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Digital competence among distance or online learners in the age of artificial intelligence

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Abstract
The path towards a knowledge-based society starts with Information literacy. Distance learning is seen as a practical option to traditional education in promoting accessibility, equality, and education for diverse learners. This study evaluates Digital literacy skills in utilizing digital library resources among University of Jammu's distance learners. The study emphasizes the importance of digital Information literacy in enhancing learning for remote students. Through a survey method, 200 questionnaires are distributed to respondents enrolled in distance education courses. The response rate is 81.00%, with 162 questionnaires received. The collected data is scrutinized through statistical analysis, including MS-Word and MS-Excel. Most respondents have digital information literacy and know basic search tactics. It is found that most prefer online resources for their simplicity, adaptability, and cost-effectiveness. The possession of digital literacy is crucial in the modern society where technology is paramount. It includes essential skills for thriving in the internet age. Therefore, distance learners should receive awareness and training programs integrated into their courses to enhance their digital literacy.

Keywords: Digital competencies, distance learners, University Students

Introductions
The illustrious Prof. Paul G. Zurkowski, esteemed President of the US Information Literacy Associations, was the originator of the term "Information literacy" in the year 1974. Information literacy pertains to the capacity to discern the information that is required, fathom how the information is organised, select the optimal information sources for a particular need, locate those sources, critically evaluate those sources, and disseminate that information. Information literacy (IL) endows individuals with the ability to utilise information in a resourceful, productive, inventive, lawful, principled, and tactical manner, so as to accomplish their objectives. We find ourselves in a constantly evolving world, where novel data is created every moment, leading to an overwhelming abundance of information. The unceasing advancement in Information and communication technology (ICT) and Artificial intelligence (AI) has influenced several domains of life, such as Economics, Information relations, Politics, Science & Technology, and so forth. The Information for All Programme established a Working Group on "Measurement for Knowledge Societies" under the aegis of UNESCO. The group places special emphasis on three priority areas: Information literacy, information preservation, and information ethics. These areas are deemed crucial for the growth of knowledge societies. In today's world, where data reigns supreme, the processing of information plays a pivotal role in empowering individuals and nations alike. Developing IL skills is, therefore, of utmost importance. In the context of higher education institutions, information literacy assumes even greater significance. It enables individuals from diverse backgrounds to efficiently locate, assess, use, and generate information to achieve their social, linguistic, and educational objectives.

In simpler terms, IL serves as the foundation for the knowledge society. It is important to note that university libraries are engaged in a continuous process of enlightening their users on various aspects of library usage, including information retrieval and utilization, as well as the application of various bibliographic tools. This is achieved through a combination of library orientation, user training, and bibliographic instruction. Distance learning, on the other hand, is a form of education that provides educational opportunities and instruction to students who are unable to physically participate in regular or conventional learning courses.

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It is worth noting that distance learning programs in India are the only viable option for many students who reside in far-flung and isolated areas of the nation, lacking access to the facilities necessary to pursue formal education. As the world becomes increasingly digital, the omnipresent Internet has taken over as the primary source for obtaining information for distance learners who lack the luxury of physically accessing a library like their traditional counterparts. Consequently, it is imperative to comprehend the intricate ways in which distance learners utilize online information resources and their corresponding experiences in doing so. Such an understanding would equip librarians with the necessary tools to develop cutting-edge instructional programs aimed at augmenting students' information literacy skills.

Literature Review
The studies that are related to the current study are listed below
Subba Rao S (2006) [1] in their study focused on India's efforts to increase literacy levels through distant learning by making use of available technologies, notably information technology. The study suggested the necessity of digital libraries (DLs), their integration, and the use of IT to provide high-quality education to populations that are in remote areas and to improve the quality of education in already-existing educational institutions.

Ameen K, & Gorman GE (2009) [2] conducted a study to examine the overall extent of information and digital illiteracy (IDL) in developing nations and how it impedes the development of people and countries by taking the case of Pakistan. They founded that IDL training and practise are not common in Pakistani education system or libraries, nor are they considered operational priorities. The importance of learning to be "critical consumers" of knowledge for both individual and national development is also highlighted.

