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**IMPACT OF DIGITAL TECHNOLOGIES IN ACADEMIC AND RESEARCH:  
LIBRARIANS' ROLE IN PROMOTING DIGITAL LITERACY**

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**Abstract:**

Digital technology revolution has passed through all the fields and its influence in library has changed the library functions dramatically. The application of digital technology in library activities have influenced the information handling process such as how the information is packaged, processed, preserved and disseminated to the academic and research community. A well established library equipped with all the latest digital technologies acts as focal point for promoting teaching, learning and research activities of academic institutions. Digital information literacy competency skills plays significant role in identifying, locating, preserving and sharing the resources. Without such skills, effective utilization of the library resources will not be possible. The users need to be educated for effective utilization of the resources. It is the prime job of the library professionals to educate information literacy skills among the students, for which they should update the latest technologies and undergo training. This study explores how digital technology affects academic and research work and how librarians can boost digital literacy in the academic fraternity.

**Keywords:** Information Literacy; Digital Technologies; Academic research; Digital literacy; Role of librarians in digital literacy;

**抽象的 :**

数字技术革命已经遍及各个领域，其对图书馆的影响极大地改变了图书馆的功能。数字技术在图书馆活动中的应用影响了信息处理过程，例如信息如何被打包、处理、保存和传播给学术和研究界。配备所有最新数字技术的完善图书馆是促进学术机构教学、学习和研究活动的焦点。数字信息素养能力技能在识别、定位、保存和共享资源方面发挥着重要作用。没有这些技能，就不可能有效利用图书馆资源。用户需要接受教育以有效利用资源。对学生进行信

Received: October 05, 2021 / Revised: October 31, 2021 / Accepted: November 30, 2021 / Published: December 31, 2021

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息素养教育是图书馆专业人员的首要工作，学生应该为此更新最新技术并接受培训。本研究探讨了数字技术如何影响学术和研究工作，以及图书馆员如何提高学术联谊会的数字素养。

**关键词：**信息素养；数字技术；学术研究；数字素养；图书馆员在数字素养中的作用；

### **Introduction**

Information literacy skill is crucial for librarians to provide effective services in today's knowledge society. These skills are needed to the society in general and specific to the academic community. The information literate person can easily identify, evaluate and use the information. Nowadays, more and more students and research scholars depend on the web for their academic and research purpose, since the web has lot of resources. Another development in web technology is web 2.0, which emphasises user-centred content, needs information literacy skills. The participatory technology and web 2.0 allows people to be both producers and consumers needs digital literacy to succeed in the digital environment. As a result of dynamic changes in the digital environment, information literacy skills have become essential tool to retrieve the relevant document in the ocean of information (Aharony & Bronstein, 2013).

It is the information literacy, through which individuals produce, distribute and stimulates the knowledge. In this digital information society, information is essential for progress of the society's economy. Organisational knowledge cannot exist without the involvement of academic and research community, who creates, organises, preserve and disseminate the information. Information generation is possible only through the flow of information between the individuals, society and organisations. With the advances in technology, people are getting unrestricted flow of

information. The rapid evolution of technology in libraries has allowed the users to find their information much faster and convenient to use it. Technology in library has undergone various levels of development. The automatic issue and return, webOPAC, RFID technology etc has led to better management of libraries. Libraries equipped with new ICT tools facilitate the patrons to access the resources and changed the librarians' role to reach beyond their walls to provide resources to the patrons (Omosor, 2014).

As the information influences every sector, it is highly impossible to develop a knowledge society without improving the information literacy competencies among the information seekers (Henkel, 2015). Information literacy skills has become necessary skills in this twenty-first century as we are witnessing explosion of vast amount of information. If the teachers and students have sound information literacy knowledge, it will increase their access to a vast array of information. It has become increasingly important as there is rapid change in technological advancements and proliferation of information (Mulat & Natarajan, 2020). In order to ensure the access, the library professionals should update their technology skills and undergo training periodically. This study discusses about librarians role in promoting digital literacy skills in this crucial period.

