

MAH/MUL/ 03051/2012

ISSN :2319 9318



In association with Prof. VR Dadge Library Foundation, Latur
and Shivaji College, Udgir

One Day Interdisciplinary National Conference on 1st September 2024

" Higher Education Research, Skill Enrichment and Knowledge Transfer in The Digital Era"

Chief Editor

1. Dr. Jagdish N. Kulkarni

(Director i/c, KRC, S.R.T.M.U., Nanded and President,
Prof. V.R.Dadge Library Foundation, Latur)

2. Dr. Vishnu M. Pawar

(Librarian, Shivaji Mahavidyalaya, Udgir &
Senate Member, S.R.T.M. U., Nanded)

3. Mr. Gopal D. Sagar

(Librarian, Rajmata Jijau Mahavidyalaya, Kille Dharur and
Secretary, P.V.R.D.L. Foundation, Latur)



Reg.No.U74120 MH2013 PTC 251205

Harshwardhan Publication Pvt.Ltd.

At.Post.Limbaganesh,Tq.Dist.Beed
Pin-431126 (Maharashtra) Cell:07588057695,09850203295
harshwardhanpubli@gmail.com, vidyawarta@gmail.com

All Types Educational & Reference Book Publisher & Distributors / www.vidyawarta.com

VidyawartaTM

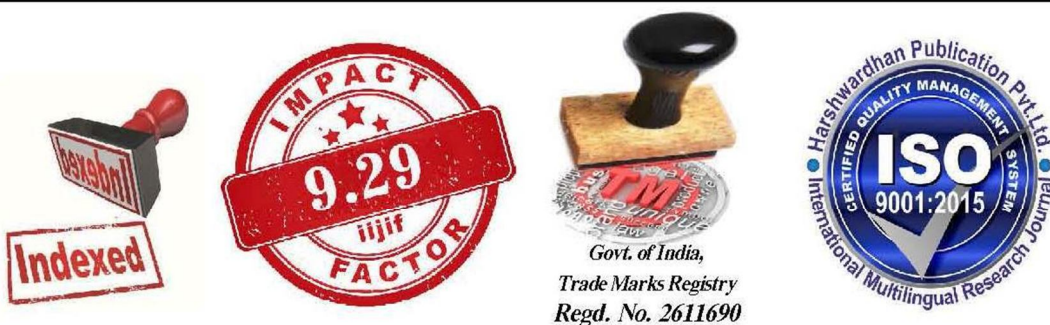
International Multilingual Research Journal



Vidyawarta is peer reviewed research journal. The review committee & editorial board formed/appointed by Harshwardhan Publication scrutinizes the received research papers and articles. Then the recommended papers and articles are published. The editor or publisher doesn't claim that this is UGC CARE approved journal or recommended by any university. We publish this journal for creating awareness and aptitude regarding educational research and literary criticism.

The Views expressed in the published articles, Research Papers etc. are their writers own. This Journal does not take any liability regarding approval/disapproval by any university, institute, academic body and others. The agreement of the Editor, Editorial Board or Publication is not necessary. Editors and publishers have the right to convert all texts published in Vidyawarta (e.g. CD / DVD / Video / Audio / Edited book / Abstract Etc. and other formats).

If any judicial matter occurs, the jurisdiction is limited up to Beed (Maharashtra) court only.



<http://www.printingarea.blogspot.com>

Editorial Board

Prof. Dr. J. N. Kulkarni	Prof. G. D. Sagar	Dr. V. M. Pawar
Dr. D. T. Ghatkar	Prof. D. G. Dongare	Prof. V. N. Mishra
Prof. S. B. Maske	Prof. V. G. Tambarwade	Prof. A. J. Rangdal
Prof. V. V. Gaikwad	Dr. Mrs. R. D. Palkar	Dr. Mrs. M. G. Hudge
Dr. L.B. Pensalwar	Dr. Mrs. A. S. Pasarkar	Prof. Mrs. L. D. Dongare
Dr. Mrs. M. A. Bagade	Dr. Mrs. R. S. Kadam	Mrs. S. D. Sawant
Dr. G. S. Ghogare	Prof. R. K. Chavan	Prof. Y. B. Andhorikar
Mr. Amit Dadge	Mrs. Sarika Dadge	Mrs. Suchita Dadge
Prof. Nitin Dadge		

INDEX

01 DIGITAL TRANSFORMATION:ACCELERATING THE LIBRARY SERVICES

Dr.Devidas Eknathrao Dadpe 07

02 AI-Driven Research: Benefits, Ethical Considerations And Future Directions

Dr. Laxmikant Balajirao Pensalwar 16

03 QR - CODES IN LIBRARY

Dr Nitesh V Chore 21

04 The Use of Communication Technology to reach out to Library Users ...

Dr. Ravikant N. Mahindkar, Mr. Milin B. Bhongle 28

05 New Education Policy -2020 and Libraries

Dr.Sadashiv Balasaheb Warvate , Dr.Shivaji Narayanra Sontakke 36

06 Artificial intelligence and digital Technology used in libraries

Dr Sharad S Chavan 39

07 Future Libraries MOOCs & Role of Libraries Innovative Technology for Teaching

Dr. Shinde Neeta 43

08 Skills Required for Library Professionals in Digital Library Environment: ...

Dr. Subhash Dhule 47

09 EMPOWERING LIBRARIES: STRATEGIES FOR EFFECTIVE HUMAN ...

Dr. Vilas Ashokrao Kale 50

10 नवीन शैक्षणिक (2020) धोरण आणि ग्रंथालयासमोरील आव्हाने

डॉ.विलास गोपीनाथराव किर्दत 57

11 Emerging Trends in Digital Research: A Futuristic Outlook

Dr.Mortale H.N., Dr. Govind S. Ghogare 60

12 नवीन राष्ट्रीय शैक्षणिक धोरण 2020

डॉ.हंगरगेकर विठ्ठल निवृत्तीराव 63

13 EMERGING TRENDS IS HIGHER EDUCATION IN INDIA

Jagannath Badiger 67

14 Impact of ICT on Libraries

Mr. Ambadas Vasant Khilare 72

15 Impact of Artificial Intelligence (AI) on Research

Mr. Mahadev N. Chavan, Dr. Vikram V.Giri 74

16 Emerging Technologies in Education

Ms. More Pallavi Bharat, Ms. Basude Revati Rajvilas 79

17 Study of Scaling ICT Library Broadband Networks to Address Knowledge ...

Prof. Rajesh Baliram Gore	83
.....	
18 Modern Librarianship and Ethics: Navigating Information Landscapes Prof.A.S.Deore	89
.....	
19 Study of Information and Communication Technology (ICT) Skills and ... Rahul K. Shewale, Dr. Yogesh M. Borse	94
.....	
20 राष्ट्रीय शैक्षणिक धारेण :एक आकलन प्रा.डॉ.प्रविण मुरलीधरराव भोसले	102
.....	
21 Artificial intelligence is changing the teaching-learning process in education Dr. Awchar Savita Sadashivrao	105
.....	
22 नाविण्यपूर्ण अध्ययन आणि अध्यापन पद्धती प्रा.डॉ.रुद्देवाड बी.पी.	110
.....	
23 Integrating Artificial Intelligence in Higher Education: Advancing ... Gade Anantha Rameshwar, Thange Tukaram Govind	114
.....	
24 Innovative Pedagogies for Attainment of Optimal Learning Outcomes ... Dr.Sanjay Bhagwat Salunke	124
.....	
25 Practical Application of MIS to the Academic Libraries Mrs. Lalita Deepak Dongare	128
.....	
26 INNOVATIVE PEDAGOGIES: EXPLORING TEACHING AND LEARNING METHODS ... Dr. Atish Chandrakant Akade	135
.....	
27 "शिक्षण घेण्याच्या नवनविन विविध पद्धती" डॉ. सचिन नारायणराव चोबे	140
.....	
28 KNOWLEDGE TRANSFER IN THE DIGITAL ERA AND LIBRARIES Dr. Vijay M. Deshmukh	143
.....	
29 Intellectual Property Rights and Copyright in Agriculture Priyanka Binzlekar, Dr. Sambhaji G Patil	149
.....	
30 Impact of AI on Higher Education in India Anuja Chandrakant Kokate	156
.....	
31 The Role of Academic Libraries in the Implementation of the National ... Dr. Manisha Nimraj Jadhav	160
.....	
32 Medical Subject Headings (MeSH): An Essential Tool for Biomedical ... Manishkumar G. Khatri, Prof. Dr. Kalyan N. Kumbhar	163
.....	
33 INNOVATIVE AUTOMATED SOFTWARE-eduplus campus(ERP) Shubhangini P. Awchar	167
.....	
34 AI-Driven Innovation: Shaping the Future of Higher Education, Research, ...	

Dr. Hudage Madhubala Gangadhaer	173
.....	
35 भारतातील उच्चशिक्षणावर कृत्रिमबुद्धिमत्तेचा (AI)प्रभाव प्रा. संजीवकुमार श्रीमंतराव माने	177
.....	
36 Impact of Artificial Intelligence on Higher Education Mr. Ravi Kishanrao Chavan	183
.....	
37 Artificial Intelligence and Academic Research: A Comprehensive Study on ... Mr. Sumedh S. Gajbe, Dr. Madansing D. Golwal, Dr. Sangharsh S. Gajbe Dr. Ravikant N. Mahindkar, Dr. Hemraj Chopkar	186
.....	
38 Use of ICT for library Personnel Management Dr. Kashinath Rama Rathod, MahendraShantaram Sable	193
.....	
39 Soft Skills and Competencies required for Library Professionals Gaikwad Manisha Khandu	197
.....	
40 RESEARCH LIBRARIES AND DIGITAL TOOLS-NEEDS OF RESEARCH IN MODERN ERA Dr. Katle Sangita Gulabrao	200
.....	

01

**DIGITAL TRANSFORMATION:
ACCELERATING THE LIBRARY SERVICES**

Dr. Devidas Eknathrao Dadpe

Librarian

Lokmanya Tilak Mahavidyalaya Wadwani TQ Wadwani Dist Beed Maharashtra

Abstract

India's digital library transformation is a significant transition away from outdated, technologically advanced methods of information storage and dissemination. The adoption of digital technologies, obstacles encountered, and overall impact on library services are the primary focus of this paper, which examines the various aspects of digital transformation in the Indian library sector. The use of digital repositories, the implementation of integrated library management systems (ILMS), and the digitization of library collections are crucial components of this transformation. Library operations have been streamlined, information access has increased, and user experiences have been improved as a result of these advancements. The study examines a number of case studies of Indian libraries that have successfully adopted digital technologies, highlighting innovative solutions and best practices. It also addresses issues like the digital divide, a lack of funding, and the requirement for knowledgeable personnel to manage digital systems. The paper also discusses how government programs and policies can help libraries become more digitally literate and promote digital literacy. It demonstrates how crucial it is for the public and private sectors to work together to bring about this change. According to the findings, although significant progress has been made, there is still a great deal of work to be done to ensure that all Indian libraries can fully utilize digital technologies. Increased investments in digital infrastructure, ongoing staff training, and a greater emphasis on user-centered service design are among the recommendations for future actions.

Keywords: Open source, Digital Library, Digital Transformation, Software Packages, Internet. Digital transformation, libraries, technological adoption, digital literacy, information access, Internet Resources, Soft Materials, Digital Scripts, Soft Copies, Research Skills.

Introduction

The digital revolution is changing a lot of things right now, like education, healthcare, and public services. Digital technologies are also driving significant transformation in libraries, which are essential institutions for the dissemination of knowledge and lifelong learning. The digital transformation of libraries has a lot of potential to close the information gap, increase digital literacy, and make knowledge more accessible in India, a country with a large and diverse population. The use of digital tools and technologies to enhance information management, dissemination, and accessibility is included in the term "digital transformation" for libraries. Digitizing library collections, putting into action Integrated Library Management Systems (ILMS), creating digital repositories, and making use of online platforms to reach a larger audience are all examples of this. The primary objective is to move away from traditional, paper-based methods and toward digital systems that are more effective, user-friendly, and accessible. There are many different kinds of libraries in India, from well-known university and research libraries to rural and urban public and community libraries. Despite this diversity, many libraries face the same problems, like a lack of trained staff, inadequate infrastructure, and limited funding. These difficulties can obstruct the reception of

computerized advancements and block the general adequacy of library administrations. However, a number of factors are driving the drive toward digital transformation. The National Digital Library of India (NDLI) and a number of state-level projects are crucial to the growth of digital libraries and the expansion of access to digital resources. This shift is also influenced by advancements in information technology, rising internet usage, and rising demand for digital services. The purpose of this paper is to examine the current state of digital transformation in Indian libraries, including the implemented strategies, the outcomes achieved, and the challenges encountered. The paper will highlight innovative strategies and best practices through case studies of libraries that have successfully implemented digital solutions. In addition, it will talk about how ongoing capacity building, collaboration between the public and private sectors, and policy frameworks are crucial to accelerating this transformation.

Objectives of the study

The study's overarching goal is to shed light on how new technologies have changed library and information service delivery to users. Utilizing cutting-edge technology adds value to service delivery by making it faster, more effective, and easier to use.

1. Identify the various traditional means of providing users with information
2. Express the administrations proposed to clients by library and data calling

3. Mention the innovative technologies that are suitable for the dissemination of information

4. Make the contribution that information professionals make to the provision of library and information service

5. Determine the possibilities of using cutting-edge technologies to spread information services
Identify the obstacles that prevent innovative technology from being implemented in the delivery of information services.

Literature Review

The global phenomenon of libraries becoming digitally transformed has been the subject of extensive research across a variety of contexts. This change in India is driven by the need to make information more accessible, make operations more efficient, and meet the changing requirements of a population that is digitally literate. The key findings of this literature review on the digital transformation of libraries are summarized, with an emphasis on the Indian context.

Digital Libraries and Access to Information

Digital libraries have been shown to improve information accessibility in several studies. Cholin emphasizes the significance of digital libraries in democratizing information access in a nation with geographical and socioeconomic disparities by providing remote access to scholarly resources. According to Kumar and Singh, the National Digital Library of India (NDLI) is a prime example of a digital initiative aimed at aggregating and facilitating seamless access to a vast array of educational resources.

Implementation of Digital Technologies

A crucial part of digital transformation is putting Integrated Library Management Systems into place. Sreekumar and Sunitha talk about the benefits of using an in Indian academic libraries, such as better cataloging, easier operations, and better services for users. They also mention difficulties like the need for technical expertise, high initial costs, and staff resistance to change.

User Experience and Engagement

A major focus of digital transformation is user experience. Roy and Ray investigate how user satisfaction in Indian libraries is affected by digital services. Digital services like online catalogs and digital repositories, according to their findings, significantly increase user

engagement and satisfaction. However, they also point to a digital divide in which people living in rural areas have less access to digital resources than people living in urban areas.

Government Initiatives and Policy Support

The development of digital transformation is greatly aided by government initiatives and policies. According to Mehta, the Digital India campaign outlines the efforts made by the Ministry of Education to improve digital infrastructure and encourage digital literacy across the nation. Another significant initiative, the National Mission on Libraries, which was launched in 2015, aims to digitally modernize library services.

Challenges in Digital Transformation

In spite of the progress, several obstacles impede India's digital library transformation. Inadequate funding, a lack of technical infrastructure, and inadequate training for library staff are among these obstacles, according to Bhardwaj and Shukla. They argue that a collaborative strategy that incorporates support from the government, partnerships with the private sector, and ongoing professional development is necessary to overcome these obstacles.

Case Studies of Successful Implementations

Case studies provide useful insights into successful strategies and best practices. Sharma examined the Delhi Public Library's digital transformation as an example of how digital technologies can be used to improve service delivery. Similarly, the Indian Institute of Science library's digital initiatives demonstrate the potential of digital tools to support academic and research endeavors.

Research Methodology

Digital Transformation: Accelerating Library Services in India

This study on the digital transformation of library services in India uses a multi-faceted research methodology that combines qualitative and quantitative methods to provide a comprehensive analysis of the state of digital libraries in India right now and their potential for the future. To ensure a robust and comprehensive comprehension of the subject, the methodology is intended to collect data from a variety of sources.

Research Design

The research design incorporates qualitative and quantitative methods in a mixed-methods approach. A comprehensive analysis of the digital transformation in Indian libraries that takes into account both statistical trends and in-depth insights from stakeholders is made possible by this design.

Data Collection Methods

1. **Literature Review** : A comprehensive examination of the existing literature on digital transformation in libraries, with a focus on Indian and international contexts. Academic journals, conference papers, government reports, and case studies are all sources. The research framework is based on key themes and findings from the literature review and highlights areas that need more research.

2. **Surveys** : A wide range of Indian libraries, including academic, public, and special libraries, receive structured surveys. Quantitative data on digital technology adoption, digital service types, user engagement, and obstacles are gathered through the surveys. The types of digital technologies used, their impact on library operations, user satisfaction, and staff training requirements are all covered in the questions.

3. **Interviews** : Key stakeholders like library directors, IT managers, government officials, and users are interviewed semi-structured. The experiences, difficulties, and successes of implementing digital technologies in libraries are discussed qualitatively in these interviews. The purpose of the interview questions is to inquire about the respondents'

perceptions of digital transformation, the efficiency of digital services, and suggestions for future enhancements.

4. Case Studies : Select libraries that have successfully implemented digital technologies are the subjects of in-depth case studies. The strategies used, the outcomes achieved, and the lessons learned are examined in these case studies. Site visits, interviews with library staff and patrons, and analysis of library documents and reports are used to gather data for case studies.

5. Secondary Data Analysis : analysis of secondary data from reports from the government, statistics from libraries, and other relevant sources. The broader trends in digital transformation and library services in India are contextualized and explained by this data.

Library Selection : A variety of libraries are chosen using a method called "purposive sampling," which ensures that they come from various regions, types, and sizes. The level of digital technology adoption, user demographics, and geographical location are some of the selection criteria.

Interview Participants : Key informants are chosen for their expertise and participation in digital transformation projects. Policymakers, IT professionals, frequent library users, and directors of libraries are among the participants.

Data Analysis

1. Quantitative Data Analysis : Trends, correlations, and patterns are identified through statistical analysis of survey data. Data are summarized using descriptive statistics like frequencies and percentages. The study of relationships between variables is done with the help of inferential statistics, such as regression analysis.

2. Qualitative Data Analysis : Thematic analysis is used to look at the data from interviews and case studies. Coding is used to find important themes, patterns, and insights in transcripts. Understanding the diverse experiences and perspectives of various stakeholders through the use of thematic analysis is helpful.