Koneru I (2009) [3] conducted the study to find out how easily accessible and useful library and information services and resources were for Dr. BR Ambedkar Open University (BRAOU) students, as well as their familiarity with and use of ICTs, their capacity to search and retrieve information from the Web, their ability to assess the quality of information sources, their knowledge of fair use policies, and their preferred language and mode of IL instruction. Their study concluded from the findings that the BRAOU learners have a low degree of information literacy.

Ozdamar-Keskin N, Ozata FZ, Banar K, Royle K (2015) [4], in their study examined the digital literacy skills and learning habits of students enrolled in Anadolu University's open and distant learning programmes in Turkey. Students believed they have the project management and problem-solving abilities to handle academic challenges. However, it appears that they only have minimal digital literacy skills and expertise on how to use information and communication technologies. They require instruction on how to utilise digital tools more effectively for educational purposes.

Munshi SA (2016) [5] conducted a study to assess the information literacy of postgraduate students at Aligarh Muslim University with reference to the library's resources and to learn about their fundamental information demands and information search methods in both physical and online sources. The researchers discovered that there are several worthwhile recommendations provided by the users in response to their desire to increase their information literacy

skill, including project based learning, motivational speeches, seminars, conferences, and symposiums.

Krishnamurthy C, Shettappanavar L (2019) [6] conducted a study to assess the level of digital literacy among female postgraduate students at Karnatak University in Dharwad. The use of various search algorithms for efficient information retrieval is also found to be poorly understood by students, and only a small percentage of respondents are aware of copyright concerns.

Kayaduman H, Battal A (2020) [7] conducted a correlational study that looked at the relation between UG students' perceptions of distant learning and digital literacy and concluded that If students have higher digital literacy skills, their perceptions of distance learning might improve. Alternately, as students' digital competence decline, their perceptions of distance learning also decrease.

KARAKIŞ Ö. (2022) [8] organized a study where online learning motivation factor was used to analyse the digital literacy of university students enrolled in distance learning programmes during the Covid-19 epidemic. It was discovered that there is a statistically significant association between the students' motivation levels for online learning and their levels of digital literacy.

Significance of the study
As the era of information expands, a plethora of new and updated informational resources inundate the internet each day. The user-friendly and effortless interfaces of online search engines lure millions of users. Nevertheless, doubts about the genuineness and credibility of online information persist. Since distance learners have limited access to instructors who can aid them in operating in a digital environment that genuinely necessitates IL skills, we endeavoured to identify the Digital literacy skills of University of Jammu's distance learners in order to locate, identify, gather, and evaluate information from a variety of electronic sources.

Objectives of the study
- To determine awareness of concept of digital Information literacy among selected distance learners.
- To determine awareness and use of library services by selected distance learners.
- To assess the IL competencies among distance learners to search, identify, obtain, and evaluate information from multiple sources.
- To identify the challenges faced by distance learners when utilising electronic resources.

Scope and limitation of the study
The investigation centers around ascertaining the proficiencies of remote learners with regards to identifying, acknowledging, compiling and scrutinizing data from various electronic sources. Due to time constraints, this study solely evaluates the digital literacy skills among the distance learners of University of Jammu. The sample size for this study comprises of 162 distance learners enrolled in diverse courses at University of Jammu, Jammu.

Research Methodology
This study employed a survey-based methodology to procure information from distance learners of University of Jammu with the aim of evaluating their competence in Information literacy in the digital environment. The primary

instrument for data acquisition was a comprehensive questionnaire, and the gathered information was analyzed utilizing percentages, tables, and charts. The major findings obtained from this analysis are discussed below.

1. Distribution of Respondents by Gender

Table 1: Showing distribution of Respondents by Gender

Description	Frequency	Percentage
Male	63	38.9%
Female	99	61.1%
Total	162	100.00%

According to Table 1, 162 responses from distance learners were received, of which 99 (61.1%) were submitted by women and 63 (38.9%) by men. In distance education, female students outnumber male students, according to study results.

2. Frequency of visiting the Library

Table 2 and Figure 1 indicate that majority of distance learners 54 (33.3%) rarely visit their library, 38 (23.5%) of them visit library once in a month and 38 (23.5%) visit library once in a week. 25 (15.4%) of respondents visit library daily whereas 7 (4.3%) of them never visit library.

Therefore, it is concluded that the majority of distance learners rarely go to the library, however some do so on a weekly or monthly basis. Only a small percentage of respondents visit libraries regularly, and a smaller percentage never do.