### **Libraries in the new information age**

Human history has passed through different stages and witnessed different revolutions such as agricultural, industrial and

information revolution. The libraries and library professionals have also faced different phases. The journey of library started from clay tablets and plain leaves and reached towards digital contents which can be read simultaneously by many students at any time. The development of the ICT results drastic changes in library collections and services. Now, due to the technological advancements, the growth of digital resources and services have occupied the libraries have facilitated free flow of digital information. This new information environment requires digital literacy competency to identify, locate, process and disseminate the information sources. The role of library professionals has been strongly changed due to changes in the digital contents (Verma, 2015). The library is one, which is affected deeply by ICT which is the backbone of information age.

In this digital environment, the amount of time the researchers spent on digital technology inside and outside of their institutions impact their research and mental well being. Technology affected the way the libraries are managed due to entry of new innovative technologies in the academic library system. The libraries have to adaptive and flexible with the new innovative technologies. These technologies enabled collaboration across the globe, enabled libraries in providing improved access to scholarly resources. The technological innovations in libraries helped the professionals to preserve the documents online thereby providing improved services to the academic and research community. The enormous growth of information due to technological innovations will definitely impact the role of library professionals. Librarians' role has to be changed and need to learn new technical skills to cope up with the new technologies and meeting the

information needs of the patrons. The availability of online information over the internet is changing the patrons' access behaviour (Wenborn, 2018).

As the libraries are the institutions plays significant role in achieving global literacy, they are established to provide free and equitable access to information to the general public. They always make special efforts to serve all the members of the society, by introducing new and innovative services to the patrons (Mulat & Natarajan, 2020). Changes occurred in library has been presented in the table 1.

**Table 1: Changes in library**

<b>Changes in Library</b>	
<b>From</b>	<b>To</b>
Print Sources	Electronic Sources
One form	Different file formats
Users have to go to the library for information	Library comes to the users
Librarian acted as custodian	Information provider
Access by local users	Users from any place
Procuring of information by individual library	Consortia mode
Local reach	Global reach
Librarian	Digital Librarian, Electronic Librarian, Information Manager
Library	Digital Library, Virtual Library, Electronic Library

### **What is a digital literacy skill?**

Digital literacy skills enable the information seekers to identify access, analyse, evaluate and use the information. It requires

knowledge in using digital technology to access the information in multiple formats.

The American Library Association (ALA) defines digital literacy as “the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills.”

### **Why digital literacy so important?**

Internet provides massive amount of resources which can be effectively utilised if the information seekers have sound knowledge on digital literacy skills. They can also create, communicate and share the information. Information literacy competency enables the information seekers to understand the basics of internet safety such as protecting their space on the web with strong password, creating account, understanding and using privacy settings, and more importantly what information to be shared and what not to be shared. The literate person can understand cyber bullying and how to stop bullying and prevent others from cyber bullying. Accessing to journals is made available through different routes such as green and gold route and copyright. In today’s digital environment, most of the activities are done through online mode. Entry of fake news is another major issue and majority of the people are falling prey to them. Communication through online is very important which requires the information seekers to be strong in digital literacy skills to find, evaluate, communicate and share the online resources among the academic and research community (Renaissance, 2019). Academic and research institutions are allocating sizable amount for subscription of electronic resources must be effectively utilised, otherwise, it will be great

lose to the individuals, institutions and nations. Hence, digital literacy skills are very important to access the resources effectively.

### **Impact of Digital technologies in Academic Research**

We are surrounded by digital technologies and it has become an essential part of teaching and learning. In order to use digital technologies, both faculty members and students should have wide knowledge on cognitive and social-emotional skills (Silber varod et.al, 2019). The application of digital technologies has reached in almost all the educational institutions across the globe. But, the usage of the technologies varies among the countries. The variations may be due to many factors such as the vision and mission of Higher Education Institution (HEI), funds and available technical staff to ensure the existence and continuous improvement (Balasubramanian et al., 2009). In order to utilise the electronic resources effectively, the users must be able to utilise the digital technologies and must be aware of various search techniques.

### **Role of Librarians in Promoting Digital Literacy**

Information has become the deciding factor for determining the progress and prosperity of nations. Realising the importance of information, the information seekers are not only using, but also producing and generating huge amount of information. In order to make information available freely, ICT plays very important role in connecting the information seekers to the right information (**Ganaie, 2013**). The information environment of today is very complex, which calls for library professionals to acquire digital literacy skills to be able to

function properly. Libraries all over the world are being changed with the evolving technological advancements, globalisation and digitization. Library professionals all over the world are facing challenges in upgrading their skills, which is the reason they have to equip with technological skills that will be useful to survive in this digital environment (Baro et al, 2019). There are number of challenges the knowledge workers have to face due to number of factors including the volume of information, lack of knowledge in advanced information retrieval techniques and lack of awareness of where to look for the information and shortage of time to find and process information. Apart from these skills, they should also have the knowledge management and technical skills, metadata creation, and knowledge on copyright issues.