Ethical Considerations

- All participants in the survey and interview give their informed consent.
- Respondents' privacy is safeguarded by maintaining anonymity and confidentiality.
- Relevant institutional review boards are sought for ethical approval.

Limitations

- The availability and willingness of participants to participate in surveys and interviews may limit the study.
- The findings' generalizability may be affected by differences in digital infrastructure levels and regional disparities.

Emerging trends and technologies for digital transformation of libraries

Libraries are non-benefit social organizations and each local area and clients are subject to library for their data need. By strategically embracing the changes and opportunities presented by a variety of digital technologies and their accelerating impact on services, ICT has altered the traditional library concept. The transition from print to digital was brought about by new trends, technologies, and the use of certain software for digital libraries. As a result, the process of digitization, documentation, and communication changed. Transformation of Libraries includes skill requirements and skill trends for open source software package implementation. The methodology used in this study involves online evaluation and research of related open source digital library software that has the potential to alter our conventional library systems. Digital Library A digital library is a collection of digital documents that can be accessed via the Internet or compact disk read-only memory (CD-ROM) disks. Articles from journals and magazines, e-books, e-papers, images, audio files, videos, and other media can all

be stored in a digital library. and make it possible for library patrons to access its online collection at any time. Certain digital library software, also known as software packages, are used to create this.

Digital Technologies Librarianship Transformation Digital transformation is a type of change management that incorporates activities, processes, competencies, and models to strategically take advantage of the changes and opportunities brought about by a variety of digital technologies and their accelerating impact on society. Digital library transformation has primarily affected a number of different kinds of libraries, including government libraries, public sector libraries, and institutional repositories, all of which are involved in addressing ICT challenges. The nature of librarianship has changed as a result of the libraries' rapid transformation in line with the goals of digital transformation. There will always be an "offline" component, depending on the resources and usage, given that people value human and face-to-face interactions and do not want everything to be "digital." The manual nature of the traditional library system has long been replaced by digital innovation in library services and products. Open source software is a method in which source code is provided for free and can be further customized in order to provide higher-quality software packages that are reliable, flexible, and cost-effective, as well as an end to traditional vendor processes, for the development of digital libraries. Previously reserved for copyright holders, the source code and rights are now made available under a free software license that allows developers and users to study, modify, improve, and occasionally distribute the software as needed.

Era of Transformation in Libraries

The provision of library services and the dissemination of information to users appear to have increased as a result of the transition from traditional libraries with collection specific to each location to digital libraries with information and knowledge sources that are accessible from anywhere. Information processing, organization, storage, and preservation were important services that libraries provided for individual users and organizations prior to the advent of ICT. The libraries became a true access point for information delivery to end users thanks to the various ways in which information was packaged. Information organization, access, and management all underwent shifts as a result of ICT's emergence. The new technology made it possible to access a wide range of information in a way that was simple and straightforward regardless of time, location, or subject matter. In today's world, libraries are establishments that typically receive funding from parent institutions and are responsible for maintaining extensive collections of books and other materials. In most cases, these resources are readily available to those who require knowledge but cannot afford to keep them. As a result of evolution, society has moved from a time when information was scarce and precious to one in which it is abundant and can be used to meet individual and organizational requirements. Cataloguing, classification, indexing, current awareness service CAS, selective dissemination of information (SDI), reference, referral, and photocopy services were among the services that libraries once offered.

Recommendations

Over time, libraries have become an important part of the society that surrounds them, and since their inception, they have offered users a wide range of useful services. The library's primary goal is to assist users in finding the information they require at all times. The paradigm shift from a manual to a technology-driven approach to the services provided by the library to its patrons has made it a more important and important center for human life. The way the libraries operate and how they provide services are undergoing a shift. Users' expectations of new value-added services are being raised as a result of information technology's central role in the process. Libraries have always been about

collections, but they now offer much more than that. Libraries are currently expanding their collections, and users' expectations of new value-added services are constantly being raised by the ever-increasing pace of information technology. In this regard, information is available in a variety of formats, including CD-ROMs, online databases, and e-journals. These formats are supported by CD-ROMs and memory cards, whose storage capacities allow users to store materials that they were able to access outside of the internet. The impact that information technology has on current awareness services, online public access catalogs, and information processing, access, storage, and use for the future cannot be overstated. In a nutshell, it is important to note that ICT has reduced the distance, time, and effort required to communicate with groups, corporations, governments, and international agencies about what a person wants to share with others, as well as about new demands and concerns. ICT is transforming the perceptions and image of librarians, particularly in developing nations, and enhancing their abilities to provide long-term library services.

Digital Transformation of Libraries in India

The first attempt at a digital library was made in 1895 by Paul Otlet and Henri La Fontaine. He started cataloging the world's knowledge in a systematic way, but the digital library grew at the same rate as the internet did. The fact that millions of people around the world can simultaneously access the digital collection is the main feature of a digital library. Since the middle of the 1990s, the development of digital libraries in India is linked to the preservation of art, culture, and heritage. India became a de facto signatory of the UNESCO Universal Declaration on Cultural Diversity, which was unanimously adopted by the UNESCO General Conference at its 31st session on November 2, 2001, to improve access to the country's diverse cultural resources. The development of an electronic card catalogue known as the Online Public Access Catalogue (OPAC) by the 1980s served as the foundation for the initial projects. In academic, public, and special libraries, the traditional card catalogue was gradually replaced by OPAC. Because of this, libraries were able to facilitate the sharing of resources and broaden access to library materials beyond the boundaries of conventional libraries.

Digital Library software packages

There are now a lot of platforms for digital library and information management thanks to Open Source Software (OSS) applications. These Open Source Software applications are a set of applications for managing libraries and information centers. The following digital library software will be briefly discussed in this paper:

1. DSpace
2. Greenstone
3. EPrints

DSpace

DSpace is a software package for open-source repositories specifically designed for the creation of digital libraries or open access repositories for scholarly and/or published digital assets. The DSpace is a collaboration between HP labs and the MIT Libraries. As a digital asset management system, DSpace repository software enables libraries to collect, archive, index, preserve, and distribute scholarly communications. DSpace is an open-source technology platform, so it can be customized to meet the needs of the user. It is interoperable with other systems and adheres to international metadata format standards. All digital content, including text, images, moving images, mpegs, and metadata, is archived, preserved, and made accessible to the public through DSpace. Software is constantly improving and expanding. Academic, non-profit, and commercial organizations can build digital libraries or open access

repositories with the help of DSpace software. It is free, simple to set up, and completely adaptable to meet the requirements of any library.

Greenstone

Open-source software for creating and distributing digital library collections is Greenstone. It makes it possible to organize data and publish it on the internet or on removable media like DVDs and USB flash drives. Greenstone is developed and distributed in collaboration with UNESCO and the Human Info NGO by the New Zealand Digital Library Project at the University of Waikato. It is multilingual, open-source software licensed under the GNU General Public License. For additional information, consult the Greenstone Factsheet. Greenstone software aims to let library users build their own digital libraries, especially in universities, libraries, and other public service institutions. In UNESCO's partner communities and institutions in the fields of education, science, and culture around the world, particularly in developing nations, digital libraries are fundamentally altering how information is acquired and disseminated. We hope that this software will make it easier to use digital libraries to share and make information available to the public. The book *How to Build a Digital Library*, written by three of the group's members, provides additional details.

EPrints

EPrints is a software package that can be downloaded for free and used to create open access repositories that adhere to the Open Archives Initiative Protocol for Metadata Harvesting. Version 3 of EPrints, which debuted on January 24, 2007, at the Open Repositories 2007 Conference, was billed by its creators as "a major leap forward in functionality, giving even more control and flexibility to repository managers, depositors, researchers, and technical administrators." EPrints was initially developed in 2000. It is primarily utilized for institutional repositories and scientific journals, but it offers many of the features that are typically found in Document Management systems. EPrints was developed at the School of Electronics and Computer Science at the University of Southampton and released under the GNU General Public License.

Digital Libraries In India: A Review

The Government of India's flagship program, Digital India, aims to make India a digitally empowered society and knowledge economy. This transformation necessitates not only the launch of new programs, but also the restructuring and refocusing of existing programs to align them with Digital India's guiding principles, all of which must be carried out simultaneously. This paper starts with technical research to show that the government needs to use a good framework for putting digital transformation initiatives into action and evaluating them. Then, a structured, data-centric, and goal-based framework for managing the program of the India States' e-governance project portfolio is presented. In conclusion, the paper demonstrates that a structured framework can effectively monitor, evaluate, and accelerate the country's digital transformation process by validating this successfully implemented framework.

India has seen a number of initiatives to develop digital libraries in recent years. 63 published studies on digital libraries in India have been reviewed in order to gain insight, evaluate, and comprehend the growth, development, and current status of digital library initiatives in India as reflected in scholarly journals. With the exception of a few studies on copyright issues and management of digital libraries, the majority of articles focus on developing digital libraries and digital collections, according to the study. Digital library policies, security, and digital rights management have not been the subject of any studies. India's digital library development has been uneven. S&T libraries have seen the most development. Even among these libraries, the development of digital libraries has been

prioritized over issues like copyright, management, and marketing (marketing). Copyright legislation must be adapted to the electronic environment. Workshops on digital libraries and digital technologies have not been organized by many institutions. Digital rights management, digital library security, content management, business and pricing model studies, and policy studies are additional important areas on which Indian studies have either not focused at all or only a limited amount of attention. In India, there is currently no pricing model. A survey of digital libraries in India would be helpful to understand the current state of digital library initiatives in light of the numerous initiatives that have been reported. This is significant because the few studies that have been done on Indian digital library initiatives rely primarily on information that can be found online or in other published sources. A survey would assist in developing a strategy for India's focused digital library development as well as understanding the current situation. Additionally, there are no user and use studies of digital libraries in India. For the purpose of evaluating the digital libraries that already exist and developing highly user-centric digital libraries in India, this field is also of the utmost importance.

Digital Transformation in Libraries:

Using a systematic review and quantitative analysis of existing literature, this paper investigates the digital transformation of Indian libraries. The inclusion criteria include quantitative analyses of digital transformation in libraries in scholarly articles, conference papers, and reports published between 2010 and 2023. According to the findings, university digitization projects have increased by 40% as a result of a significant increase in government funding. Implementations of Radio Frequency Identification (RFID), which have reduced book losses and improved efficiency, are notable examples of success. However, balancing physical and digital resources remains difficult, as evidenced by a 30% decline in book checkouts. User preferences are influenced by cultural differences, requiring strategic content acquisition policies. Additionally, the study emphasizes the significance of focusing on digital literacy programs as a means of closing the digital divide. A road map for an inclusive and dynamic future is created by combining qualitative and quantitative insights as Indian libraries navigate this complicated terrain.

In conclusion, India's library services can be revitalized through digital transformation, making them more relevant and accessible in the digital age. Libraries have the potential to not only improve the quality of the services they provide but also play a crucial role in the development of an informed and digitally literate society by embracing digital technologies.

Conclusion

Digital technologies' potential to transform library services in India is highlighted in the literature. While huge steps have been made, continuous endeavors are expected to address difficulties and guarantee that all libraries can completely use computerized innovations. The impact of emerging technologies like artificial intelligence and machine learning, as well as ensuring equitable access to digital resources across all regions of India, should be the primary focuses of future research. Libraries in India have the potential to play a crucial role in fostering a society that is digitally literate and ensuring that information is accessible to all, regardless of geographical or socioeconomic barriers, by embracing digital transformation. The purpose of the research methodology is to offer a comprehensive and nuanced comprehension of the digital transformation of Indian library services. The study aims to capture the breadth and depth of digital initiatives, their impact, and the difficulties libraries in India face by combining quantitative and qualitative methods. The results will help shape strategies for improving digital library services and broaden the conversation about digital transformation in India.

The implementation of digital procedures and tools to accomplish strategic organizational objectives is referred to as "digital transformation" in libraries. It is a complicated, multifaceted procedure that reflects a shift in the workplace and has an impact on traditional library products, procedures, and services. Present-day digital libraries can now be created online thanks to digital library software. Digital resources can be stored in the Libraries' own repository for future use and distribution on the internet. We are able to suggest new platforms for establishing a digital library in our institution or organization based on the above discussion of specific technical features and services. This study can be used as a reference to choose the best package for creating and displaying the digital collection in accordance with our requirements and goals. In conclusion, library services in India could be significantly accelerated by digital transformation, making them more accessible, effective, and relevant in the digital age. Insights into the current state of digital transformation in Indian libraries and a plan for the future are provided in this paper.

References

1. Mirzagayeva, Shamiya; Aslanov, Heydar (2022-12-15). "The digitalization process: Page 1
2. Beel, Joeran; Gipp, Bela; Lange, Stefan; Breitingner, Corinna (2015-07-26). "Research-paper recommender systems: a literature survey". International Journal on Digital Libraries. Page 2
3. Lips, A. M. B.; Flak, L. S.; Gil-Garcia, J. R. (January 2016). "Introduction to the Transformational Government: page 3
4. "Slash CAD model build times with new AI-driven part creation methodology page 4
5. Gertz, J. (2000 April). Selection for preservation in the digital age: An overview. Library Resources & Technical Services, page 5
6. Einsiedel, Edna F., ed. (2009). *Emerging Technologies: From Hindsight to Foresight*. Page 6
7. Gururaj, F.D. & Arun kumar H.S. () Digital and Virtual Libraries: Transformation in Libraries and Information Services. Page 7
8. Lynch C (2000). From automation to Transformation. Educause Review Jan-Feb page 7
9. K.S. Raghavan, A. Neelameghan and S. K. Lalitha. 2010. Co-creation and development of digital library software. *Information Studies*. Page 8
10. Das, A.K. (2022), "A brief overview of recently launched digital libraries of India", *Library Hi Tech News*, page 9
11. KPMG, Future-proof procurement - Now or never: the big procurement transformation page 10
12. Alojail, Mohammed; Khan, Surbhi Bhatia (January 2023). "Impact of Digital Transformation toward Sustainable Development"

02

AI-Driven Research: Benefits, Ethical Considerations And Future Directions

Dr. Laxmikant Balajirao Pensalwar

Librarian, Department of Library and Information Science,
Maharashtra Udayagiri Mahavidyalaya, Udgir District: Latur Maharashtra,

=====

1. Abstract

The integration of Artificial Intelligence (AI) into research practices marks a transformative era, bringing about significant advancements across various disciplines. This article explores the profound impact of AI on research methodologies, highlighting its role in enhancing data collection, analysis, and experimental design. AI-driven tools have improved research productivity by automating repetitive tasks and providing powerful data analysis capabilities. However, the rapid adoption of AI also presents challenges, including ethical considerations related to bias, transparency, and data privacy. This paper delves into these challenges, emphasizing the need for stringent ethical standards to ensure fair and responsible AI use in research. Furthermore, it discusses the future prospects of AI in research, with emerging technologies poised to further revolutionize the field. Through a comprehensive analysis, this article aims to provide a balanced perspective on the benefits and implications of AI in the research landscape.

2. Introduction

Artificial Intelligence (AI) has rapidly emerged as a transformative force in the field of library science, revolutionizing traditional methodologies and enabling unprecedented advancements in managing and utilizing library resources. From automating cataloging and classification to enhancing user experience and optimizing resource management, AI has fundamentally reshaped how libraries operate and serve their communities. This shift is not merely a technological enhancement but a profound evolution that offers new possibilities and challenges in equal measure.

The integration of AI into library processes has introduced efficiencies that were previously unimaginable. Advanced AI algorithms can sift through vast amounts of information, uncovering patterns and insights with remarkable speed and accuracy. This capability is particularly beneficial in tasks such as cataloging, where AI can automate the classification of new materials, ensuring consistency and reducing the workload on library staff.

3. Historical Context

The evolution of Artificial Intelligence (AI) in library science traces back to the early days of computing and information science. Initially, libraries adopted basic computer systems to manage cataloging and circulation tasks, which laid the groundwork for more sophisticated AI applications in later years. In early Developments In the 1960s and 1970s, libraries began to implement computerized cataloging systems, transitioning from manual card catalogs to electronic databases. This period marked the beginning of automation in libraries, with systems such as the MARC (Machine-Readable Cataloging) format standardizing data entry and enabling more efficient resource management. These early systems were rudimentary, focusing primarily on automating repetitive tasks and improving data retrieval speed.

The 1980s and 1990s saw the advent of more advanced AI techniques in library science. Expert systems, a form of AI that mimics the decision-making abilities of human experts, were introduced to assist with reference services and collection development. These

systems could answer common queries, recommend acquisitions, and help with decision-making processes, thus beginning the integration of AI into library operations. Today, libraries are integrating AI with other modern technologies such as blockchain for secure data management and augmented reality (AR) for enhanced user experiences. These integrations are setting the stage for a new era of library services that are more interactive, personalized, and efficient.

4. AI in Data Collection and Analysis

Artificial Intelligence (AI) has significantly enhanced data collection and analysis processes in library science, revolutionizing how libraries manage their vast collections and interact with users. The integration of AI-driven tools and techniques has led to more efficient, accurate, and insightful management of data, transforming both the internal operations of libraries and the services they offer to patrons.

4.1 Automation of Data Collection:

AI has automated many data collection tasks that were traditionally labor-intensive and time-consuming. For instance, AI-powered web crawlers and data scraping tools can gather information from various online sources, updating library catalogs with the latest publications and research outputs. These tools can also monitor open-access repositories, academic databases, and publisher websites to ensure that library collections are comprehensive and up-to-date.

4.2 Enhanced Cataloging and Classification:

One of the most significant impacts of AI in libraries is in the realm of cataloging and classification. Machine learning algorithms can analyze the content of new acquisitions and automatically assign appropriate metadata, such as subject headings and classification numbers. This not only speeds up the cataloging process but also ensures consistency and accuracy across the library's catalog. For example, AI can identify keywords, summarize texts, and determine the relevance of materials, thereby aiding librarians in making informed decisions about collection development.

4.3 Advanced Search and Retrieval:

AI-driven search engines and discovery tools have vastly improved how users find and access information in libraries. Natural language processing (NLP) allows these systems to understand and process user queries in a more nuanced manner, providing more accurate and relevant search results. AI can also suggest related resources, anticipate user needs based on previous interactions, and offer personalized recommendations, thus enhancing the overall user experience.

4.4 Data Analysis and Insights:

Libraries collect vast amounts of data on user behavior, resource usage, and collection management. AI-powered analytics tools can process this data to uncover patterns and trends that would be difficult for humans to detect. For example, predictive analytics can forecast future demand for specific resources, helping libraries to optimize their collection development strategies. Sentiment analysis of user feedback can provide insights into user satisfaction and areas for improvement.