Table 2: Showing frequency of visiting the Library

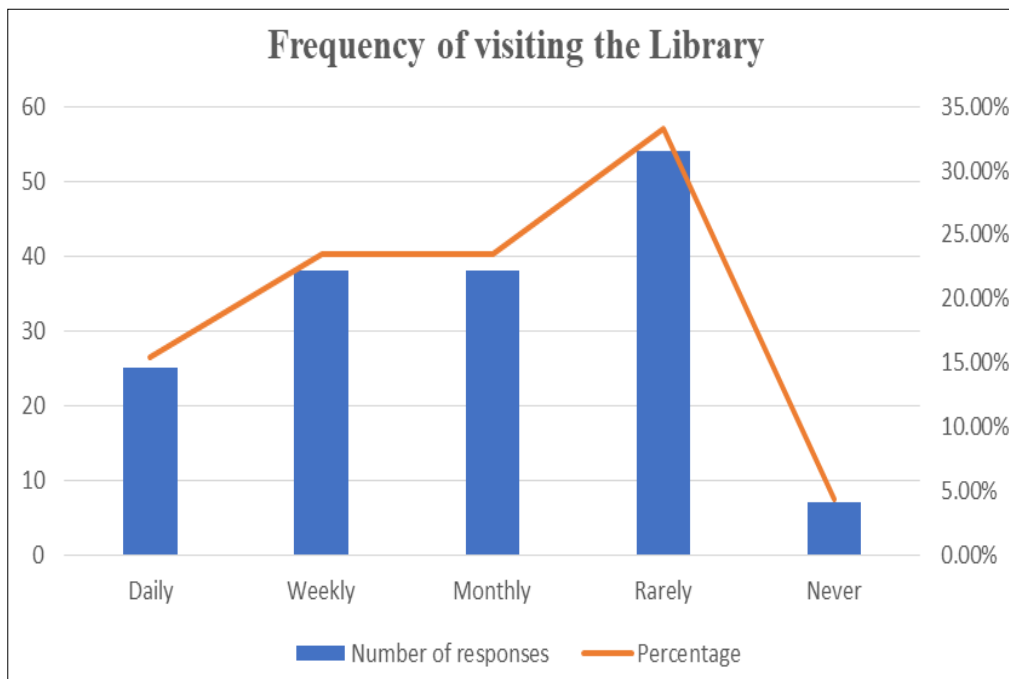| Description	Frequency	Percentage
Daily	25	15.4%
Weekly	38	23.5%
Monthly	38	23.5%
Rarely	54	33.3%
Never	7	4.3%

Fig 1: Showing frequency of visiting the Library

3. Awareness regarding concept of Digital Literacy

Table 3 and Figure 2 depict that majority of the respondents 126 (77.7%) are aware of the concept of Digital literacy whereas few 36 (22.2%) lack awareness regarding it.

This leads to the conclusion that while the majority of distance learners are aware of what digital literacy is, there are still some who need to be informed about it.