The information search and use should be ensured equally among all the individuals. The library professionals should provide unhindered access to all the information sources available in the library for improving the students' academic knowledge. Today, all the academic and research institutions across the world, have started teaching information literacy skills to promote teaching, learning and research activities. Librarians working in academic and research institutions are taking lead role as 'focussed guides' in supporting individuals as more intelligent consumer in this ocean of knowledge. Once librarians were considered as mere custodian of resources have changed their functioning style to offering bibliographic information. Today, librarians job has been complete changed and they have to meet the specialised information.

The digital technologies have reshaped and changed the functioning and style of the library. The digital literacy or digital capabilities

among library staff are increasingly important for delivering new and innovative services and ensuring quality. Most of the academic and research information available through electronic mode needs information literacy skills. There are many devices such as smart phones, tablets, laptops and micro computers are acting as tool for retrieving the information. These advances and realities are not only requires library professionals to be information literate, but also aware of issues such as copyright, policies, norms, open access routes, ethics in publication, academic integrity and so on (Chewe, 2020).

The content created in digital form need to be shared. How effectively the content is created and communicated with their peers is a digital literacy. The users do not bother what to be shared, where to be shared and why to be shared. They don't think about the implications or potential consequences of what they share with others (Renaissance, 2019).The library professionals need to understand what information the students are sharing and discuss the consequences they will encounter (Thompson, 2009). By teaching the information literacy skills to the students, library professionals also can update and improve their digital literacy skills (Kenton, 2010). Library should be the place where the users must be able to find any information they need, no matter what format it is. This cannot be achieved with some basic computer skills. Librarians should run user education programme or information literacy programme to make the users aware of different types of the resources and various search techniques to retrieve the information they need (Ganaie, 2013). The librarians of today must be technically sound and experts in areas such as information technology, automating the library,

developing the digital library, web-scale discovery, search strategy, etc.

Digital technologies have reshaped and changed the style of functioning of libraries and librarians. The librarians must be experts in areas such as information technology, automating the library, developing the digital library, web-scale discovery, search strategy, etc. They need to have the skills such as strategic thinking, managing the change, problem-solving, technical knowledge, communication, customer satisfaction, decision-making, and understanding of ICT and digital literacy competency. The first and foremost job of the librarian is to identify, acquire, process, organize and disseminate the information to the customer. The selection of resources should be judicious and should meet the needs of the academic community, especially for the researchers. They have to plan and design the content for developing digital literacy in collaboration with faculty members and the research and development fraternity inside or outside the organization (**Adomi, 2006**).

Librarians must possess digital literacy abilities to advance in their jobs and careers. Librarians who have these skills will be better ready to participate in resource sharing, social networking, internet surfing, instant messaging, and blogging, as well as a variety of other digital-related activities. Additionally, these talents might benefit them by assisting users in obtaining required information and instruction. Since these are learnable skills, all information workers should possess them (**Emiri, 2017**).

- Librarians should ensure that all patrons and peers are treated equally
- They must realise that social responsibility is part of their profession

- They should also pursue excellence, integrity, collaboration, and transparency in the workplace **Ayers (2018)**.

Librarians conduct user education programs to raise students, researchers, and faculty members about the various sources of information available in various formats and the libraries services. In user education campaigns, various methods are used to raise awareness, such as;

- One of the most common methods for educating users about the library's services and information resources is to use a lecture method with simple presentations.
- Library Practical orientation allows students and researchers to observe and experience various information sources, services, and tools. Conducting user education programs educate users on making the most effective digital and analog resources and services.
- Library professionals use the internet and other technologies to educate users on the best use of library services and resources. Users can also learn about web 2.0, library 2.0, mobile applications, and other technology applications via e-learning.
- In order to make users more digital information literate, library professionals are also writing different books, brochures, flyers, or making their websites with information about library activities and services. While reading this information, users can quickly figure out how to become information literate. (**Ganaie, 2013**).