4.4 Text and Data Mining:

AI enables sophisticated text and data mining techniques that allow libraries to extract valuable insights from large corpora of text. These techniques can be used to analyze academic publications, identify emerging research trends, and map the relationships between different fields of study. Libraries can offer these AI-driven text and data mining services to researchers, supporting their efforts to conduct literature reviews, identify research gaps, and generate new hypotheses.

5. AI-Driven Data Analysis Tools and Their Efficiency

Artificial Intelligence (AI)-driven data analysis tools have revolutionized the way libraries manage and utilize their vast amounts of data. These tools enhance the efficiency of data analysis processes, providing libraries with deeper insights, faster processing times, and more accurate results. Here, we explore various AI-driven data analysis tools and their efficiency in transforming library operations and services.

6.1 Natural Language Processing (NLP) Tools:

NLP tools allow libraries to process and analyze large volumes of textual data. These tools can understand and interpret human language, making it possible to extract meaningful information from unstructured text. For example, NLP can analyze user queries to improve search accuracy, summarize academic papers, and extract keywords for better cataloging. By automating these tasks, NLP tools save time and reduce the workload on library staff, allowing them to focus on more complex and creative activities.

6.2 Machine Learning Algorithms:

Machine learning algorithms are capable of identifying patterns and trends within large datasets. Libraries use these algorithms to analyze user behavior, resource usage, and circulation data. For instance, machine learning can predict which books or resources will be in high demand based on historical borrowing patterns. This predictive capability enables libraries to make informed decisions about collection development, resource allocation, and inventory management, ultimately improving service efficiency.

6.3 Recommendation Systems:

AI-driven recommendation systems enhance user experience by providing personalized suggestions based on user preferences and behavior. These systems analyze data such as borrowing history, search queries, and user profiles to recommend books, articles, and other resources that align with users' interests. By offering relevant recommendations, libraries can increase user engagement and satisfaction while also promoting lesser-known or underutilized resources.

6.4 Data Visualization Tools:

Data visualization tools powered by AI help libraries to present complex data in an accessible and understandable format. These tools can generate interactive charts, graphs, and dashboards that visualize trends, patterns, and correlations within the library's data. For example, libraries can use data visualization to track the popularity of different genres over time, monitor the usage of digital resources, or analyze demographic trends among library patrons. By making data more comprehensible, visualization tools facilitate better decision-making and strategic planning.

6.4 Sentiment Analysis:

Sentiment analysis tools utilize AI to gauge user sentiment from feedback, reviews, and social media interactions. By analyzing the tone and emotion behind user comments, libraries can gain insights into user satisfaction and identify areas for improvement. Sentiment analysis helps libraries to understand user needs and preferences better, enabling them to tailor their services accordingly. For example, if sentiment analysis reveals dissatisfaction with certain services, libraries can take proactive measures to address the issues.

6.5 Predictive Analytics:

Predictive analytics tools use AI to forecast future trends and behaviors based on historical data. Libraries employ these tools to anticipate demand for resources, plan events, and manage staffing levels. For instance, predictive analytics can forecast peak usage times; allowing libraries to allocate staff more efficiently and reduce wait times for patrons. By predicting future needs, libraries can optimize their operations and ensure they are well-prepared to meet user demands.

7. Ethical Considerations

The integration of AI in library science brings forth significant ethical considerations that must be carefully managed to ensure responsible and fair use. One primary concern is the potential for algorithmic bias, where AI systems may inadvertently perpetuate or amplify existing biases present in the training data, leading to unfair or discriminatory outcomes. Additionally, issues of transparency and accountability arise, as the decision-making processes of AI systems are often opaque and difficult to scrutinize. Ensuring data privacy and security is another critical challenge, given the sensitive nature of user data that libraries handle. Libraries must implement robust data governance frameworks and adhere to ethical standards to protect user privacy and maintain the trust of their patrons. Furthermore, it is essential to maintain human oversight and intervention to correct any biases or errors that AI systems may introduce. By addressing these ethical considerations, libraries can harness the benefits of AI while upholding their commitment to equitable and ethical information management. Concerns about AI bias in research.

8. Future Prospects

The future of AI in library science is poised for transformative advancements that promise to further enhance the efficiency, accessibility, and personalization of library services. Emerging AI technologies such as advanced machine learning algorithms, quantum computing, and more sophisticated natural language processing (NLP) capabilities are expected to revolutionize how libraries manage and utilize their collections. These technologies will enable even more accurate predictive analytics, deeper insights from vast datasets, and more intuitive user interfaces, potentially including AI-driven virtual assistants that provide real-time, personalized assistance to library patrons. Additionally, the integration of AI with other cutting-edge technologies like blockchain for secure data management and augmented reality (AR) for immersive user experiences could redefine the scope and reach of library services. As AI continues to evolve, it will open up new possibilities for innovation, making libraries more dynamic, user-centric, and indispensable in the digital age. Emerging AI technologies and their potential will impact on research.

9. Conclusion

Artificial Intelligence (AI) has fundamentally transformed the landscape of library science, driving significant advancements in data management, user services, and operational efficiency. By automating routine tasks, enhancing data collection and analysis, and providing personalized user experiences, AI has enabled libraries to better meet the evolving needs of their patrons and streamline their operations. However, the integration of AI also presents challenges, including ethical concerns related to algorithmic bias, transparency, and data privacy, which must be addressed to maintain trust and fairness in library services. Looking ahead, the future prospects of AI in library science are promising, with emerging technologies poised to offer even greater capabilities and innovations. As libraries continue to embrace AI, they will be better equipped to navigate the complexities of the digital age, enhance their contributions to research and education, and ensure that they remain vital and relevant institutions in an increasingly interconnected world.

References

1. Tatineni, Sumanth. "Ethical Considerations in AI and Data Science: Bias, Fairness, and Accountability." *International Journal of Information Technology and Management Information Systems (IJITMIS)* 10.1 (2019): 11-21.
2. Marino, Nicola, et al. "Towards AI-driven longevity research: an overview." *Frontiers in aging* 4 (2023): 1057204.
3. Inel, Oana, Tim Draws, and Lora Aroyo. "Collect, measure, repeat: Reliability factors for responsible AI data collection." *Proceedings of the AAAI Conference on Human Computation and Crowdsourcing*. Vol. 11. No. 1. 2023.

4. Okojie, Victoria, and Robert Akinade Awoyemi. "The future of research in Africa: Appraising the need for artificial intelligence (AI)-driven policy and advocacy in academic libraries." *Journal of ICT Development, Applications and Research*, 6(1), 20 - 33, 2024 ISSN: 2636-7432 (Print) 2636-7440 (Online) Available online at credencepressltd.com DOI: 10.47524/jictdar.v6i1.21

5. Priya, S., and R. Ramya. "Future Trends and Emerging Technologies in AI and Libraries." *Applications of Artificial Intelligence in Libraries* (2024): 245-271.

03

QR - CODES IN LIBRARY

Dr Nitesh V Chore

Librarian

Vinayak Vidnyan Mahavidyalaya Nandgaon {KH} Dist-Amravati

=====

With the digitalization of education, visiting libraries has become rare. E-books and digital libraries have made reading more comfortable. Readers can now browse and select the books with ease. And when we talk about physical libraries, there are a couple of factors that refrain from keeping the ambience reader-friendly. Firstly, it is tedious to search for a book from the bulky library catalogue. Plus, even if it's a digital catalogue readers will not want to wait while the other person searches for their book. So, you need a quick and easy way of spotting the they want. Secondly, it takes too much effort from the readers to access library resources. You do provide links of online study material of a book, but not many will type the link in their browser to get the material. And, as the head of a library, you too face some challenges. For example: You keep yourself updated with your staff performance and maintain records. This could be for attendance tracking, efficiency check, or to identify challenges. But it is not easy to analyze the date, especially if it is collected in paper forms. Plus, to promote your library, you use print media curatives such as pamphlets. And here, you add your website link or app link. But how many people do you think, actually type and go to that link in their browser. So, it's time to make libraries more engaging. And to make library management easier. One of the solutions is to introduce QR Code technology. QR Codes are modern, tech-savvy, and sustainable. QR codes was first introduced in 1994. They were developed by Denso Wave, a division of the Japanese corporation Denso, in response to the 20 alphanumeric character limitation of the bar code that has been universally used on all products that are scanned by optical scanners on cash registers (Denso, n.d.). Unlike the uni-dimensional bar code, the QR code is two-dimensional and is capable of coding more than 7,000 characters. Because of its added capacity, the code was quickly adopted by the automobile industry to track parts in the manufacturing process, it became used extensively throughout Japan when mobile phones were marketed with QR code-reading features. QR codes have since gained universal popularity because Denso, while retaining the patent, kept the product as an open source code that anyone was allowed to use.

Quick Response Codes or QR Codes are two-dimensional barcodes. But unlike the traditional barcodes the only store and display alphanumeric data, QR codes can store and display more complex data. It can store URLs that can a website, a social media account, or files such as videos, photos, and pdf. There codes can also be scanned and read using mobile phones. Therefore, you will no longer have to buy scanning devices, and can be easily accessed by anyone who has a smart phone.

As expanding of new technology trend it widening to library platform that generate an opportunity to leverage the way people access right information in a quicker way at anywhere anytime. As Ranganthan said in the fourth law of library science "Save the time of the reader".

So to fulfil this law, library professionals need to go through some advancement of technology to improve the services of library, the quality and the way to provide it is so indispensable to adopt new applications. Already various technology applied in strengthen the serviceability of library activity, QR Code is one of them, though which can fulfil the essence of users and the professionals of library science also it is a big challenged to implement and

integrate all the activities to support academic function.

It was proposed to think about fast unraveling speeds, along these lines the name Quick Response code. The QR code contains dim modules (square bits) arranged in a square system on a white establishment. The information encoded may be included data (numeric, alphanumeric, byte/twofold, Kanji) or, through maintained growths, essentially any sort of data. QR Code is prepared for dealing with a wide scope of data, as numeric and alphabetic characters, Kanji, Kana, Hiragana, pictures, twofold, and control codes. The picture variations of QR Code range from Version 1 to Version 40. Each variation has an other module game plan or number of modules (the module suggests the exceptionally differentiating recognizes that make up QR Code). QR codes can contain any alphanumeric substance and routinely incorporate URLs that quick customers to objections where they.

The term smartphone is now used to characterize a mobile phone with special computer-enabled features. Despite the mobile phone evolution, one of the main disadvantages of these devices is that they still have insufficient input capabilities, providing tiny keyboards to do manual entries. Fortunately most smartphones are now equipped with several sensors that can be used to enhance and create new users interfaces. This is the case for integrated cameras that can be used to read visual codes, like Quick Response (QR) code as well as other sensing technologies such as Radio Frequency Identification (RFID) and the associated Near Field Communications (NFC). The use of these technologies does not only facilitate entering information, but it also allows using mobile phones for interactions with people, places and things, enhancing the usability and usefulness of these devices. The use of QR codes and RFID tags has significantly evolve in the last decades, they were first used to track products in the industry, but now they have contributed to develop several new concepts that integrate the physical world with the virtual one Essentially, QR codes are a low-threshold technology, convenient way to add the virtual to the physical and to provide useful content, often at the time of need

But are they actually useful? In this paper we will review possible implementation methods of QR code technology in libraries from aspect of usability and convenience. As this technology is low-cost, easy to implement and easy to use there is no doubt that in the future it will be even more in libraries, but it is difficult to predict if it will ever get wide acceptance by library patrons.

Revolution of ICT mobile devices, such as the iPhone, iPad, iTouch, and similar products from various manufactures, have found their way into the education sector. Innovative educators are developing creative ways to incorporate this universal technology into students' learning experiences. One of such inventions is the quick response code, commonly called QR code. Quick response (QR) codes are a type of two dimensional barcode. This is quite different from regular barcodes which only hold information in one dimension (horizontally) and are seriously limited in the amount of data they can contain. As well as explosion of information researchers are confused for search information for their research work. Everyday new research and came new information they cannot find out particular information which are need of information for research work.

Over time, the traditional black and white pattern has evolved into a variety of formats, such as the LogoQ, which uses color and can be comprised of images embedded into it. QR codes are quickly readable from yangle, thanks to the large square patterns on three of the corners. An error correcting capability allows up to 30% of the code to be damaged or missing without losing data (Denso, n.d.). QR codes can contain a variety of types of information. The most common use of the codes is to convey a web address.

However, the versatility of these codes extents from links to YouTube videosto several

paragraphs of text for students to read. Codes that contain web addresses, email addresses, links to YouTube video, and so on, save time typing in the address and eliminate the possible error of entering the address incorrectly. This is particularly useful for young children or individuals with motor challenges who find typing or copying an address difficult. Plain text codes are an easy system for students to transfer blocks of text for viewing onto their devices. Basically, the QR code allows students to access digital resources in fewer clicks.

were required to stock thousands of products of different brands. In 1948, Bernard Silver, a graduate student at Philadelphia's Drexel Institute of Technology, and Norman Joseph Woodland, a twenty-seven-year-old graduate and teacher at the same institute, worked on transactions at the supermarkets by automatic capture of product information at the checkout counters.

Quick Response code is a matrix barcode readable by smartphones and mobile phones with cameras. They are sometimes referred to as 2d codes, 2d barcodes, or mobile codes. On most phones purchased in the United States, one must download a free app (application) in order to read the QR code, although some phones have one preinstalled.

Now QR Codes are used in many ways like Books, Advertisement and Identity Cards which are latest technology. Bar Codes Use in Libraries Libraries are the first large-scale users of bar codes, providing an ideal method for the management of the book transactions (Issue-return) at the library. The manual method of transactions included having individual cards inside each book that contains the Dewey Decimal System number. Each of the library issued books with individual borrowing cards with the borrower's details. When a book is borrowed, the borrower's library card is placed inside this pocket with the due date of the book. In rush hours, there is every possibility of the cards being misplaced or inter-changed, leading to confusion and delays.

Many libraries maintain a database of the books, with details of the author, title, publisher, and a unique number (Accession Number) is allotted to each book. Usually the (DDC) Dewey Decimal Classification system of the books is followed for allotting the classification number for each book.

Mostly, library software like Libsys, Alice for Window, Actif, Vidya, and Netlib etc. have facility to generate barcode of books and users (Staff, Faculty members). The use of bar codes in libraries has helped in reducing delays and also ineffective library management. Each book is allotted a Accession Number (unique code), the ISBN number can be used or sequential assigned code can be used. An appropriate flag character may be included in at least one of the two symbol types to avoid mistaking borrower numbers for book numbers. At each check-out/check-in counters the borrower's identify card is scanned, along with the borrow transaction symbol. This ensures that borrower's number and the book borrowed are stored in the computer's database. The advantages of automated library systems over the manual methods lie both in the ease with which the transactions can be carried out and the simplicity of retrieving information from the database. Bar coding has helped libraries to reduce the transaction time at the same time it has helped to increase the efficiency of the library system.

Now mostly libraries use QR Codes on in house production because it is quick response technique. Librarians can install "QR Apps" on Smartphone and easily access the QR Codes in libraries.

Library Services education sector students' learning experiences. researchers are confused for search information for their research cannot find out part QR codes was first introduced in this paper provides research related literature, information, resources and data bases resources and used QR code technology for provide library services. era because of its fast readability and huge storage capacity than barcode. QR Research in their device for

access or use anytime and anywhere their research work. for their research obile devices, such as the iPhone, iPad, iTouch, and similar products from various manufactures, have found . Innovative educators are developing creative ways to incorporate this universal technology into One of such inventions is the quick response code, commonly called QR code. Quick response (QR) codes are a type of two dimensional barcode. This is quite different from regular barcodes which only hold information in one dimension (horizontally) and are seriously limited in the amount of data they can contain. work As well as explosion of information . Everyday new research and came new information they icular information which are need of information for research work. They were developed by Denso Wave, a division of the Japanese corporation Denso, in response to the 20 alphanumeric character limitation of the bar code that has been universally used on all products that are scanned by optical scanners on cash registers (Denso, n.d.). Unlike the uncapable of coding more than 7,000 characters. Because of it dimensional bar code, the QR code is twodimensional and is s added capacity, the code was quickly adopted by the automobile industry to track parts in the manufacturing process, it became used extensively throughout Japan when mobile phones were marketed with QR codereading features. QR codes have since gained universal popularity because Denso, while retaining the patent, kept the product as an open source code that anyone was allowed to use. Over time, the traditional black and white pattern has evolved into a variety of formats, such as the Logo QR,

Objective – Study of Library

- To study the status availability of QR Code in academic library.
- To study the purpose of QR Code in academic library.
- To aware about QR Code for resource in library.
- To study the use of QR Code by the student.

Research Methodology –

In this present study researcher has to conducted a survey and quiesionieer tool for the collection of the data. After collection of data researcher have to analyzed data and present tabular data in the present work.

Creating QR Codes

Google Chart Tools allows to create QR codes for any link, or (with a little programming know-how) automatically generate codes on the fly using their API. For a quick QR code using this service, visit the following link (and substitute your URL for "libsucccess.org"):

<http://chart.apis.google.com/chart?chs=200x200&cht=qr&chl=http://libsucccess.org>.

QR codes also allow for a certain margin of error, which can be used to create some more artistic QR codes.

Some Cambridge librarians discovered QR codes through the Cam23 2.0 programme which ran during summer . There are many easy to use QR code generators freely available online. The codes on this poster were created using Kaywa (<http://qrcode.kaywa.com/>), myQR (<http://myqr.co/> : QR Code use in Identity Cards qr.co/) and Vanity QR Code Generator (<http://vanity-qrcode.com/>).

An image is generated which can be saved and inserted into posters, signage, and shelf labels. A line of html code is also generated, which can be used to embed the QR code into websites or blogs.

The University of Huddersfield Library are using QR codes for a variety of purposes. These include:

QR codes on shelf-labels and in the library catalogue linking to full-text ebooks and journals

QR codes linking to help and instruction pages

QR codes linking to mobile-friendly videos, including library tours

It is also possible to track usage of QR codes via some of the QR code generators. It will be interesting to see how often they are used.

“Library Success: A Best Practices Wiki” has a QR Codes page and is one place where librarians and others can share and link to how their libraries are using QR codes. The wiki provides a great way to find ideas and learn from each other.

Examples of QR code uses in libraries include:

- Art shows or permanent art in libraries with a QR code linking to the artists' Web sites.

- In catalog records to offer patrons basic info about an item, including the location and call number.

Users can scan the code and head to the stacks rather than writing or printing.