Table 3: Showing awareness regarding concept of digital literacy

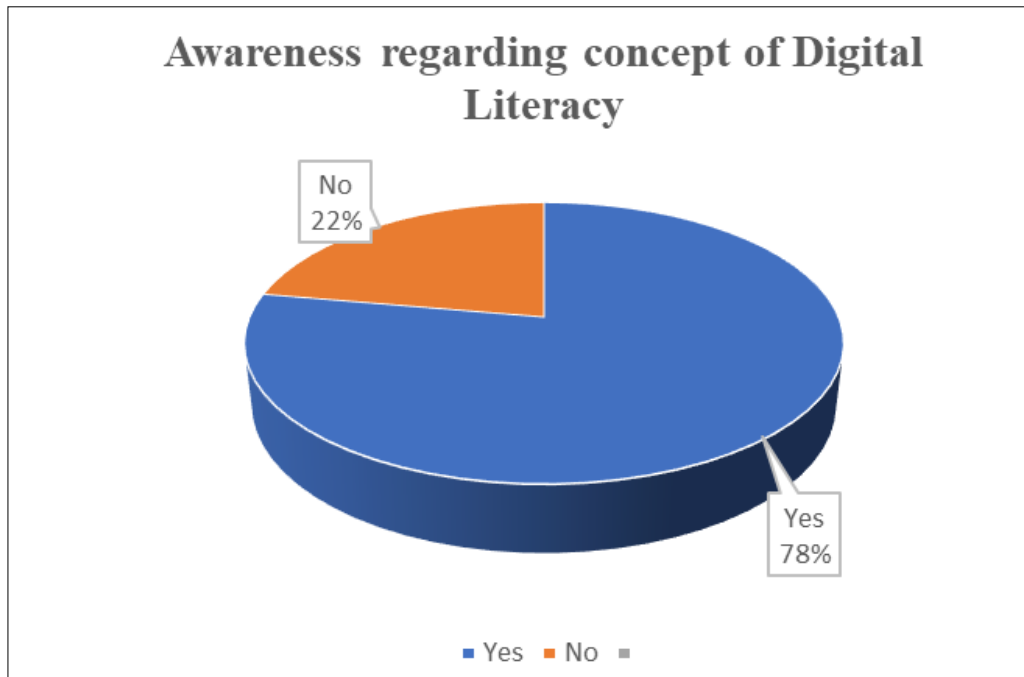| Response	Frequency	Percentage
Yes	126	77.7%
No	36	22.2%
Total	162	100.00%

Fig 2: Showing awareness regarding concept of Digital Literacy

4. Awareness regarding services and resources library offers: Table 4 and Figure 3 show that 132(81.5%) of respondents are aware of the resources and services their library provides, while only 30(18.5%) respondents are not. This suggests that although if the majority of distance learners are aware of the resources and services their library offers, there are some who still need to be made aware of them.

Table 4: Showing awareness regarding services and resources library offers

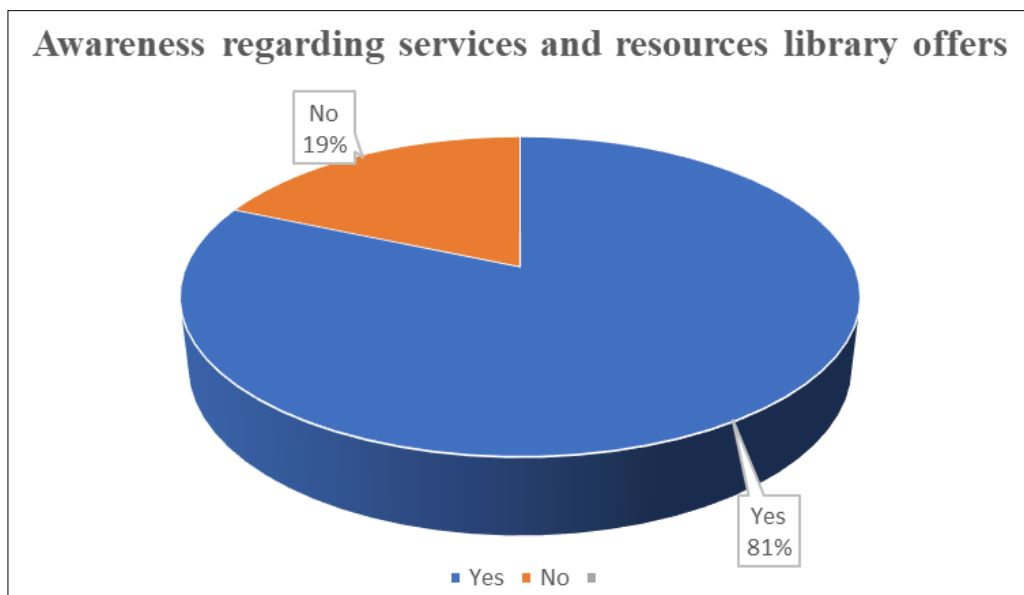| Response	Frequency	Percentage
Yes	132	81.4%
No	30	18.5%
Total	162	100.00%

Fig 3: Showing awareness regarding services and resources library offers

5. Preferred Information sources

Table 5 and Figure 4 indicate that majority of the respondents 130 (80.24%) prefer both print and digital Information sources. Few 15 (9.25%) of them prefer only print materials whereas 17 (10.49%) prefer electronic materials alone.

Therefore, it is concluded that most distance learners prefer both print and electronic information formats, whereas only a small number are comfortable using either print or electronic sources.