## Conclusion

Libraries and information centres have become key distribution points for information in many formats. Libraries have utilized ICT to achieve their goal and are evolving. There are now several digital electronic resources available to information users. The use of ICT has transformed librarians from caretakers to information gatekeepers. Librarians are no longer storekeepers but rather cybrarians who help user's access online resources. With this new library and information science responsibilities, the academic and research world would reach new heights and contribute significantly to the growth of knowledge. Until recently, digital transformation in academia could be considered a relatively new area of interest. However, the pandemic changed all of that, requiring us all to embrace digital surroundings in our day-to-day activities. Even though this is a great opportunity for librarians as well, the primary problems associated with modernizing academia are various, both in terms of technical innovation and organizational structure. Promoting digital literacy through libraries is the only method to accelerate the growth of academic research. So librarians must be equipped with these skill sets.

## References

- Adomi, E.E. and Anie, O.S. (2006), "An assessment of computer literacy skills of professionals in Nigerian university libraries", *Library Hi Tech News*, Vol. 13 No. 2, pp. 10-14.
- American Library Association (ALA) Digital Literacy Task Force (2013). ALA Task Force releases digital literacy recommendations. Retrieved from <http://www.ala.org/news/press-releases/2013/06/ala-task-force-releases-digital-literacy-recommendations>
- Ayers, R. (2018). How technology is changing the role of libraries. <https://innovationmanagement.se/2018/06/21/how-technology-is-changing-the-role-of-librarians/>
- Balasubramanian, K., Clarke-Okah, W., Daniel, J., Ferreira, F., Kanwar, A., Kwan, A., & West, P. (2009). *ICTs for higher education*. Commonwealth of Learning, Vancouver.
- Chewe, P. (2020). A survey of digital literacy skills among library professionals in Zambia. *Zambia Journal of Library & Information Science*, 4 (1).
- Emiri, O. T. (2017). Digital literacy skills among librarians in university libraries in the 21st century in Edo and Delta states, Nigeria. *International Journal of Library and Information Services (IJLIS)*, 6(1), 37-52.
- Ganaie, S.A. (2013). Role of University Libraries in promoting the Digital Literacy: The Indian Perspective. J.K. Vijayakumar and P. Pichappan (eds.), *Rejuvenated Libraries for Empowered Users*. London, Digital Information Research Ltd, 12.
- Kenton, J., & Blummer, B. (2010). Promoting digital literacy skills: Examples from the literature and implications for academic librarians. *Community & Junior College Libraries*, 16(2), 84-99.
- Mulat, T. and Natarajan, M. (2020). Digital Literacy Skills among Library Professionals in Jimma University Libraries. *Library Philosophy and Practice (e-journal)*.4629.
- Omosor, U.A. (2014). Effect of Technology on Librarians in Academic Libraries in Nigeria. *Journal of Information and Library Management*, 5 (2), 203-212.

Renaissance (2019). What is digital literacy and why does it matter?

<https://www.renaissance.com/2019/02/08/blog-digital-literacy-why-does-it-matter/>

Silber-Varod, V., Eshet-Alkalai, Y., & Geri, N. (2019). Tracing research trends of 21st-century learning skills. *British Journal of Educational Technology*, 50(6), 3099-3118.

Thompson, S. M. (2009). *Core technology competencies for librarians and library staff*. Neal-Schuman Publishers.

Wenborn, C. (2018). How technology is changing the future of libraries. <https://www.wiley.com/network/librarians/library-impact/how-technology-is-changing-the-future-of-libraries>

Aharony, N. and Bronstein, J. (2013). Academic Librarians' perceptions on Information Literacy:

The Israeli Perspective. *Portal: Libraries and the Academy*, 14 (1), 103-119.

Henkel, M. (2015). Educators in the information society: information literacy instruction in public and academic libraries of Canada. *Asis&t (Proceedings of the Association for Information Science and Technology)*, 52 (1).

Baro, E.E., Obaro, O.G. and Aduba, E.D. (2019). An assessment of digital literacy skills and knowledge-based competencies among librarians working in university libraries in Africa. *Digital Library Perspectives*, 35 (3/4), 172-192.

Verma, M.K. (2015). Changing role of library professional in Digital Environment: a study. *International Journal of Library Science*, 13 (2).