- Taped to video/DVD cases, linking to mobile-friendly video trailers.
- Code placed on staff directory pages and research guides that go to mobile friendly sites for later reference.

- Code placed on audio book cases for author interviews or books for reviews.

- Code placed on study room doors connecting to room reservation forms.

- Library exhibits that include a QR code link to songs, videos, Web sites, surveys, contests, etc. or other information that augments the exhibits.

- Codes in the library stacks/end caps or magazine/journal areas that point to online electronic holdings of print materials or related subject guides.

- Linking to library audio tours for orientations.

- Code added to print handouts for additional information on mobile friendly sites.

- QR code with text that loads the library's text message reference service and other contact information into the patron's phone.

- Library video tutorials—individual videos or create a QR code to a YouTube playlists of videos, which create a great mobile home screen app that can be saved for easy access, as needed.

Use QR Code in Libraries

Make book search easy for readers:-

QR Codes can link unlimited information. So, you can link your library catalogue to a QR Code. All you need to create is a Website URL QR Code and place it at a convenient place such as book store entrance. Upon scanning, readers will directly go to the catalogue and spot their book. See now QR Code in libraries are used for this purpose: San Diego State University has made book research very easy with QR Codes. As the reader goes on their website, and scroll through the catalogue, there is a QR Code with every item record. Upon scanning, the reader can know the title of the book, which floor it is on, and if the book is available. Central library IISER in Bhopal, India uses QR Codes link to the catalogue. The QR Code is placed in a plastic frame on the main desk. The library in Bath University has added QR Codes on catalogue

records. The QR Code provides basic information about an item in the record such as location and contact number.

Provide instant access to reading material :-

You can link help material, book guides, or e-book of a book/topic to a QR Code. And place this QR Code on suitable bookshelves. Upon scanning, the reader will be redirected to the encoded link, PDF, or the landing page with all the text you want. Here are some examples of QR Code in libraries for this use case: Half Hollow Hills Community Library in New York uses QR Codes to provide subject guides related to the topics of the book on the shelves. So, if the books on a shelf are based on topic 'cooking', the QR Code placed will direct readers to a guide on food and drink. The library in the academy uses QR Codes extensively to provide information. QR Codes are placed on book covers. Here, they link to book trailers posted on the author or publisher website. Students can grab an ipad in the library and scan the QR Code to watch videos.

Promote your library efficiently :-

If you use print media to promote your library, then using QR Codes will make it actionable and tractable. That is, you can create Dynamic QR Codes. With this, you can track the scanning activity of your QR Code. And get time, region, district, and browser specific data from where the QR Code was scanned. Here is some ways you can use QR Codes to promote your library: Create a Website URL QR Code and link it to library

website. Link your library app by creating an App QR Code.

Provide social media account links in a QR Code

Once you create, you can print it on pamphlets and brochures. So, readers will not have to manually type the web address to visit your website/app. This way, you will increase traffic. Plus, tracking will allow you to get analytical data and help you gain useful insights.

A QR code is a type of barcode that can be read easily by a digital device and which stores information as a series of pixels in a square-shaped grid. QR codes are frequently used to track information about products in a supply chain and – because many smartphones have built-in QR readers – they are often used in marketing and advertising campaigns. More recently, they have played a key role in helping to trace coronavirus exposure and slow the spread of the virus.

Question papers: Libraries have to create QR codes which contain a link of question papers stored on a local file or institutional repository. QR code is pasted on the rack of question papers or notice board or elsewhere. After scanning a QR code, smart phone will connect automatically and users can get all Question papers in their mobile phone.

E-magazine: The Libraries that have subscribed print and online periodicals and some of the reputed magazines can convert into a QR code, which could be pasted QR codes on magazine's cover page, and the user will be able to connect it through smart phone automatically and access the magazines in their smart phone.

E-Books- Library has to purchase online e-books or collected free e-books. Users can access these e-books through QR code. Library has to create a QR code of e books and pasted this code on book shelf or notice board. A library user can connect automatically through their smart phone and easily access of e-book.

Website Link:- Library has to link various useful websites which is useful to the users. Library has to create a QR code of websites link, pasted on notice board. A library user can connect automatically and access the website very easily.

YouTube Video:- Library has also to provide the link of useful video which is available on YouTube. Library has to create QR code 116 Best Practices for effective use of E-resources in to the link of playlist of YouTube. User can connect automatically through their smart phone and learn from it Events: Library has to display any event which will be organized by the

Institute. A library can create a QR code of information about various events, pasted on notice board. Library users can connect a QR code automatically through their smart phone.

References

1. Gopal, V.B (2019), QR Code and useful Application in libraries, International journal of library and information studies.
2. Dani. A and Patil, R. (2020) QR Code based library management system journal of emerging technology and innovation Research. (JETIR).
3. Das Indrakshi and Das, digbijoy (2001). QR Code and it's effectiveness in library services library philosophy and practice (E-journal) 5540. <https://digital.common.unl.edu/libphilprac/5540>.
4. Melorose. J.R. perroy and S. Careas. 2015 "QR Code their application for libraries- a case study from the university of bath library". Statwide Agricultural and use Bareline 2015. <http://doi.org/10.1017/cb09781107915324.004>.
5. Bellary .R. N (2018) quick Responces (QR) Codes connecting library patrons to information Resources Anytime anywhere Indian journal of information sources and services.
6. Discoverig E-resources and Services with the use of mobile technology in library presented by.
7. Arbinda kumar seth. Jr. librianrian the Dr. aneya, summer real medies pvt.ltd Bhubaneswar. Arbind. seth@gmail.
8. Alekha Karadia library trainee, Biju pantnaik Central library National institute of technology Rourkela alekhg 8@gmail.com
9. U. Narmadhaa, P. Pavithra, M. Tharuneswari, S. Sowmiya, Nagarajan Enhanced QR code based application for library management system using android International Journal on Applications in Information and Communication Engineering Volume 3: Issue 1: February 2017, pp 46-49.

04

The Use of Communication Technology to reach out to Library Users during COVID-19 Pandemic Situation: With Special Reference to College Libraries in Konkan Region Maharashtra

Dr. Ravikant N. Mahindkar

Librarian,

Shri R.R. Lahoti Science College, Morshi. Dist- Amravati.

Mr. Milin B. Bhongle

Librarian,

Abhinav College of Arts, Commerce & Science Bhayandar (E). Dist- Thane

=====

Abstract:

The purpose of this paper is to find out how technology became a saviour for the college libraries in the Konkan region during the COVID -19 pandemic. The study explores the use of social media and communication tools during COVID-19 pandemic situation to bridge the gap of contacting library users.

The study used a survey research design. A total of 105 librarians participated in the study. The research instrument that was used for data collection was an online questionnaire (Google form) that was administered through social media platforms. Frequency counts, percentages, mean and standard deviation were used in data analysis. Findings indicate that social media such as whatsapp and telegram and e-mail, SMS, conference technology, QR code communication tools frequently utilized by college librarians in Konkan region for retrieving and disseminating information during COVID-19 pandemic situation

Keywords: COVID -19, Pandemic, Communication tools, Group wikis, Group forums, QR code, Telegram, Blogs.

Introduction:

Information and communication technology plays an increasing role in academic library services and information delivery. The impact of the communication technology is significantly recognised in delivering of virtual library services.

The impact of pandemic COVID-19 is affected on each and every sectors around the world. Especially the education sector is badly affected by this pandemic, in that situation, the union government declared a lockdown to break the chain of spreading the COVID-19 virus. All public sectors were affected and started working from home. Educational institutes also engaged online lectures and online examinations. The libraries cannot afford to close down their formal duties of providing information to users. During the situation of lockdown, the libraries continuously provided library services to library users with the support of available recent information communication technology and e-resources. Digital libraries services have been developed and enhanced for the years but the recent Covid-19 Pandemic has made many users aware of these services for the first time. Especially, because of the closure of libraries, during the pandemic, additional efforts have been made to promote digital libraries and their services, as clearly visible and active libraries in the Konkan region. Moreover, traditional libraries or those without many digital services, have the challenges of keeping their services active for their users virtually during this emergency. Thus, libraries have been engaging new work practices to achieve such objectives from their home/offices.

Review of literature:

Abubakar, M. K. (2020). This paper has presented a broad exposition "Implementation and use of virtual reference services in academic libraries during and post Covid-19 pandemic: A necessity for developing countries". This study presents an extensive synthesis of literature on VRS from different electronic databases, including EBSCO, Host, Elsevier, Emerald, Google Scholar, JSTOR, Science Direct and Taylor & Francis Online. Consequently, four commonly used VRS communication technologies that can help ease the impact of COVID-19 pandemic in meeting library user's information needs are presented. The main objective of this paper is to present an exposition of virtual reference services implementation and use in academic libraries in developing countries. Bharathkumar, V., Sangeetha, M. (2021). Virtual reference service through wiki: An effective tool for librarians in Covid-19 pandemic scenario. This paper reveals the responsibility of the library professionals in present world which is severely affected by COVID-19 pandemic. This paper explains how to serve students and the role of Librarians in COVID-19 pandemic situation. Also briefly explains how library professionals can provide effective virtual reference service to user community by using Media Wiki software and open access information sources. Wagwu, Victor., Obuezie, Adaora C. (2021). In a research paper "Social media information and role of librarians amid covid-19 pandemic: A Nigerian perspective". This study explored the influence of social media on the fight against the COVID-19 pandemic in Nigeria. The study employed a survey research design. The objectives of the study are enumerated. This study determine how COVID-19 pandemic information is disseminated through social media in Nigeria, Also determine the issues associated with social media misinformation on COVID-19 pandemic in Nigeria and determine the role of Librarian played amid the COVID-19 pandemic in Nigeria. Stratified random sampling technique was used to select 252 female and 92 male librarians for the study. Findings indicate that Facebook and WhatsApp were the social Medias frequently utilized by Librarians in Nigeria for retrieving and disseminating information on COVID-19.

The Objective of the study:

1. To study the use of various communication tools in college libraries during the COVID-19 pandemic situation in the Konkan region.
2. To find out the most used tools in the college library during the COVID-19 pandemic crisis in the Konkan region.
3. To study the impact of communication tools on library services during the COVID-19 pandemic Situation.

Hypothesis:

1. There is a significant change in college library services during the Covid-19 pandemic situation in the Konkan region.
2. College libraries offered online library services through communication tools in the Konkan region during the COVID-19 pandemic.
3. There is a significant impact on library services of communication tools to reach out to library users during COVID-19 pandemic situation.

Scope of the study:

The present study is confined to the survey of traditional (Arts, Commerce and Science) aided undergraduate college libraries in the Konkan region. The study area of the Konkan division comprises seven districts namely Mumbai City, Mumbai Suburban, Thane, Palghar, Raigarh, Ratnagiri and Sindudurg. A total 150 + aided undergraduate colleges are under the Konkan region. Primary data for this study was collected through a structured questionnaire. A questionnaire was distributed among the study sample via Google form to collect data for the study. The questionnaire was distributed to all 150 college librarians in

which 105 responses were received. Primary data were descriptively analysed and presented according to the research objectives of the study.

Demographic Profile of the Respondents:

According to the survey results, the survey questionnaire was circulated among 150 colleges librarian through a google form. A total of 105 responses were received. Location-wise received data consisted of (55)52.4% from the urban area and (50)47.6% from the rural area.

Cate gory	Resp onses	Perc entages
Urb an	55	52.4
Rura l	50	47.6

Table 1. Shows the age-wise number of respondents

Age group	Total	Percentag es
20-30	1	1%
31-40	28	26.7%
41-50	49	46.7%
51-60	27	25.7%

Table 1 presents, there was 1 (1%) respondent in the age group of 20-30 years, about 28 (26.7%) respondents in the age groups of 31-40 years, about 49 (46.7%) respondents were in the age groups of 41- 50 years and 27 (25.7%) respondents were in the age group of 51-60 years.

Data analysis:

Table 2: Shows the percentage-wise responses of using communication tools.

r. No.	Tools	er Nev	ely Rar	etime Som	tly Mos
	E-mail	3.81 %	6.67 %	14.2 9%	75.2 4%
	Mobile phone	3.81 %	4.76 %	13.3 3%	78.1 0%
	SMS	6.67 %	14.2 9%	25.7 1%	53.3 3%
	Confere nce technology	9.52 %	14.2 9%	21.9 0%	54.2 9%
	WhatsAp p	4.76 %	4.76 %	6.67 %	83.8 1%
	Faceboo k	20.9 5%	27.6 2%	20% 20%	31.4 3%
	Instagra m	33.3 3%	26.6 7%	20% 20%	20% 20%
	Telegra m	15.2 4%	19.0 5%	19.0 5%	46.6 7%

	Blogs	25.7	23.8	23.8	26.6
		1%	1%	1%	7%
0	Group wikis	32.3	28.5	24.7	14.2
		8%	7%	6%	9%
1	Group forum	26.6	19.0	22.8	31.4
		7%	5%	6%	3%
2	QR code	18.1	25.7	36.1	
		0%	20%	1%	9%

Table 2 presents the use of communication tools during COVID-19 pandemic situation. Out of 105 responses it has been observed and the data found that (79)75.24% of respondents used E-mail communication tools mostly and (82)78.10% of respondents used Mobile phones mostly. (56)25.71% of respondents mostly used SMS service, (57)54.29 % of respondents mostly used conference technology, (88)83.81% of respondents gave responses to mostly used WhatsApp tool and (33)31.43% of respondents mostly used Facebook. (21)20% of library professionals used Instagram, (49)46.67% of respondents mostly used Telegram, (28) 26.67% of respondents gave a response mostly to Blogs technology. (15)14.29% of respondents mostly used Group wikis, (33)31.43% of library professionals used Group forum and (38)36.19% of respondents responded to mostly used QR code technology for communicating with library users during the COVID-19 pandemic situation. This study has covered twelve tools and received a questionnaire from library professionals about which tools you used during the COVID-19 pandemic situation and gave four options i. e. never, rarely, sometimes and mostly. After analysis of data found that WhatsApp, mobile technology, e-mail, SMS, conference technology and telegram were mostly used by library professionals to communicate with library users during the COVID-19 crisis and Group forums, Instagram, blogs, Facebook and QR code tools used rarely.

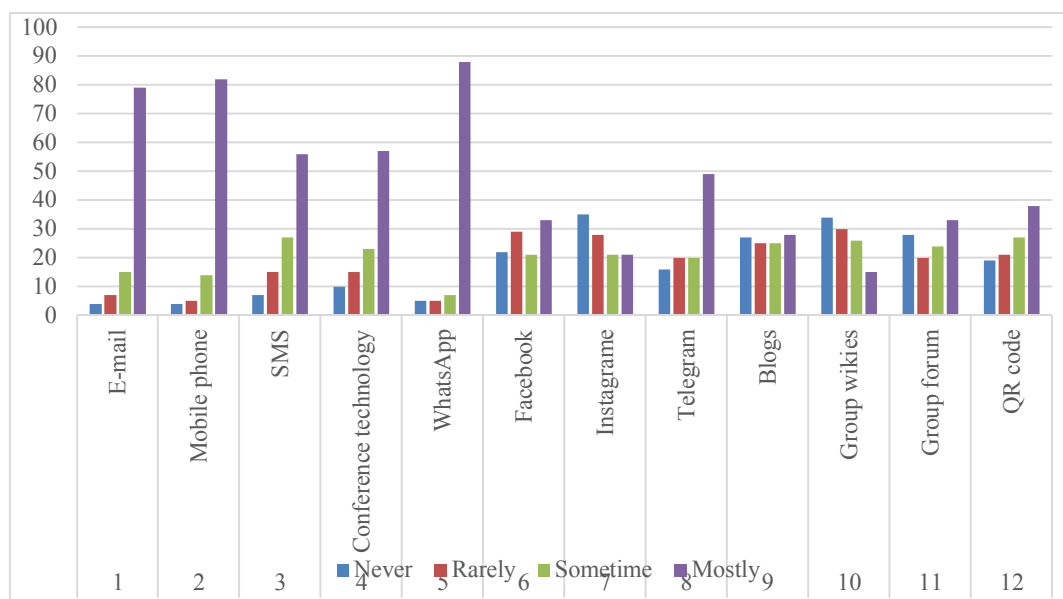
Table 3: Shows the Mean, Rank and Standard deviation analysis of responses.

r. No.	Tools	Mean	Rank	SD
	E-mail	3.61	3	0.77
	Mobile phone	3.66	2	0.74
	SMS	3.26	4	0.94
	Conference technology	3.21	5	1.01
	WhatsApp	3.70	1	0.77
	Facebook	2.62	8	1.13
	Instagram	2.27	11	1.12
	Telegram	2.97	6	1.13
	Blogs	2.51	10	1.14
0	Group wikis	2.21	12	1.05
1	Group forum	2.59	9	1.18

2	QR code	2.80	7	1.12
	Average mean	3		1.01

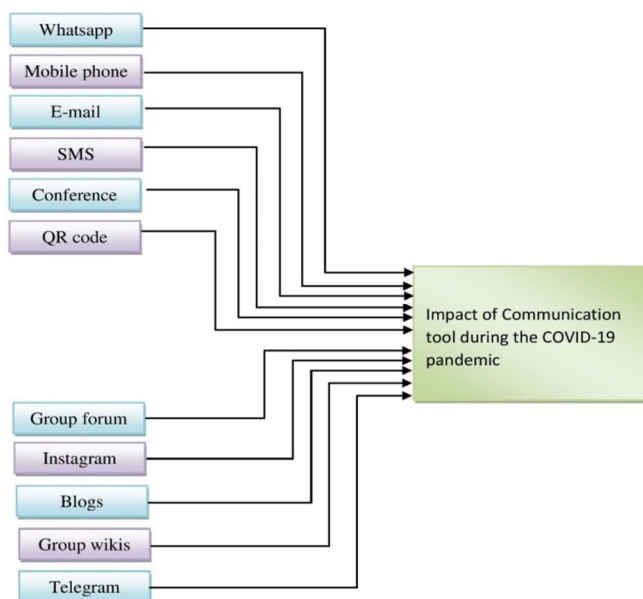
Table 03 represents the overall and individual mean scores of the statements used to evaluate the used communication tools during the COVID-19 pandemic situation. The overall level of using tools was average as indicated by the mean score of 3. Respondents mostly used communication tools during the COVID-19 crisis to bridge the gap in contacting users. WhatsApp has a top mean of 3.70 and Mobile phones have the second-highest mean 3.66. An E-mail has the highest third 3.61 mean and SMS is fourth with a 3.26 mean. Conference technology is also in the fifth rank mean of 3.21, and the highest sixth rank telegram with a 2.97 mean. Uses of QR code tools are in the seven ranks with a 2.80 mean and Facebook is in the eight ranks with 2.62 mean. Group forums have the ninth rank with a 2.59 mean and blogs have 2.51 mean in the ten ranks. Instagram have eleven ranks with 2.27 mean and group wikis have twelve ranks with 2.21 mean. These are using the highest communication tools during Covid-19. This study has covered a total of twelve communication tools in which WhatsApp, Mobile phone, E-mail, SMS, Conference technology and QR codes were highly used by library professionals during the Covid-19 pandemic situation.