Table 5: Showing preferred Information sources

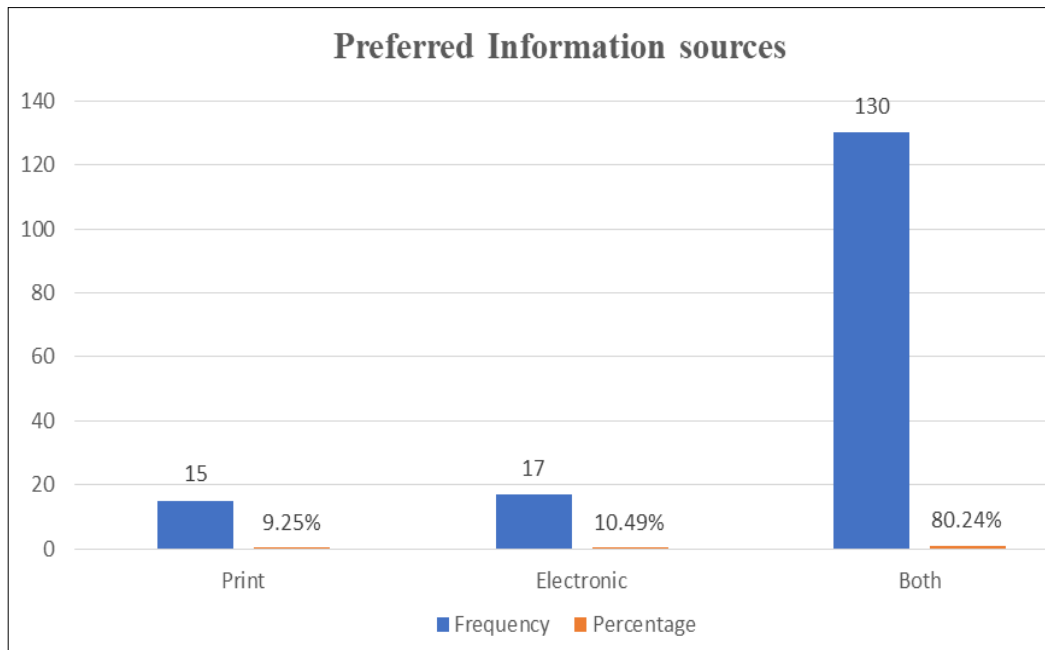| Response	Frequency	Percentage
Print	15	9.25%
Electronic	17	10.49%
Both	130	80.24%

Fig 4: Showing preferred information sources

6. Knowledge of utilising various Digital resources (Selected more than one option): Table 6 and Figure 5 show that out of 162 respondents, 136 (83.9%) have significant knowledge of using the internet, 122 (75.3%) have knowledge of using social media, 111 (68.5%) have knowledge of using e-mail services, 90 (55.6%) have knowledge of using image/visual materials, 86 (53.1%), have knowledge of using audio materials, and 71 (43.82%) have knowledge of using the OPAC in the library. Only 61 (37.5%) of respondents knew how to use library e-services. It is determined that distance learners know little about using the library's OPAC or using its electronic resources and services.

