initiatives in university libraries in Karnataka compared to libraries in other states. Such a comparative analysis could shed light on regional variations and best practices.

➤ **Long-term Impact and Sustainability of ICT Initiatives:**

The literature primarily focuses on ICT initiatives' initial implementation and short-term impact. However, a gap exists in evaluating the long-term sustainability and enduring impact of these initiatives on university libraries in Karnataka. Understanding the long-term effects can help in making informed decisions regarding the continuous integration and enhancement of ICT tools and resources.

➤ **User Demographics and ICT Utilization Patterns:**

The existing literature does not delve deeply into the demographics of the user base in university libraries in Karnataka and their utilization patterns concerning ICT initiatives. Understanding the varying needs and preferences of different user groups can aid in tailoring ICT initiatives to suit diverse user requirements effectively.

By addressing these research gaps, future studies can provide a more comprehensive and nuanced

understanding of the awareness and utilization of ICT initiatives by the university libraries in Karnataka, specifically within the framework of the Ministry of Education's initiatives in India

## 1.7. Conclusion

Significant strides have been taken in leveraging ICT for educational advancement; gaps remain in achieving optimal awareness and utilization of these initiatives in university libraries. Future research and concerted efforts should focus on addressing these gaps by enhancing awareness, refining implementation strategies, promoting digital literacy, and tailoring ICT solutions to meet the specific needs of users. A collective and user-centred approach is essential to harness the full potential of ICT and transform education in the digital era.

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