Graph 4: Shows the tool-wise response in percentage.



Graph 5 shows the response of library professionals in used social media platform and communication technology tools during COVID-19 pandemic situation. Graph specifies response in percentage with using frequency like never, rarely, sometime and mostly.

5. Impact factor significance model:



Graph 5 Impact factor significant model shows that WhatsApp, Telegram and Facebook were the social media platform used by library professional more frequently than Instagram and Telegram. Also, the most used E-mail, SMS, Conference technology and QR codes communication tools than group wikis and blogs.

Conclusion:

The main aim of any library is to provide the right information to the right the person at the right time to fulfil the information needs of the users.

The basic aim of any library is to provide the right information to the right the person at the right time to fulfil the information needs of the users. The role of academic libraries changed according to the evolving paradigm shift in teaching methodologies as a result of the outbreak of Covid-19. The challenges to the libraries were the current global trends in online education and the significant roles libraries can play. From the findings, the study concludes that WhatsApp and telegram are the social media platforms and E-mail, SMS Conference technology, QR code technologies frequently utilized by librarians for accessing, retrieving and disseminating information on COVID-19 pandemic situation in Konkan region.

All library professionals have overcome challenging COVID-19 situation with the support of using recent communication technology for continuation library services. It is the lesson to all of us through by COVID-19 pandemic that one should take the present situation positively and consider it as an opportunity for library professionals for executing their ideas and talent with emerging technology. Further, right information to the right person on right time to the provided whatsoever the barriers occur.

Selected Bibliography:

- 1) Abubakar, M. K. (2020). Implementation and use of virtual reference services in academic libraries during and post Covid-19 pandemic: A necessity for developing countries. *Library Philosophy and Practice* (e-journal). 4951. <https://digitalcommons.unl.edu/libphilprac/4951>
- 2) Adamich, Tom. (2020). Crisis intervention and library technology how we responded to COVID-19 library closures. *Computers in libraries*, 40 (5). 14-17. iproxy.inflibnet.ac.in:2104/ehost/pdf
- 3) Bhabal, Jyoti., Mhaprolkar, Prajakta. (2021). Participation in LIS webinars by library professionals India during COVID-19 lockdown 2020. *Kalyan Bharti*, 37(7), 194-203.

https://www.academia.edu/83909503/PARTICIPATION_IN_LIS_WEBINARS_BY_LIBRARY_PROFESSIONALS_IN_INDIA_DURING_COVID_19_LOCKDOWN_2020

4) Bharathkumar, V., Sangeetha, M. (2021). Virtual reference service through wiki: An effective tool for librarians in Covid-19 pandemic scenario. *International Journal of research and science*, 7 (1), 135-140. <https://www.ijrsl.in/images/wp-content/uploads/2021/03/IJRLS-1379.pdf>

5) Bilawar, Prakash B. (2020). Lockdown period and information sources. *International Journal of engineering research and management*, 7 (6), 7-15. https://www.researchgate.net/publication/342262153_Lockdown_Period_and_Information_Sources

6) Chioman, J., Asuzu, Chinenye Maryann. (2021). Library services and information access in a time of pandemic: How are academic librarians in Nigeria carrying out library services. *Journal of applied information science and technology*, 14 (1), 95-106. <https://www.jaistonline.org/14vol1/11.pdf>

7) Dadhe, Pooja P. (2020). Library Services Provided During COVID-19 Pandemic: Content Analysis of Websites of Premier Technological Institutions of India. *Library Philosophy and Practice (e-journal)*. <https://digitalcommons.unl.edu/libphilprac/4445>

8) Dhiman, Anil Kumar. (2020). Academic library services in post covid-19 era. *A journal of library and information science*, 14(2) 130-136. <https://www.indianjournals.com/ijor.aspx?target=ijor:pjolis&volume=14&issue=2&type=toc>

9) Dhuri, Keshav R., Lobo, Jovita. (2021). N-LIST E-Resources: A Major Boon to The User Community During Covid-19 Pandemic Era: A Study. *Library Philosophy and Practice (e-journal)*. 4912. <https://digitalcommons.unl.edu/libphilprac/4912/>

10) Jadhav, U.S., Alur, Seema. (2021). Impact of covid-19 on academic library services. In Rathinasabapathy, G., Veeranjanyulu, K. et al (Eds.), *Management of Knowledge Resource Centres in the Networked Digital Environment: Trends, Challenges and Opportunities* (pp.218-223), International Conference of Agricultural Librarians & Users Community. B. S. Hyderabad.

11) Okike, B. I. (2020) Information dissemination in an era of a pandemic Covid-19 libraries role. *Library Hi Tech News*, Emerald Publishing Ltd. <https://www.emerald.com/insight/content/doi/10.1108/LHTN-04-2020-0040/full/html>

12) Panda, Saroja Kumar., Bhatt, Atul. (2021). Continuing of Library Services During the Covid-19 Outbreak in Indian Academic and Research Libraries: A Survey. *Library philosophy and practice (e-journals)*. 6066 <https://digitalcommons.unl.edu/libphilprac/6066>

13) Patel, Komal., Jain, Priyanshi. (2021). Management of library & information services in pandemic. *Research Foundation of India*, 53-56. <https://imi.ac.in/downloads/ivcproceeding/2nd%20international%20conference%20proceedings.pdf>

14) Radha, R., Mahalakshmi, K. (2020) E- Learning during a lockdown of Covid-19 pandemic: a global perspective. *International Journal of control and automation*, 13 (4), 1088-1099 <http://serisc.org/journals/index.php/IJCA/article/view/26035>

15) Padhan, Hrudayananda. (2021). Use of Social Media Tools for Library Services during the Critical Condition of Covid-19 in University Libraries of Odisha. *LibraryWaves*, 7(2), <https://www.librarywaves.com/index.php/lw/article/view/107>

16) Singh, K. K. (2020). Trends, opportunities and scope of libraries during Covid-19 pandemic. *IP Indian Journal of Library and Information Technology*, 5(1), 24-27. <https://www.ijlit.org/article-details/11777>

- 17) Sulaiman, Moyosore., Dapo-Asaju, Harriet S. (2022). Impact of Academic Library Services on User Satisfaction in Covid-19 Era: Case Study of Fatiu Akesode Library, Lagos State University, Ojo, Lagos State. *International Journal of Applied Technologies in Library and Information Management*, 8 (1),0109. <http://www.jatlim.org/volumes/Volume%208%20Number%201/1%20Sulaima.pdf>
- 18) Wagwu, Victor., Obuezie, Adaora C. (2021). Social media information and role of librarians amid covid-19 pandemic: A Nigerian perspective. *International journal of institutional leadership policy and management*, 3 (1), 145-161. [http://www.ijilpm.com.ng/assets/vol.%2C-3\(1\)-victor-wagwu---obuezie-1.pdf](http://www.ijilpm.com.ng/assets/vol.%2C-3(1)-victor-wagwu---obuezie-1.pdf)

05

New Education Policy -2020 and Libraries

Dr.Sadashiv Balasaheb Warvate

Librarian

Mahatma Phulemahavidyalaya,

KingaonTq. AhemdipurDistlatur

Dr.Shivaji Narayanra Sontakke

Vice Principal and Librarian

Kai.RasikaMahavidyalaya,

DeoniDist.Latur

=====

Abstract:

The National Education Policy 2020 (NEP-2020), introduced by the Ministry of Human Resource Development (MHRD), aims to transform the education system for the modern nation. NEP-2020 emphasizes the importance of libraries at all levels, including public and academic libraries. The policy focuses on enhancing library infrastructure, services, and operations. It also integrates Information and Communication Technology (ICT) to provide digital, online, and specialized facilities and services to cater to the diverse needs of readers across the nation.

Keywords: Education Policy, Library, E-Learning, E-Resources.

Introduction:

National Educational Policy 2020 is given by the Ministry of Human Resources and Development, Government of India, after a long research and development work on the old education policy and the current education need of the society. NEP-2020 is announced by the Govt. of India on July 29, 2020. The National Education Policy (NEP) 2020 aims to transform the education system in India by focusing on holistic and multi-disciplinary education, promoting critical thinking, creating a learner-centric approach and universal access to quality. This National Education Policy 2020 is the first education policy of the 21st century. The aim of NEP 2020 is to address the many growing developmental imperatives of our country. The NEP policy aims to transform the education system by revamping regulations, governance, and all aspects to align with 21st-century goals, covering school and higher education.

Objectives

- ❖ To aware about the New Education Policy 2020;
- ❖ To discuss the major highlights of NEP-2020
- ❖ To highlight the libraries in the context of NEP-2020
- ❖ To discuss the role of academic library in achieving NEP 2020

Purpose of the Policy:

The ultimate goal of the education policy and system is to nurture well-rounded individuals who embody rational thinking, compassion, empathy, courage, resilience, scientific inquiry, and creative expression, grounded in strong ethical values. By fostering these qualities, education aims to shape productive, engaged, and responsible citizens who contribute meaningfully to society, upholding the principles of equity, inclusivity, and pluralism as enshrined in the Indian Constitution.

Major Highlights of New Education Policy-2020

- Universal Access to education at All Levels of schooling
- Compulsory education for all children between 3-6 years;
- Curricular development and new Pedagogical Pattern (5+3+3+4);
- The medium of instruction up to Grade 8 and beyond, will be the home/mother/regionallanguage

- Setting up of a new National Assessment Centre, PARAKH
- Establishment school complexes and clusters for sharing of all resources
- Holistic Multidisciplinary Education system with multiple entry/exit options
- Establishment of Academic Bank of Credit
- Setting up of Multidisciplinary Education and Research Universities(MERUs);
- National Research Foundation(NRF) for research and development;
- Four-year degree of integrated Teacher Education - Bachelor of Education

Libraries in the context of NEP-2020

1. Development of Attractive Learning Materials

As per NEP 2020, books are needed to be developed with standard content for the students at all levels in all local and Indian languages. Both public and private sector institutions, will work strategically to improve the quality and attractiveness of books.

2. Ensure Availability and Accessibility of Books in School/public Libraries

The Government of India will emphasize making books available extensively in both schools and public libraries to ensure the availability and accessibility of books to all including physically handicap.

3. Promotion of Reading Habit across the Country

Both public and school libraries will be extensively enhanced to increase the readership across the country. Public libraries have to be strengthened and modernized with latest technology.

4.Applications of ICT in School / Public Libraries in Villages

To serve the user community and the students in better ways particularly in villages during non-school hours, the ICT equipped school/public libraries will be set up in the next coming years. Book club facilities will be developed to

5. Strengthening of Library Collection for the Higher Education Systems

Academic libraries are the hearts of institutions and the government of India will strengthen and increase the procurement of reading materials like books, periodicals, and other learning and teaching materials.

6. Public Library spaces for Adult Education

The Government of India will work on providing suitable infrastructure to ensure adult education and lifelong learning process to all interested in Education. The public library spaces shall be used for adult education and other activities for community engagement and skill development.

Role of Academic Libraries in Achieving the Objectives of NEP-2020

The academic library plays a crucial role in achieving the National Education Policy 2020 (NEP-2020) objectives. Here are some of the ways academic libraries can support NEP-2020 **objective:**

- Facilitating access to quality educational resources
- Promoting research and innovation
- Supporting multi-disciplinary education
- Fostering digital literacy
- Encouraging lifelong learning
- Evaluation of library services and resources may be based on usage statistics and user feedback
- Collaboration with academic institutions, faculty, and researchers to support research and learning
- Adoption of technology to enhance user experiences, such as online databases, digital collections, and integrated library system

Conclusion

The NEP 2020 highlights the crucial role of academic libraries in providing seamless access to digital resources, including e-books, journals, and databases, to augment teaching, learning, and research. It stresses the significance of open access to research outputs and encourages libraries to champion open access publishing and develop institutional repositories. Moreover, libraries should foster collaborative spaces and innovative facilities that promote experimentation and creativity. To achieve this, the NEP 2020 necessitates a collaborative effort from all stakeholders in the education ecosystem, including government agencies, institutions, teachers, and parents, to adopt innovative practices and ensure successful implementation.

References:

1. Jujgar, Anand Mallikarjun; Adaskar Pravin Vasudeorao, Impact of National Education Policy-2020 (NEP-2020) on Libraries: Library Scholar International Peer-Riveed Journal of Library Science 2023; Vol-3, issue -1:52-56.
2. K.K. Sing: Libraries @ national education policy (NEP 2020) in India:
3. K Sharna New National Education Policy 2022: NEP 2022: The Asian School 2022 <https://www.theasianschool.net/blog/new-national-education-policy/>
4. Lamani, Manjunath. New Education Policy-2020: Role of Libraries: International Jour. Of Research in Library Science 2021; Vol-7, issue -3:166-171.
5. <https://www.jkchrome.com/library-culture-in-schools-new-education-policy-nep-2020/>
6. Shukla, Gopal Mohan; Bajpai R.P., Significance of Libraries in Indian Education Policies: International Journal of Information Dissemination & Technology. 2020, Vol. 10 Issue 4, p180-184. 5p.
7. <http://www.lispathshala.com/2021/07/new-education-policy-2020-highlights.html>.
8. <https://libertatem.in/economy/nep-2020-india-making-a-headway-towards-global-knowledge-superpower/>

06

Artificial intelligence and digital Technology used in libraries

Dr Sharad S Chavan

Librarian

Lal Bahadur Shastri Mahavidyalaya Dharmabad District Nanded

Abstract

Artificial intelligence (AI) brought a new way of extending research and development in all areas of higher education. Artificial intelligence makes the way smooth and smart for libraries. The use of information technology highly influenced library and information services in their routine work. This paper discusses the great opportunity for librarians to give better services. It faces the challenge of adopting these technical skills in its library services to survive the jobs in the library and information centres field. Library professionals steadily improve their knowledge of computers and networks. Technology proves that intelligence is created artificially in machines with the help of various information technological and digital tools.

Keywords: Library, Information Technology, Machine Learning, artificial intelligence, Smart Libraries

Introduction

The work of libraries goes beyond the walls with the help of advanced technology. Traditional libraries are transferred into the hybrid library, the hybrid library is transferred into the digital library and the digital library transforms into those libraries in which services are given with the help of electronic devices which contain Robotic, image recognition patterns, neural networks technology and machine learning. AI is one of the branches of computer science in which services are given through machines which were based on clouds, Robots, image recognition and big data cloud computing. It is the technology in which machines think, learn, understand and analyse like a human being. The application of AI and digital techniques makes the library work smart and gives qualitative services to their patrons. It is beneficial for proper research productivity. This system is now slowly being adopted in Indian education systems but very slowly as compared to other continents and countries like China, Africa and America respectively. This technology has made the future promising and library services immensely affected by applications of artificial intelligence in libraries. The cost of AI-based services is very expensive and it is not affordable for rural areas where the library is situated in a rural area. It is very interesting to see the huge changes in the future. The hindrance of the economic condition is a big question among the academic community and the employees. In human beings, brain contains for solving the problem all neurones are ready to do that and complete it. In the same thing, artificial intelligence means work systematically done by machines. The works given by humans to machines are coded in algorithmic form. Machine. The term artificial intelligence was coined by John McCarthy and he is considered as the father of artificial intelligence. John McCarthy was an American computer scientist. There are various names associated with artificial intelligence. Many companies use AI for the marketing and services of their products. It includes Google, Amazon, Flipkart, Netflix, Xperia, IBM etc. Maximum sectors like health, banking, agriculture, stock market, education give preference to the uses of technology to enhance the quality of services and little bit decrease the load of their employees.

Uses of AI in Libraries

AI for frequently asked questions: Maximum library users ask specific and common types of questions regarding various library services rendered by the library, library timings,

library layout, rules and regulations etc. so based on these expected questions librarian provides the related data to the machine i.e. robot Alexa etc and with taking the help of AI patrons get feel satisfied with results.

AI For collection development: collection development is the continuous process of the library avoiding duplication of the document. AI supports to build up healthy and qualitative collection development with proper filter library gate help of AI in the library.

AI for Union catalogue: The union catalogue gives an idea about the required document is located in which library and it is created with the help of computer technology with the assistance of human beings. It decreases the AI as the combination of neural intelligence and a set of programs by the algorithm and completes the goal for the satisfaction of library patrons.

AI for image recognition: Foster and Kohai in 1998 say that machine learning studies and develops algorithms by predicting data through uncovering complex patterns for making intelligent decisions. Image recognition includes the QR code, capture and image in a specific pattern. The statistical information is provided by human beings to machines and it is converted into specific pattern it is converted in a specific pattern by machines.

AI for research support: Uses of artificial intelligence in library enhance the productivity of research. Researchers take help from Chat GPT to get an idea of the domain. Chat-GPT is one example of advanced computer technology that is an artificial intelligence technique which is used for preparing research proposals, and research project work based on previous experience without human interface. It helps the researcher to work properly with making research decisions. Research design prepares synopsis and proper citations. Mendeley is the reference management tool which helps the researcher give proper citations for the cited work. Zotero software also helps researchers to properly cite citation records, and it is the easiest method with the help of various software research in a qualitative manner.

AI for library administration

It includes allocation of budget staff management procurement of documents technical tools-related decisions what should be cut for better decisions these aspects are resolved with the application of AI in administration. In the recruitment process, it is helpful for making decisions regarding qualifications and experience.

AI for Transaction: users search for their wanted information through Opac/Webopac/MOpac with their natural language and make the retrieval process easy and user-friendly. Computers, with the help of automation software, make the process convenient and retrieve documents approximately in minimum time it's saves valuable time for users.

AI for Quantitative analysis

The analysis is very complex and hectic work for the researcher but there are different types of artificial tools available to make this work smart. SPSS in bracket statistical packages for social science is used for complex statistical data analysis. It saves valuable time for the researcher. SPSS has tools that record transforming variables etc. but if we are going to the same data analysis in an Excel spreadsheet, then it consumes time as compared to SPSS.

AI for Biometric attendance for patrons

Tracking users' attendance through biometrics is helpful for the usage to generate library footfalls by the patrons. It saves the time of library employees as well as users for the statistical data. It is helpful for the utilization of optimum library resources.