Table 6: Showing knowledge of utilising various digital resources

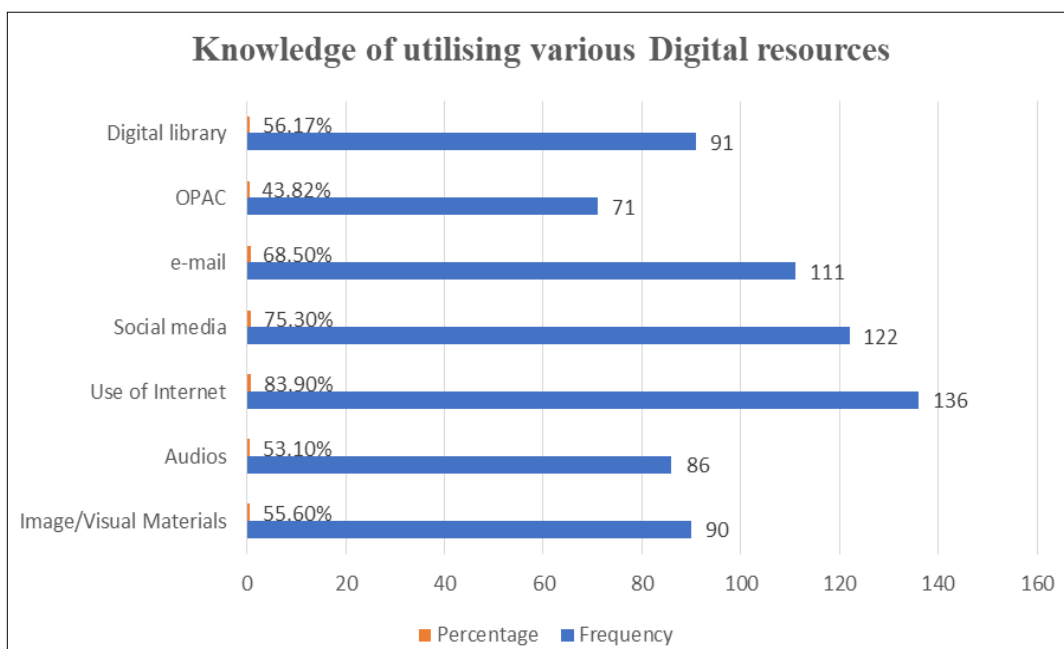| Response	Frequency	Percentage
Image/Visual Materials	90	55.6%
Audios	86	53.1%
Use of Internet	136	83.9%
Social media	122	75.3%
e-mail	111	68.5%
OPAC	71	43.82%
Library e-services	61	37.65%

Fig 5: Showing knowledge of utilising various digital resources

7. Different strategies used for searching up information online: Table 7 and Figure 6 show the search methods and techniques employed by distance learners to find information. Of the respondents, 112 (69.1%) use simple keyword search techniques, 28 (17.28%) use field search, 16 (9.87%) use Boolean operators, and 6 (3.7%) are unaware of searching information online.

It was found that most of the respondents were unaware of the numerous search mechanisms available for efficient information retrieval. The majority of survey participants simply know basic search techniques.

Table 7: Showing different strategies used for searching up information online

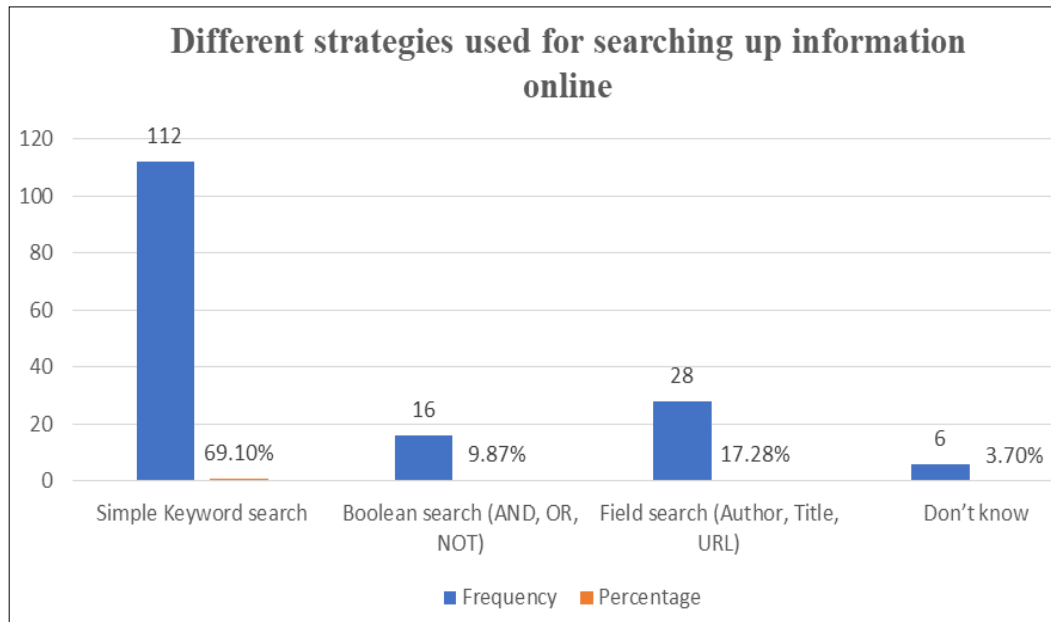| Response	Frequency	Percentage
Simple Keyword search	112	69.1%
Boolean search (AND, OR, NOT)	16	9.87%
Field search (Author, Title, URL)	28	17.28%
Don't know	6	3.7%

Fig 6: Showing different strategies used for searching up information online

8. Knowledge/skills necessary to search, access, evaluate and use information online (Selected more than one option): Table 8 and Figure 7 show that out of 162 respondents, 137 (84.6%) are most likely to have knowledge or abilities related to searching for information online, 81 (50%) are familiar with how access information online, and 86 (53.1%) are knowledgeable about how to use information effectively. 53 (32.7%) of the respondents have knowledge of evaluating the information they seek for.