.AI for Library Orientation

At the beginning of every academic year library organised orientation programme for the new enrolled student in the college. AI technology helps to give all library information to their students regarding the collection, subscribed journals, IT facilities, and physical facilities

to fill conveniently while they take virtual tours with the help of robots. (sharma, Ranjan, & Yadav, 2019) (sharma, Ranjan, & Yadav, 2019) (sharma, Ranjan, & Yadav, 2019)

There are a number of components of artificial intelligence. Some of them are as follows.

Components of artificial intelligence

Natural language processing

Deep learning

Machine Learning

Pattern recognition

Chabot's

ChatGPT

Robotics.

Challenges for artificial intelligence

1 Financial problem: Artificial intelligence is a branch of computer science and hints at the miscellaneous issues that arise in front of institutes about its implementation. No special grants will be provided by the government for the effective implementation of AI in college libraries and most institutes are not in a good financial condition to implement it. Budget is the main constraint the government of India is now more focused on giving skill-based education to the students. Traditional educational systems have no provision to build financial resources at this moment. It takes more time to take grip.

2 Phobia of AI: AI is not rocket science but a number of academicians has fixed their mindsets that implementation of AI is very difficult task for academicians to implement it in libraries or in the academic institutes for the teaching and learning. It is a little bit different from the traditional system so to overcome this issue particular institute or university should conduct and frequently organise training courses with hands-on practice in their jurisdictions for the academicians. It is beneficial to enhance the capabilities as well as build the confidence about the technology among the academicians.

3 Infrastructure: Educational institutes require good ICT infrastructure on their premises. It includes always related issues highly configured computers, the latest operating systems, automation software, power backup facilities, separate space for the servers batteries of printer devices, scanners control devices good internet connectivity etc. Available with the educational institute with their technical team.

4 Digital literacy: Academic libraries help to develop digital literacy with the proper understanding of how artificial intelligence algorithms work among library users awareness about ethical issues and related issues should be cleared by the librarians. A proper understanding of how to use library materials which were published in the digitized form.

Conclusion

Artificial intelligence is a branch of computer science. Effective implementation of AI results in increases the research productivity and patron satisfaction. It gives the best result in the overall works of the library as well as the educational sector. It helps to identify the user's pertinent needs. The digital tools help librarians to provide excellent service. Mendeley the reference management tools help researchers to manage citations to their articles, books, websites and all the resources decided for the research gate Vidwan ID gate identification to academicians as researchers. At the university level or college level, workshops and hand-held workshops should be organised frequently to overcome the phobia and for the adoption of artificial intelligence among academicians.

AI tools help libraries to accelerate their services. Grammarly tool helps researchers by eliminating writing mistakes. The quill bot tool ensures writing is clear and correct. Writing helps to create a private server for the proper organisation of research work.

References:

- 1JesubukaleEmmanuelAjakaye.(2023). Application of Artificial Intelligence (AI) in Libraries. DOI.10.4018/978-1-7998-90942ch006. <https://www.researchgate.net/publication>.
- 2Lund,B.D., Omamel.M.Tijanis.&Agbaji,D.(2020). Perception towards artificial intelligence among academic library employees and alignment with the diffusion of innovations” adopter categories. College and Research Libraries,81(5),865-882. DOI:10.5860/crl.81.5.865.
- 3 Das Rajeshkumar, Islam ul.Md. Sharif. Application of Artificial Intelligence and Machine Learning in Libraries: A Systematic Review.
- 4Hussain, Abid. (2023). Use of artificial intelligence in the library services: prospects and challenges. Library Hi Tech News. 40. 10.1108/LHTN-11-2022-0125.
- 5 Halburgi suryakanth, Mukarambi Prashant.(2024).The timeless relevance of libraries in the age of artificial Intelligence: A review. IP Indian Journal of Library Science and Information Technology;8(2).84-87. Access <https://www.ijlsit.org/> on 30th July 2024.
- 6 Singh Dewendra K,Singh Bhupendra K, Dubey Yogendra P.(1996).Expert Systems and their Applications in Library and Information Systems. DESIDOC Bulletin of Information Technology,16(4).9-12p.
- 7 Sharma Abhishek,Ranjan Ashish, Yadav Abhishek, et al.Artificial Intelligence in Libraries: An Overview.(2019). Proceedings of the International Conference 3rd DLA.SRFLIS Summit. Digital Age Strategies in Information Management for SustainableLibrarianship.<https://researchgate.net/Publication/373901224> Access on 7th August 2024.

07

Future Libraries MOOCs & Role of Libraries Innovative Technology for Teaching

Dr. Shinde Neeta

(Librarian)

K.J. S College Kopargaon 423601

ORCHID ID-0000-0002-1283-303X

Vidwan ID -329967

Researcher ID- Rid 41709

Abstracts

The role of libraries is undergoing a profound revolution in the era of advance technology, 'No longer confined to mere repositories of books, libraries have become dynamic entities at the forefront of adapting to the evolving information landscape'. As digital resources proliferate, online community's enhancement, and interactive technologies emerge, libraries are embracing multifaceted changes that redefine their determination. This transformation predicts libraries as exciting hubs of learning, innovation, and community commitment. In this context, the implication of digital access has grown exponentially, forcing libraries to accept an arrangement of various technological tools. 'From immersive virtual reality experiences to innovative makerspaces and data analytics, libraries are redefining their roles as essential conduits for knowledge exchange, community empowerment, and intellectual growth.' In the coming years, libraries will continue to evolve into dynamic spaces that seamlessly integrate these innovative technologies, bolstering education, research, and community engagement.

Keywords:-Digital resources, Information Literacy, Digital Literacy, ICT, Artificial Intelligence.

Introduction

In this new era of rapid technological development and shifting paradigms of knowledge dissemination, libraries have found themselves at the crossroads of evolution, it means libraries are undergoing substantial changes in the digital age. 'The concept of the future library embodies more than just a repository of books; it encapsulates a dynamic transformation that mirrors the changing information landscape'. With the explosion of digital resources, the growth of online communities, and the development of interactive technologies, "the traditional role of libraries as static repositories has given way to a multifaceted, dynamic entity." The future library foresees itself as a vibrant hub of learning, innovation, and community engagement. As day by day digital access develops increasingly crucial, libraries are embracing a diverse range of technological tools, from virtual reality experiences to make spaces and data analytics, 'redefining their roles as essential channels for knowledge exchange, community empowerment, and intellectual growth.'

Future Libraries:

In an era of rapid technological advancement and shifting paradigms of knowledge dissemination, libraries have found themselves at the crossroads of evolution. The concept of the future library embodies more than just a repository of books; it encapsulates a dynamic transformation that mirrors the changing information landscape. With the proliferation of digital resources, the rise of online communities, and the emergence of interactive technologies, the traditional role of libraries as static repositories has given way to a multifaceted, dynamic entity. The future library envisions itself as a vibrant hub of learning,

innovation, and community engagement. As digital access becomes increasingly crucial, libraries are embracing a diverse range of technological tools, from virtual reality experiences to make spaces and data analytics, redefining their roles as essential conduits for knowledge exchange, community empowerment, and intellectual growth.

Here are some trends and aspects related to the future of libraries:

1. **Digital Access and Resources:** Libraries are increasingly providing digital resources such as e-books, e- journals, and multimedia content to serve the changing information needs of users. They are becoming hubs for digital literacy, helping users direct and make the most of digital resources.
2. **Community Hubs:** Libraries are evolving into community centered, offering spaces for workshops, events, and meetings. They aim to be vibrant centers of learning, creativity, and social interaction.
3. **Data and Information Literacy:** Future libraries will continue to play a vital role in teaching information literacy skills, helping users direct and analytically estimate the enormous amount of digital information which is available.
4. **Makerspaces and Learning Labs:** Libraries are incorporating makerspaces and hands-on learning areas, allowing patrons to explore technology like 3D printing, robotics, and virtual reality. These spaces promote creativity, innovation, and practical skills.
5. **Personalized Learning:** Libraries are adopting technologies to personalize learning experiences. This could involve recommending relevant resources, adapting content to individual learning styles, and supporting lifelong learning.
6. **Collaboration with Education:** as libraries are heart of the institute and also libraries are working closely with educational institutions to provide supplementary resources for students, support research endeavors, and enhance the overall learning experience.
7. **Curation and Archiving:** Libraries are taking on the role of curators and archivists, preserving both physical and digital cultural artifacts for future generations.
8. **Inclusivity and Accessibility:** Libraries are striving to ensure that their services and resources are accessible to all members of the community, including those with disabilities.
9. **Sustainability:** Libraries are focusing on environmental sustainability, adopting eco-friendly practices in their operations and promoting awareness of environmental issues.

MOOCs & Role of Libraries:

Massive Open Online Courses (MOOCs) have gained popularity as a way to provide education to a wide audience online. Libraries play several roles in the context of MOOCs:

1. **Access to MOOCs:** Libraries often provide access to MOOC platforms and resources, allowing patrons to explore a variety of courses from different institutions.
2. **Promotion and Support:** Libraries promote MOOCs within their communities and provide guidance on selecting relevant courses based on users' interests and goals.
3. **Complementary Resources:** Libraries offer supplementary materials and resources that align with MOOC topics, enhancing the learning experience and providing additional context.
4. **Digital Literacy:** Libraries help users navigate the technical aspects of MOOCs, ensuring they have the necessary digital skills to participate effectively.
5. **Collaborative Learning:** Libraries can create spaces for patrons to come together and discuss MOOC content, fostering a sense of community and collaborative learning.
6. **Credentialing and Recognition:** Libraries may explore ways to validate or recognize completion of MOOCs through badges, certificates, or other forms of credentialing.

7. **Creating the Local Chapters:** libraries can create the local chapters for their users to conduct MOOCs exam at their doorsteps.

Innovative Technology for Teaching:

Innovative technologies are reshaping the landscape of education. Here are some examples of how technology is being used for teaching:

1. **Virtual Reality (VR) and Augmented Reality (AR):** These technologies create immersive learning experiences, allowing students to explore complex concepts in a visual and interactive manner.

2. **Artificial Intelligence (AI):** AI can personalize learning by adapting content to individual student needs, provide instant feedback, and even predict learning outcomes.

3. **Gamification:** Gamifying education involves incorporating game elements into the learning process to increase engagement and motivation.

4. **Flipped Classroom:** Technology enables the "flipped classroom" model, where students learn new content at home through videos or online resources, while classroom time is used for discussion, problem-solving, and application.

5. **Online Collaboration Tools:** Tools like video conferencing, collaborative document editing, and virtual whiteboards facilitate remote teamwork and interaction.

6. **Adaptive Learning Platforms:** These platforms use data and analytics to tailor learning experiences, pacing, and content to individual students, addressing their strengths and weaknesses.

7. **Learning Management Systems (LMS):** LMS platforms provide a centralized hub for course materials, assignments, communication, and assessment.

8. **Block chain in Education:** Block chain technology can be used for secure credentialing, verifying academic achievements, and preventing fraudulent qualifications.

9. **Robotics and Coding Education:** Teaching coding and robotics fosters computational thinking and problem-solving skills, preparing students for a technology-driven world.

MOOCs & Role of Libraries in Innovative Learning:

Massive Open Online Courses (MOOCs) have ignited a revolution in the realm of education, tearing down geographical boundaries and democratizing access to knowledge. In this digital educational landscape, libraries have emerged as pivotal enablers of MOOC-based learning. Beyond their traditional roles, libraries are now at the forefront of fostering innovative learning environments. As MOOCs offer a wealth of diverse courses, libraries serve as gateways to this treasure trove of information, providing access to resources and technologies necessary for engaging in online education. By offering computer access, guidance on navigating online platforms, and a haven for collaborative study, libraries contribute significantly to bridging the digital divide and enhancing the accessibility of quality education. As the symbiotic relationship between MOOCs and libraries continues to strengthen, the latter evolves into dynamic centers for lifelong learning, championing the cause of accessible education for all.

References:

1. Dempsey, L. (2015). The Library in the New Information Landscape. *Library Management*, 36(4/5), 308-318.
2. Casey, M. E., & Savastinuk, L. C. (2007). Library 2.0: Service for the Next-generation Library. *Library Journal*, 132(12), 40-42.
3. NMC Horizon Report > 2019 Library Edition. New Media Consortium.
4. Johnson, L., Adams Becker, S., Estrada, V., & Freeman, A. (2014). NMC Horizon Report: 2014 Higher Education Edition. New Media Consortium.

5. Siemens, G., & Baker, R. S. (2012). Learning Analytics and Educational Data Mining: Towards Communication and Collaboration. In Educational Data Mining 2012 (pp. 3-24). Springer.
6. Gee, J. P. (2003). What Video Games Have to Teach Us About Learning and Literacy? Computers in Entertainment (CIE), 1(1), 20-20.
7. Johnson, L., Adams Becker, S., Estrada, V., & Freeman, A. (2014). NMC Horizon Report: 2014 Higher Education Edition. New Media Consortium.
8. Siemens, G., & Baker, R. S. (2012). Learning Analytics and Educational Data Mining: Towards Communication and Collaboration. In Educational Data Mining 2012 (pp. 3-24). Springer.
9. Gee, J. P. (2003). What Video Games Have to Teach Us About Learning and Literacy? Computers in Entertainment (CIE), 1(1), 20-20.

08

Skills Required for Library Professionals in Digital Library Environment: An Overview

Dr. Subhash Dhule

Librarian

Rajaram College, Kolhapur (MS)

=====

Key Words : Digital Library, Database management, Data privacy.

Abstracts: In the contemporary digital era, library professionals are increasingly required to adapt to a rapidly evolving technological landscape. This research paper explores the essential digital skills that library professionals need to effectively manage digital resources, support users, and maintain the relevance of libraries in the digital age. Through a review of current literature, analysis of case studies, and a survey of library professionals, this paper identifies key competencies, including digital literacy, data management, information retrieval, and user support, and offers recommendations for professional development and training programs.

Introductions: The proliferation of digital technology has transformed the landscape of libraries, necessitating a shift from traditional skills to a suite of digital competencies. As information becomes increasingly digitized, library professionals must possess the skills to manage digital resources, utilize new technologies, and meet the evolving needs of their patrons. This paper examines the digital skills required for library professionals to thrive in a digital environment and provides insights into effective strategies for developing these competencies.

Digital Literacy: Digital literacy encompasses the ability to effectively use digital tools and technologies. For library professionals, this includes familiarity with digital databases, online catalogues, e-books, and digital archiving systems. Proficiency in digital literacy ensures that library staff can assist patrons in navigating digital resources and utilizing technology to access information.

- Proficiency with operating systems (Windows, macOS, Linux).
- Knowledge of digital content formats (e.g., PDFs, ePub).
- Ability to evaluate online sources for credibility and relevance.

➤ **Information Technology (IT) Management:**

- Skills in computer hardware and software maintenance.
- Network administration and cyber security knowledge.
- Experience with library management systems (LMS).

➤ **Database Management:**

Data management skills are crucial for handling large volumes of digital information. Library professionals must be adept at organizing, storing, and retrieving digital data. This includes understanding metadata standards, digital preservation techniques, and the use of data management software.

- Familiarity with relational databases and SQL.
- Knowledge of library-specific databases and metadata standards (e.g., MARC, Dublin Core).

- Skills in data analysis and reporting.

➤ **Digital Content Creation and Management:**

1. Digital Content Creation: Digital content creation involves producing digital resources such as e-books, digital exhibits, online tutorials, and multimedia content. Skills in this area include:

- **Multimedia Production:** Creating and editing audio, video, and graphic content using tools like Adobe Creative Suite, Canva, and Camtasia.
- **Digital Publishing:** Understanding the processes and tools for publishing digital content, including e-books and digital journals.
- **Content Management Systems (CMS):** Using platforms like WordPress, Drupal, and Omeka to create and manage digital content.

2. Metadata Management: Metadata is crucial for organizing, accessing, and preserving digital content. Library professionals need to be skilled in:

- **Metadata Standards:** Familiarity with standards such as Dublin Core, MARC, MODS, and METS.
- **Cataloguing and Indexing:** Techniques for accurately cataloguing and indexing digital content to enhance discoverability.
- **Metadata Creation Tools:** Using tools like Open Refine, Oxygen XML Editor, and Catmandu for metadata creation and management.

3. Digital Rights Management (DRM): Digital rights management ensures that digital content is used in accordance with licensing agreements and copyright laws. Skills in this area include:

- **Understanding Licensing Agreements:** Knowledge of different types of licenses, such as Creative Commons and proprietary licenses.
- **Copyright Law:** Understanding copyright law as it pertains to digital content, including fair use and rights clearance.
- **DRM Tools:** Using tools and technologies to manage digital rights and protect digital content from unauthorized use.

- Proficiency in content management systems (CMS) like Word Press or Drupal.
- Knowledge of graphic design tools (e.g., Adobe Creative Suite).
- Skills in multimedia creation (e.g., video editing, podcasting).

➤ **Data Privacy and Ethics:**

- Understanding of data protection regulations (e.g., GDPR, CCPA).
- Knowledge of ethical considerations in digital information management.
- Ability to develop and enforce privacy policies.

➤ **Digital Reference Services:**

- Proficiency in using online reference tools and chat platforms.
- Skills in virtual research assistance and user communication.
- Ability to guide users in navigating digital resources and tools.

➤ **Emerging Technologies:**

- Awareness of trends such as artificial intelligence, virtual reality, and block chain.

- Ability to evaluate and implement new technologies in a library setting.
- Skills in training users and staff on new tools and technologies.

➤ **Website Management:**

- Knowledge of web design principles and user experience (UX) design.
- Skills in using web development tools and platforms.
- Ability to maintain and update library websites and online catalogue.

➤ **Social Media and Digital Communication:**

- Proficiency in using social media platforms for engagement and outreach.
- Skills in creating and managing digital marketing campaigns.

- Ability to use digital communication tools effectively (e.g., email newsletters, webinars).

- **Digital Archiving and Preservation:**

- Knowledge of digital preservation techniques and best practices.
- Skills in managing digital collections and ensuring long-term access.
- Understanding of digital rights management and copyright issues.

- **User Experience and Interface Design:**

- Ability to design user-friendly interfaces for library systems and services.
- Skills in conducting usability testing and user research.
- Knowledge of best practices in UX design for digital environments.

- **Project Management Tools:**

- Proficiency with project management software (e.g., Trello, Asana).
- Skills in planning and executing digital projects and initiatives.
- Ability to track progress and manage resources effectively.

Conclusions: As libraries continue to evolve in the digital age, the need for proficient digital skills among library professionals becomes increasingly critical. By investing in professional development and fostering a culture of continuous learning, libraries can ensure that their staffs are equipped to meet the challenges and opportunities of the digital environment. This paper underscores the importance of digital literacy, data management, information retrieval, and user support as key competencies for library professionals.

References:-

1. Khan, S. A., & Shahzad, K. (2024). Key features of digital library management system (DLMS) for developing digital libraries: An investigation from LIS practitioners in Pakistan. *Journal of Librarianship and Information Science*, 56(1), 29-42.
2. Yadav, A. K. (2022). Key skills and competencies of LIS professionals in the digital library environment: a content analysis of job advertisements. *Library Management*, 43(1/2), 50-65.
3. Raju, J. (2017). Information professional or IT professional?: The knowledge and skills required by academic librarians in the digital library environment. *portal: Libraries and the Academy*, 17(4), 739-757.
4. Pandey, S. (2017). Qualities and skills required for Library and Information Professionals: An overview. *International Journal of Science and Humanities*, 3, 269-278.
5. Mulat, T., & Natarajan, M. (2020). Digital literacy skills among library professionals in Jimma University libraries. *Library Philosophy and Practice (e-journal)*, 4629.
6. Verma, M. K. (2015). Changing role of library professional in digital environment: A study. *International journal of library science*, 13(2), 96-10

09

EMPOWERING LIBRARIES: STRATEGIES FOR EFFECTIVE HUMAN RESOURCE DEVELOPMENT

Dr. Vilas Ashokrao Kale

Librarian ,

SwatantryaSainikSuryabhanji Pawar College, Purna (Jn.) Dist. Parbhani (M.S)

=====

Abstract: Libraries have undergone significant changes in their role in society, primarily as a result of technological advancements and changing patron needs. Libraries must continue to invest in human resources development as a means of staying relevant and serving their communities effectively. In this paper, we examine a variety of strategies for developing effective human resources in libraries, emphasizing the importance of continuous learning, leadership training, and cultivating a positive culture within the organization. There is no denying the fact that today's libraries face unprecedented challenges, pivoting from traditional knowledge repositories into dynamic, technology-enabled community hubs. As a result of this transformation, human resource development becomes even more vital than ever before. Research in this area focuses on the importance of developing human resources and emphasizing the importance of continuous learning, leadership training, fostering a positive organizational culture, and implementing diversity and inclusion programs to empower libraries through robust human resource development. This study combines a literature review with qualitative interviews and quantitative surveys in order to uncover actionable recommendations for libraries seeking to enhance their service delivery and community impact. The findings underscore the necessity for libraries to invest in their staff, ensuring they remain adept, motivated, and equipped to navigate the ever-evolving information landscape, as the findings highlight. A library can maintain relevance, maximize its societal impact, and continue to serve as a vital community pillar in the 21st century by prioritizing human resource development.

Keywords: Libraries, Human Resource Development, Leadership Training, Professional Development, Training Programs

1. INTRODUCTION

A library has been a cornerstone of knowledge and culture for centuries. However, with the increasing number of digital devices and interconnectedness in the world today libraries are becoming increasingly able to offer more than traditional services to their community. The development of human resources within libraries is crucial to the success of this transformation. In order to meet these new challenges, librarians must create a skilled, adaptable, and forward-looking workforce.

1. Continuous Learning and Professional Development

As the information landscape continues to evolve rapidly, the importance of continuous learning and professional development cannot be overstated, especially within library ecosystems. Libraries, traditionally viewed as static repositories of knowledge, have evolved into dynamic hubs of technology, community engagement, and multifaceted information sharing. Keeping up with the proliferation of digital resources, changing customer expectations, and the growing emphasis on community-centered services, library professionals need to cultivate a culture that fosters perpetual learning. This commitment not only ensures that they remain adept at using emerging tools and technologies but also positions them to proactively respond to the changing needs of their patrons, which in turn reaffirms the library's role as an indispensable community resource in the 21st century.

- **Technological Advancements:**A regular process of tech training is a great way to encourage staff to remain current with the latest technology. As technology evolves, librarians need to be able to use new tools and platforms.

- **Skill Workshops:**There are a variety of topics that can be covered in workshops, along with technical skills, such as community outreach, communication skills, and archive methods.

- **Conferences and Seminars:**There are many benefits to encouraging employees to attend and present at conferences in order to facilitate networking and the exchange of knowledge.

2. Leadership Training and Development

The development and training of leadership is an essential part of creating a library organization that is effective and forward thinking. Library leaders will be required to take on increasingly visionary and adaptable roles as libraries continue to transform from traditional knowledge repositories to dynamic community centers. An effective library leader must be able to comprehend the ever-changing dynamics of information dissemination, community engagement, and technological advancements as well as the ever-evolving dynamics of information dissemination. Investing in leadership development can help libraries cultivate professionals capable of guiding their institutions through changes, creating a positive organizational culture, and ensuring that the library remains relevant and vital in the community for the long run. The process of developing these skills entails a combination of mentoring, structured training, exposure to diverse scenarios, as well as the cultivation of both hard and soft leadership skills.

- **In-house Leadership Programs:**A library can develop a leadership program tailored to the specific challenges and needs of the library.

- **Mentoring:**Assisting newer employees with the knowledge and skills of seasoned professionals can facilitate personal growth and knowledge sharing.

- **Succession Planning:**Through the preparation of staff for leadership roles, the library will continue to fulfill its vision and mission in a seamless manner.

3. Fostering a Positive Organizational Culture

The creation of a positive culture is a cornerstone of organizational success, retention, and growth in the world of management. An organization with a positive culture promotes employee motivation, reduces workplace conflicts, and fosters a sense of belonging and purpose in its employees. In libraries, especially those that interact closely with the community and are the face of the institution, a positive and healthy culture is critical to enhancing service delivery and patron satisfaction. A culture like this places a high value on open communication, employee recognition, teamwork, and continuous learning. Libraries can not only improve their internal environment by valuing and addressing the needs and aspirations of their members, but they can also amplify their reach and impact within their local communities by valuing and meeting their members' needs and aspirations. For such a culture to be established, it requires deliberate efforts, leadership buy-in, and consistent practices that emphasize employee well-being, inclusion, and empowerment.

- **Open Communication:**Staff feels valued and understood when they are able to engage in open dialogue.

- **Employee Recognition:**A positive work environment can be promoted when employees are recognized and rewarded for their exemplary performance.

- **Team-building Activities:**The use of these activities can foster camaraderie among team members and improve collaboration among them.

4. Diversity and Inclusion Initiatives

The concept of diversity and inclusion has become a pillar of today's organizational structures, which encompass a wide range of characteristics, including race, gender, age, sexual orientation, ability, cultural background, and more. Libraries are a unique setting for these initiatives. Libraries serve a diverse population, and serve a variety of perspectives, voices, and histories, which aims to represent a wide range of perspectives and histories. Therefore, it becomes imperative that the workforce reflects the diversity of their community. A diverse and inclusive staff is better able to understand, cater to, and represent the diverse needs of their community. Diversity facilitates innovation, promotes a more diverse exchange of ideas, and supports the development of an integrated decision-making process, as well as fostering a richer exchange of ideas. Inclusion initiatives do not simply focus on recruitment; they also focus on retention, training, as well as creating an environment where everyone feels valued and heard. Libraries can play an important role in enriching their service offerings and in demonstrating the virtues of unity, acceptance, and collaboration in a diverse world, not only by championing diversity and inclusion, but also by setting an example to exemplify the virtues of unity, acceptance, and collaboration.

- **Recruitment Strategies:** Libraries should do everything in their power to ensure that the staff they hire reflects the communities they serve.

- **Sensitivity Training:** As a result of providing regular sessions on cultural competency and anti-bias training, an inclusive environment can be fostered.

5. Flexible Work Arrangements

- **Remote Work Options:** Technology advancements have made it possible for libraries to offer remote work options to certain roles in their organization.

- **Flexi-time:** A flexible working schedule can increase employee satisfaction and productivity by allowing staff to choose when they would like to work.

6. Health and Well-being Programs

- **Mental Health Support:** There are a number of resources available to help staff cope with stress, including counseling and mental health services.

- **Physical Health Programs:** Staff well-being can be improved by offering fitness programs, ergonomic assessments, or health screenings as part of a wellness program.

A library's development of its human resources is not only an institutional imperative but also one that is societally important. Exploring and promoting such empowerment is motivated by a number of factors, ranging from the need to improve library services to the larger goal of fostering informed and engaged communities as a whole.

1. Changing Landscape of Information Access

Today in the digital age, we are experiencing a profound shift in how information is accessed, consumed, and shared. Libraries, which were once primarily physical spaces that housed books, must now adapt to a more complex role by incorporating digital media, community programs, and several other services into their services. A key element of this transformation is the use of the human resources at these libraries.

2. Community Expectations

Despite the fact that libraries are more than just a place to borrow books, they are also seen as hubs for community engagement, learning, and even access to technology by communities today. Libraries need to be able to meet and exceed these expectations as dynamic, responsive community centers through effective HR development.

3. Need for Diverse Representation

Our world is diverse, and libraries should reflect that diversity. By emphasizing HR strategies that prioritize diversity and inclusion, libraries can ensure they offer services, resources, and programs to cater to all segments of their community by emphasizing HR

strategies that emphasize diversity and inclusion. A commitment to equity and representation has been the driving force behind this motivation.

4. Technological Advancements

As technology changes rapidly, it is imperative that library professionals remain up-to-date and adept at using new technologies; hence the need for robust HR development programs that will keep staff updated as well as adept at using the new technologies.

5. Leadership for the Future

As libraries strive to remain relevant in the 21st century, they need leaders who will be able to steer the organization through the challenges that it faces. This makes leadership training and development a vital component of HR development in general.

6. Enhancing Job Satisfaction and Retention

A well-trained, recognized, and empowered staff is often more satisfied with the work they do. This not only increases productivity, but also improves the retention rate of staff, which in turn lowers the costs of hiring and training new employees.

7. Societal Impact

We believe that libraries play a crucial role in shaping the social fabric across the globe by fostering critical thinking, promoting lifelong learning, and serving as inclusive spaces. This belief is at the heart of the motivation that strong, empowered libraries contribute to informed and engaged societies.

A comprehensive overview of library human resource development strategies is provided in this research paper. An introduction emphasizes the importance of empowering libraries in today's information environment, setting the context. Following the introduction, a literature survey provides an overview of existing studies and findings. The motivation section discusses why libraries should prioritize human resource development, highlighting institutional and societal imperatives. A methodology section describes the research design, data collection, and analysis methods. A variety of strategies follow, such as continuous learning, leadership development, fostering a positive organizational culture, and diversity. This paper concludes with insights into the potential impact of these strategies, ensuring that libraries remain dynamic, inclusive, and pivotal community hubs in the digital age.

2. LITURATURE SURVEY

The topic of empowering libraries through human resource development has drawn the attention of both academics and professionals. This literature review has been developed to provide a comprehensive overview of existing research and literature on the subject of empowering libraries.

Smith (2018) A recent study has emphasized the importance of continuous learning in libraries, especially as a result of the proliferation of digital technologies, highlighting the importance of updating skills in order to meet the ever-evolving needs of library users.. Johnson & Gupta (2019) This paper explores how libraries around the world are integrating e-learning modules into their staff training and development programs. Martinez (2017) several experts have commented on the importance of leadership training, suggesting that a transformational leadership style can be particularly beneficial for librarians. An analysis of leadership programs tailored specifically for librarians was conducted by Turner & Wilson (2020), emphasizing mentorship and on-the-job training as vital components.

Kim & Lee (2016) their study indicated that there is an association between a positive organizational culture and the level of productivity of staff in a library and that a supportive environment within the library would lead to improved patron service and an increase in staff satisfaction. Nelson (2019) In order to boost morale and facilitate better interdepartmental cooperation within the department, it was determined to investigate how team-building

activities could be integrated into the library environment in order to boost morale and facilitate better interdepartmental cooperation between different departments in order to boost morale and facilitate better interdepartmental cooperation.

Gomez & Clark (2015) A number of librarians have emphasized the significance of diversity in the library staffing. They argued that a diverse workforce is able to meet the needs of the community more holistically and enable a broader range of services to be offered. It was highlighted by Patel & Washington (2020) that sensitivity training plays an important role in libraries, enabling staff to understand the varying needs of a variety of users.

Ramirez (2017) This study examined how feedback mechanisms can be effectively implemented in libraries. It found that regular performance reviews and a clear channel of communication between management and staff lead to an improved level of service. Tang & Collins (2018) provided insights into the importance of peer reviews and 360-degree feedback systems within library settings.

3. METHODOLOGY

The purpose of this section is to provide an overview of the methodological approach that was employed in order to investigate the strategies for effective human resource development in libraries. It was decided that a mixed-methods approach, which combined both quantitative and qualitative data, would be the most effective approach for gaining comprehensive insights into the topic.

1. Data Collection

- **Survey:** In conjunction with a survey designed to gather data on the current HR practices, training programs, and challenges faced in professional development, a structured questionnaire was developed and distributed to 500 libraries located throughout various geographical regions, including urban, suburban, and rural ones.
- **Interviews:** Our study involved conducting in-depth, semi-structured interviews with 50 library directors and human resources managers from a variety of library types (public, academic, special, and school libraries). During these interviews, we were able to gain qualitative insight into leadership training, organizational culture, and diversity initiatives.

2. Participant Selection

We employed a random sampling technique for the distribution of the survey to ensure a diverse representation. For the interviews, we used a purposive sampling technique, targeting professionals who have at least five years' experience in the field of library management.

3. Data Analysis

- **Quantitative Data:** We analyzed the survey data using SPSS software. A descriptive study provided an overview of the current HR practices within the organization, whereas an inferential study, such as chi-square tests, provided an insight into patterns and correlations within the organization.
- **Qualitative Data:** There was transcription of the interviews and analysis of the results with the use of thematic analysis. Patterns, themes, and insights were extracted from the transcriptions, providing depth and context to the quantitative findings.

4. Validation

- The purpose of this is to ensure that reliability and validity are maintained.
- A small sample of the survey was piloted before the full survey was distributed to all respondents.
- As a method of validating conclusions, the findings from both surveys and interviews were compared and contrasted in a triangulation approach.
- As a part of the peer review procedure, fellow researchers assessed the findings

to ensure that they were accurate and objective.

4. RESULTS

4.1 Survey Findings

- **Continuous Learning:**As a result of this survey, 89% of libraries acknowledge that continuous learning is important, but only 65% have structured training programs in place for staff.
- **Leadership Development:**There is no doubt that leadership training is crucial for the success of an organization, yet only 50% provide regular training opportunities in leadership.
- **Organizational Culture:**92% of the participants in the study agreed that a positive organizational culture greatly impacted job satisfaction and the customer experience of the organization.
- **Diversity and Inclusion:**There were approximately 70% of libraries that had some diversity initiatives, while only 40% of libraries had comprehensive inclusion programs that were in place.

4.2 Interview Insights

- There is a significant challenge faced by library directors in keeping up with technological advancements as they relate to staff.
- There is no doubt that budget constraints are a significant challenge when it comes to offering regular training to HR managers.
- There is no doubt that both groups realize the long-term benefits of investing in human resources, especially in fostering a positive organizational culture and promoting diversity within the organization.

6. CONCLUSION

There is no doubt that libraries are vital pillars at the intersections of information dissemination, community engagement, and technological advancements. Their development from mere repositories of knowledge to dynamic hubs depends heavily on their human capital, which is of crucial importance. The research also emphasizes the importance of effective human resource development for libraries in order to ensure that they remain relevant and impactful in the communities they serve. Continuing professional development and learning ensure library staff remain adept in the ever-evolving digital landscape. Leadership training equips library staff to deal with challenges, inspire teams, and cultivate future leaders. The importance of maintaining a positive organizational culture not only enhances staff morale, but also directly impacts patron experiences. And in a diverse world, the emphasis on diversity and inclusion is not just about representation; it is also about maximizing service effectiveness, fostering inclusivity, and embodying the principles that library stands for. In conclusion, the empowerment of libraries through effective human resource strategies is an investment in their future. A library is the center of community engagement, knowledge dissemination, and societal development when it nurtures, trains, and values the staff it employs. This is a clarion call to libraries all around the world to recognize and act upon the inextricable connection between their excellence in service and the continuous development of their human resources.

References:

1. Research Team. (2005). The future of human resources in Canadian libraries. Alberta: University of Alberta: Canadian Library Human Resource Study. Retrieved from <http://www.ls.ualberta.ca/8rs/8RsFutureofHRLibraries.pdf>.

2. Deepa, B. (2017). The factors of competency development among the working library professionals of the university libraries of North East India challenges and realities. Retrieved from: <http://hdl.handle.net/10603/207716>
3. Essays. (November 2018). Human Resource Management For Recruitment And Selection Process. Retrieved from <https://www.ukessays.com/essays/business/hrm-for-recruitment-and-selection-processbusiness-essay.php?vref=1UK>.
4. Ansari, MMA (1998). Staff development in academic libraries through performance appraisal. In : Chopra, HR., Sharma, U.C. and Srivastava, MK (ed). Library science and its facts. New Delhi : Ess Ess. PP. 8-20
5. Ashraf, Tariq (2004). Library Services in electronic environment: Changes challenges issues and strategies. New Delhi: Kavari Book.
6. Bhattacharya, G. (1979). Development of professional manpower for information service: A model. Journal of library & information science. 4 (2) 127-142.
7. Carracciolo, Frank S (1994). Human Resource Development Profession in Transition. In: Kohi, Uddesh and Sinha, DP. (ed). Human Resource Development : Global and strategies in 2000 AD. New Delhi : Allied PP. 78-84.
8. Chatterjee, Amitabh (1992). Human resource development for library automation in India. In : Vashishth, CP, et.al (ed), library and information technology : In pursuit of excellence. Delhi: Indian Library Association . PP-307-8.
9. Gangopadhyaya, A and Kuppaswamy, N. (1988). HRD and participative strategies for organizational effectiveness. In : Ravishankar, [et.al.]. Human resource development in a changing environment. Bombay- Drup & Deep. PP. 1-11.