Therefore it is concluded that majority of distance learners are capable of searching for the necessary information online, but they lack the ability to evaluate it.

Table 8: Showing skills necessary to search, access, evaluate and use information online

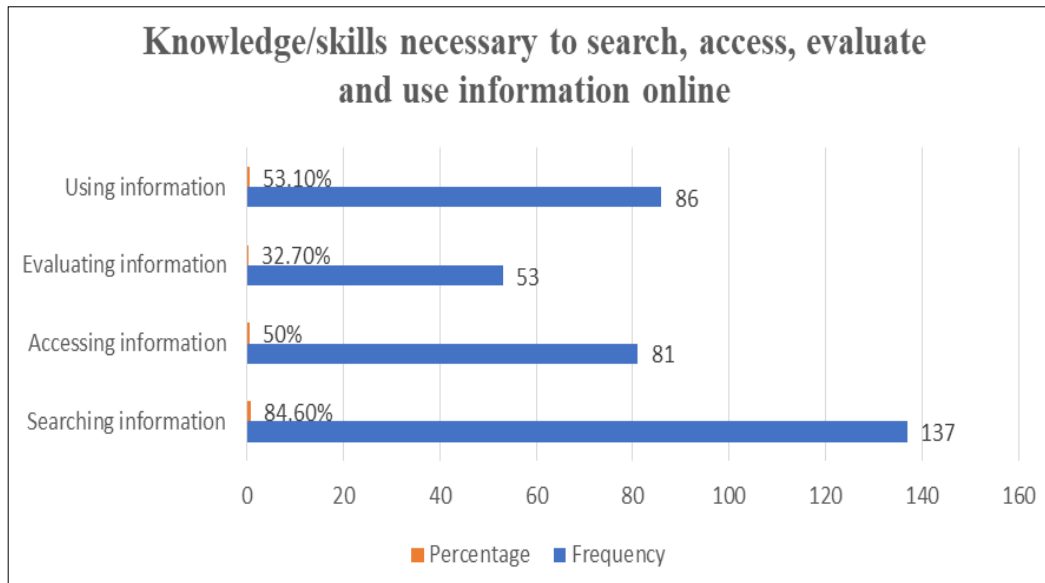| Response	Frequency	Percentage
Searching information	137	84.6%
Accessing information	81	50%
Evaluating information	53	32.7%
Using information	86	53.1%

Fig 7: Showing skills necessary to search, access, evaluate and use information online

9. Areas demand for an Information literacy programme (Selected more than one option): Table 9 and Figure 8 show the type of options suggested by the respondents regarding the areas where an information literacy programme is needed, 111 (68.51%) respondents need training in using an OPAC, 107 (66.04%) respondents need training in using online information sources, 96 (59.25%) respondents need training in using digital libraries and 71 (43.82%) respondents need training in formulating various search strategies. 17 (10.49%) of the respondents require instruction in finding, evaluating, and utilising relevant print information sources.

Table 9: Showing areas demand for an Information literacy programme

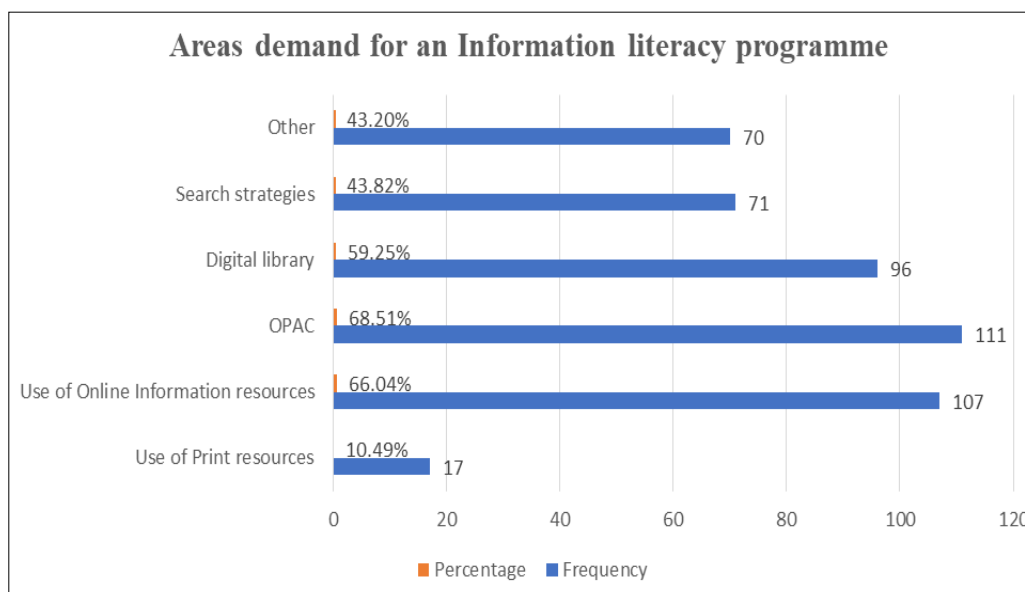| Response	Frequency	Percentage
Use of Print resources	17	10.49%
Use of Online Information resources	107	66.04%
OPAC	111	68.51%
Digital library	96	59.25%
Search strategies	71	43.82%
Other	70	43.20%

Fig 8: Showing areas demand for an Information literacy programme

Conclusion
The foundation of a knowledge society lies in the possession of information literacy. In the digital age, academic institutions rely heavily on information literacy skills to contribute significantly towards research aimed at making the world more information-literate. Distance learning is a desirable option for learners who, for various reasons, cannot commit to regular courses. The analysis of data indicates that a greater percentage of females than males register for distance learning programs. It was observed that

the university's library is rarely visited, and learners seldom utilize its resources. Furthermore, the study revealed that while most respondents are familiar with terms like "digital literacy" and "library e-services," a few respondents are not. Distance learners who are seeking to cover the maximum ground in their quest for knowledge tend to favour both print and electronic information formats. However, these diligent learners are not yet familiar with the use of the library's OPAC or other electronic resources and services. To make matters worse, the majority of them lack the skills necessary to critically evaluate the information they access online and are unaware of the various search techniques that are available for effective information retrieval. Despite these challenges, a recent study revealed several options recommended by the respondents regarding the subject areas in which an information literacy programme is required. Furthermore, the study emphasized the need for instruction in using an OPAC, online databases, digital libraries, and formulating different search techniques.

Suggestions
The following suggestions are given based on primary data to improve the information literacy skills among the distance learners of University of Jammu and other parts of the world

- There exists an imperative to disseminate the art of information literacy to a broader audience of remote learners due to their lack of cognizance regarding its manifold benefits.
- In order to cultivate the essential abilities for effectively utilizing the plethora of digital resources and services offered by the library, it is imperative that proper workshops, courses, and training programmes be meticulously arranged for the benefit of distance learners.
- It is imperative to allocate the requisite finances to facilitate the provision of adequate support to administrators who endeavour to inculcate information literacy skills among distantly situated learners. This can be done through a range of innovative initiatives.
- Enhanced regulations and astute policy formulation are imperative to furnish amenities to every faction of students registered in online or distance learning, particularly those residing in remote areas.
- More research and studies need to be conducted in this rapidly expanding field to gain a better understanding of how information literacy competencies can be taught to students using a blended approach, using both online and offline learning platforms.

Scope for further studies
Potential areas that can be explored in future studies related to digital competence among distance learners in the age of artificial intelligence

- Effect of digital information literacy on academic performance and learning outcomes in distance education.
- Effectiveness of different training programs and interventions to enhance digital literacy skills among distance learners.
- Role of librarians in developing instructional programs to improve students' information literacy skills in distance learning.

- Challenges and obstacles faced by distance learners in acquiring and utilizing digital literacy skills, especially in the context of artificial intelligence.
- Connection between digital literacy, student engagement, and satisfaction in distance education.

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