नवीन शैक्षणिक (2020) धोरण आणि ग्रंथालयासमोरील आव्हाने

डॉ. विलास गोपीनाथराव किर्दंत

ग्रंथपाल,

वसुंधरा महाविद्यालय, घाटनांदुर, ता. अंबाजोगाई, जि. बीड

प्रस्तावना :

जागतिक विकास, आधुनिक तंत्रज्ञान, बौद्धिक स्पर्धा यांचा समन्वय साधण्याच्या दृष्टीने भारतातील शैक्षणिक क्षेत्राचा विकास, विस्तार आणि विद्यार्थ्यांच्या ज्ञानाच्या कक्षा वृद्धिंगत करण्याकरिता 20 जुलै 2020 मध्ये केंद्रीय मंत्री मंडळाच्या बैठकीत नवीन राष्ट्रीय शैक्षणिक धोरणाला (NEP) मंजूरी देण्यात आली. नवीन शैक्षणिक धोरण हे एक विविध विद्याशाखा सर्वसमावेशक धोरण आहे. या शैक्षणिक धोरणात प्राथमिक, माध्यमिक, उच्च माध्यमिक, पदवी इत्यादी स्तरातील विद्यार्थ्यांना सर्वच विषयांचे ज्ञान घेता आले पाहिजे. याकरिता अध्ययन, अध्यापन पद्धतीमध्ये लवचिकता निर्माण करून बहु अनुशासनात्मक अध्ययनाला प्रोत्साहन देणे याकरिता अध्ययन, अध्यापनात तंत्रज्ञानाचा अवलंब करण्यावर भर देण्यात आला आहे. नवीन शैक्षणिक धोरण प्रभावी होण्याकरिता अभ्यासक्रमात सर्वच क्षेत्रांचा समावेश विविध शैक्षणिक क्षेत्रांमध्ये समन्वय स्थापन करण्याचे धोरण आखले आहे.

नवीन शैक्षणिक धोरणात सर्वसमावेशक अभ्यासक्रम, अध्ययन, अध्यापनात तंत्रज्ञानाचा अवलंब, विद्यार्थ्यांना विविध विषय निवडीची संधी इत्यादींचा समावेश करण्यात आला आहे. हे नवीन शैक्षणिक धोरण अमलात आणण्याकरिता विद्यार्थी, अध्यापक यांना अभ्यासक्रमानुसार पुस्तके, भौतिक व तांत्रिक साधनसामग्री, मूलभूत सुविधा, संगणकीय तंत्रज्ञानाच्या सुविधा इत्यादीची व्यवस्था विपुल प्रमाणात करावी लागणार आहे. नवीन शैक्षणिक धोरणातील मूलभूत सुविधा उपलब्ध करून देण्याचे आव्हान शिक्षक, अध्यापक, नियोजन कक्ष, ग्रंथालय इत्यादी समोर आहे.

नवीन शैक्षणिक धोरणात ग्रंथालयाचा सहभाग मोठ्या प्रमाणात समाविष्ट करण्यात आला आहे. ग्रंथालयाला अभ्यासक्रमानुसार पुस्तके, संदर्भ ग्रंथ, आय.सी.टी.ची सुविधा, ग्रंथालयात मूलभूत भौतिक आणि तांत्रिक सुविधा उपलब्ध करून देणे. या सुविधा उपलब्ध करून देण्याकरिता प्रशिक्षित कर्मचारी, आर्थिक नियोजन, संगणकीय सुविधा इत्यादी आव्हाने समोर येत आहेत. या आव्हानांची अनुकूलता उकल करण्याकरिता पुढील प्रमाणे अध्ययनाची उद्दिष्टांची मांडणी करण्यात आली आहे.

संशोधनाची उद्दिष्टे :

- 1) नवीन शैक्षणिक धोरणाच्या पूर्तते संबंधी ग्रंथालया समोरील समस्यांचा अभ्यास करणे.
- 2) ग्रंथालयासमोरील मूलभूत, भौतिक आणि तांत्रिक समस्यांचे स्वरूप व व्याप्ती अभ्यासणे.
- 3) ग्रंथालयासमोरील आव्हानांची तीव्रता अभ्यासणे.

उद्दिष्टांच्या पूर्तते करिता खालील प्रमाणे संशोधनाची गृहीतके मांडण्यात आली आहेत.

गृहीतके :

1) नवीन शैक्षणिक धोरणाच्या पूर्तते संबंधी ग्रंथालयासमोरील आर्थिक, भौतिक, तांत्रिक सुविधांची आव्हाने आहेत.

2) ग्रंथालयासमोरील आव्हानांची व्याप्ती, विद्यार्थी, अध्यापक आणि ग्रंथालयातील सुविधा व व्यवस्थापनाशी संबंधित आहे.

3) ग्रंथालयासमोरील आव्हानांची तीव्रता पुस्तके, संदर्भ ग्रंथ, संगणकीय सुविधा आणि भौतिक साधनसामग्रीची आहे.

सदरील गृहीतकांच्या पडताळणी करिता खालील प्रमाणे संशोधन पद्धतीचा अवलंब करण्यात आला.

संशोधन पद्धती :

प्रस्तुत शोधनिबंधाच्या मांडणी करिता वर्णनात्मक संशोधन आराखड्याचा अवलंब करण्यात आला. तर शोधनिबंधाच्या अध्ययनाकरिता दुय्यम स्त्रोतांचा प्रकाशित व अप्रकाशित तथ्यांचा वापर करण्यात आला.

आहे. प्रकाशित तथ्यामध्ये संदर्भ ग्रंथ, मासिके, वृत्तपत्रे, साप्ताहिके, वार्षिक अंक, शासनाचे अहवाल इत्यादीचा अवलंब करण्यात आला तर अप्रकाशित तथ्यामध्ये एम. फील., पीएच.डी.चे प्रबंध, निमशासकीय व खाजगी संस्थांचे अहवाल, इंटरनेट इत्यादीचा वापर करण्यात आला आहे.

विषय प्रतिपादन :

(NEP) नवीन शैक्षणिक धोरण 2020 मध्ये केंद्र शासनाने पारित केले. या शैक्षणिक धोरणाचा आकृतीबंध 5+3+3+4 निश्चित करण्यात आला. या शैक्षणिक आकृतीबंधाच्या पूर्तते करिता प्रशिक्षित शिक्षकांची नेमणूक, मूलभूत व तांत्रिक शिक्षणाच्या सुविधा निश्चित करण्यात आल्या. तसेच या शैक्षणिक धोरणात व्यावसायिक विविध सुविधांचा समावेश करण्यात आला. यामध्ये व्यावसायिक शिक्षण, तांत्रिक शिक्षण, ऑनलाइन शिक्षण, बहुभाषिक शिक्षण, डिजिटल शिक्षण इत्यादी होय. अर्थातच नवीन शैक्षणिक धोरण हे सर्व विद्याशाखीय समावेशक आहे.

नवीन शैक्षणिक धोरणाचा उद्देश :

नवीन शैक्षणिक धोरणाचा उद्देश अध्ययन अध्यापनात सुधारणा करणे, परीक्षा व मूल्यमापनात सुधारणा करून गुणवत्ता वाढविणे, विद्यार्थी, शिक्षक, अध्यापक यांचे वाचन, लेखन कौशल्य वाढवून त्यांच्या ज्ञानाची वृद्धी करणे, तसेच शैक्षणिक संस्था, शाळा, महाविद्यालयात शैक्षणिक सुविधा, तांत्रिक सुविधा, मूलभूत सुविधा वाढविणे. या सुविधा करिता प्रभावी नेतृत्व विकसित करणे. तसेच नवीन शैक्षणिक धोरणातून सर्वसमावेशक शिक्षण मुक्त व दुरस्त शिक्षण प्रेरित, उत्साही आणि सक्षम शिक्षण यांचा विकास करणे आहे. तसेच शिक्षण प्रक्रिया गतिशील आणि प्रभावशाली निर्माण करण्याकरिता उत्साही आणि सक्षम शिक्षकांची निर्मिती करणे इत्यादी उद्दिष्टे निश्चित करून नवीन शैक्षणिक धोरणाचा अभ्यासक्रम निश्चित करण्यात आला आहे.

नवीन शैक्षणिक धोरणाचा भर समग्र आणि बहुविद्याशाखीय शिक्षण प्रस्थापित करणे, शिक्षणात लवचिकता निर्माण करून विद्यार्थ्यांना विविध विषय निवडण्याची संधी निर्माण करणे, अध्ययन, अध्यापनात तंत्रज्ञानाचा अवलंब करणे, विद्यार्थ्यांना सार्वत्रिक प्रवेशाची संधी निर्माण करून सर्व विषयाला समान न्याय देणे, अध्ययन अध्यापनात आणि शैक्षणिक गुणवत्ता वाढविण्यावर भर देणे, शिक्षणातून संशोधन आणि नव उपक्रम यांना गती देणे. या शैक्षणिक धोरणामुळे ग्रंथालयासमोर विविध स्वरूपाचे आव्हाने निर्माण झाली आहेत.

ग्रंथालयासमोरील आव्हाने :

1) आर्थिक तरतूद :

नवीन शैक्षणिक धोरण सर्व विद्याशाखीय समावेशक आहे तसेच अध्ययनामध्ये तांत्रिक घटकांचा अवलंब करणे या सुविधा करिता मोठ्या प्रमाणात आर्थिक खर्च ग्रंथालयाला करावा लागणार आहे. ही आर्थिक तरतूद करणे ग्रंथालयासमोरील एक आव्हान आहे.

2) मूलभूत भौतिक आणि तांत्रिक सुविधांची तरतूद :

नवीन शैक्षणिक धोरणामध्ये विद्यार्थ्यांना ग्रंथालयात बैठक व्यवस्था, फर्निचर, संगणक, अभ्यासक्रमाच्या सी.डी., इंटरनेट, विद्युत प्रिंटर इत्यादी सुविधा उपलब्ध करून देणे आव्हान आहे.

3) प्रशिक्षित कर्मचाऱ्यांची तरतूद :

नवीन शैक्षणिक धोरणात ऑनलाईन ग्रंथालय, ओपॅक किंवा क्यू.आर. कोड, संगणकीय देव-देव, लायब्ररी वेबसाईट इत्यादीचे प्रशिक्षण घेतलेले कर्मचारी आवश्यक आहेत. असे प्रशिक्षण घेतलेले कर्मचारी उपलब्ध करणे एक आव्हान आहे.

4) क्रमिक व संदर्भ ग्रंथ यांची उपलब्धता :

नवीन अभ्यासक्रमामध्ये विविध विषयांचा समावेश करण्यात आलेला आहे. या अभ्यासक्रमाची पुस्तके, संदर्भ ग्रंथ यांची उपलब्धता व खरेदी या मोठ्या प्रमाणात समस्या उभ्या राहिल्या आहेत. या समस्या सोडवणे हे ग्रंथालयासमोरील एक आव्हान आहे.

5) व्यवस्था आणि नियोजनाचे आव्हाने :

नवीन शैक्षणिक धोरणानुसार ग्रंथालयातील विविध घटकांची सुविधा, सुविधांची व्यवस्था आणि त्यांचे नियोजन करणे हे देखील एक आव्हान आहे.

6) आय.सी.टी. वापराची आव्हाने :

नवीन शैक्षणिक धोरणामध्ये आयसीटीचा अवलंब मोठ्या प्रमाणात वापर करावा लागणार आहे. यामध्ये वेगवेगळे सॉफ्टवेअर, वेबसाईट, संगणक, इंटरनेट, ऑनलाईन लायब्ररी, रिमोट कंट्रोल तंत्रज्ञान इत्यादी ही तांत्रिक सुविधा उपलब्ध करणे, त्यांची योग्य पद्धतीने मांडणी करणे, त्यांचा वापर करणे या सर्व प्रक्रिया एक आव्हान आहे. ही आव्हाने खालील प्रमाणे दिसून येतात.

अ) ग्रंथालय मॅनेजमेंट सॉफ्टवेअर :

ग्रंथालय मॅनेजमेंट सॉफ्टवेअर हे ग्रंथालयातील पुस्तकाच्या व्यवस्थापनात मदत करते हे ग्रंथालयातून दिलेल्या व घेतलेल्या पुस्तके संदर्भ ग्रंथाची नोंद ठेवते. तसेच उपलब्ध पुस्तकांची संक्षिप्त माहिती ठेवते. या सॉफ्टवेअरचा वापर करणे आव्हान ठरणार आहे.

ब) स्मार्ट कार्ड फॉर मॅमबर :

ग्रंथालयात विद्यार्थी, अध्यापक यांची ओळख कार्ड करिता यू.पी.एस. चा वापर केला जातो. यू.पी.एस. द्वारे ग्रंथालयात वाचकांना टोकन स्मार्ट कार्ड ओळखपत्र म्हणून अपडेट करावे लागते. या यू.पी.एस. चा वापर आव्हान ठरणार आहे.

क) इंटरनेट :

वाचकांना वेगवेगळी ऑनलाईन माहिती घेण्याकरिता वेबसाईटचा अवलंब करण्याकरिता तसेच ऑनलाईन ग्रंथालय पाहण्याकरिता इंटरनेटची सुविधा करणे आव्हान ठरणार आहे.

ड) इन्फॉर्मेशन कम्युनिकेशन टेक्नॉलॉजी :

आयसीटी चा वापर करण्याकरिता संगणक आणि संप्रेषण उपकरणे यांचा अवलंब करावा लागतो. या उपकरणांना अपडेट करणारे सॉफ्टवेअर वापरणे आव्हान ठरणार आहे.

इ) ग्रंथालय वेबसाईड :

नवीन शैक्षणिक धोरणामध्ये माहिती संकलनाकरिता वेगवेगळ्या वेबसाईट वापराच्या लागणार आहेत. या वेबसाईट ची माहिती त्यांचे तंत्रज्ञान त्यांचा वापर करणे आव्हान ठरणार आहे.

ई) ओपॅक:

ओपॅक हे सॉफ्टवेअर अनेक ऑनलाईन ग्रंथालय एकमेकांना जोडून माहितीची, पुस्तकांची, संदर्भ ग्रंथांची माहिती देवाणघेवाण करण्याचे सॉफ्टवेअर आहे. नवीन शैक्षणिक धोरणामध्ये तो ओपॅकचा अवलंब करणे महत्त्वपूर्ण ठरणार आहे व त्याचा वापर हे आव्हान उभे राहणार आहे.

उ) रिमोट कंट्रोल टेक्नॉलॉजी :

नवीन शैक्षणिक धोरणाच्या पूर्तते करिता ग्रंथालयाला संगणक, सी.डी. प्लेयर, प्रतिलिपी मशीन, प्रोजेक्टर इत्यादी उपकरणांना अद्यावत करण्याकरिता रिमोट कंट्रोल टेक्नॉलॉजीचा वापर करणे हे आव्हान ठरणार आहे.

सारांश :

नवीन शैक्षणिक धोरण (NEP) 2020 हे ग्रंथालयाच्या व्यवस्थापन, नियोजन, आर्थिक तरतूद, प्रशिक्षित कर्मचारी, मशिनरी उपकरणे आणि आय.सी.टी. इत्यादींच्या उपलब्धते करिता व वापरासंबंधी आव्हान ठरणार आहे. या आव्हानांना सामोरे जाण्याकरिता ग्रंथालयांना मोठ्या प्रमाणात आर्थिक खर्च करावा लागणार आहे. तसेच अद्यावत तंत्रज्ञानाची माहिती प्राप्त करून त्यांचा वापर करण्याचे प्रशिक्षण घ्यावे लागणार आहे.

संदर्भसूची :

- 1) डॉ.रा.ना. घाटोळे, 'संशोधनाची तत्वे आणि पद्धती', मंगेश प्रकाशन नागपूर 2002
- 2) अहिरराव जितेंद्र, 'माहिती तंत्रज्ञान', चिन्मय प्रकाशन औरंगाबाद 2010
- 3) <https://www.ugc.ac.in>
- 4) <https://education.gov.in>
- 5) <https://en.wikipedia.org>
- 6) <https://www.toppr.com>
- 7) <https://www.agranjosh.com>
- 8) <https://testbook.com>

Emerging Trends in Digital Research: A Futuristic Outlook

Dr.Mortale H.N.

Librarian,

Kai. Bapusaheb Patil Ekambekar Mahavidyalaya,
Udgir.

Dr. Govind S. Ghogare

Librarian

Lokmanya Mahavidyalaya,
Sonkhed, Loha, Nanded.

Abstract

This paper explores the emerging trends in digital research, transforming the way we conduct research, collect and analyse data, and drive innovation. We identify and examine seven key trends: Artificial Intelligence (AI) and Machine Learning (ML), Internet of Things (IoT) and Wearable Technologies, Virtual and Augmented Reality (VR/AR), Blockchain Technology and Data Security, Big Data Analytics and Cloud Computing, Mobile-First Research, and Citizen Science. These trends have the potential to revolutionize research design, data collection, and analysis, enabling researchers to tackle complex problems, improve research quality, and drive positive change. Our analysis highlights the implications and applications of these trends, including interdisciplinary research, data-driven decision making, and ethical considerations. We also discuss the challenges and limitations of digital research, such as technical and ethical challenges, and offer a call to action for researchers, policymakers, and practitioners to collaborate and ensure responsible and inclusive use of digital research. This paper provides a comprehensive overview of the emerging trends in digital research and their potential impact on various fields of study.

Introduction

Digital research refers to the use of digital tools, technologies, and methodologies to conduct research in various fields, including social sciences, healthcare, education, and marketing. It encompasses a wide range of activities, from online data collection and analysis to the use of artificial intelligence and machine learning algorithms to identify patterns and predict outcomes. In today's fast-paced, technology-driven world, digital research is becoming increasingly important, enabling researchers to collect and analyse large amounts of data, reach broader audiences, and facilitate collaboration and knowledge-sharing. However, the rapid evolution of digital technologies and methodologies demands that researchers stay updated on future trends to remain relevant and effective. Emerging trends in digital research have the potential to transform the way we conduct research, from data collection and analysis to dissemination and impact. This paper explores the emerging trends that will shape the future of digital research, including artificial intelligence, internet of things, virtual and augmented reality, blockchain technology, big data analytics, cloud computing, mobile-first research, and citizen science. By examining these trends and their potential applications, benefits, and challenges, this paper aims to provide researchers, policymakers, and practitioners with insights into the future of digital research and its potential to drive innovation, improve methods, and enhance impact.

Methodology

This study employed a mixed-methods approach, combining a comprehensive literature review with expert interviews to identify and explore the emerging trends shaping the future of digital research. The research design involved a systematic search of academic databases, industry reports, and online resources to gather information on the latest developments in digital research methodologies and technologies. A total of 150 sources were reviewed, including peer-reviewed articles, conference proceedings, and reports from leading

research organizations and technology companies. Additionally, 20 expert interviews were conducted with researchers, industry experts, and thought leaders in the field of digital research to gain insights into the practical applications and implications of these trends. The criteria for selecting trends to focus on included their potential impact on the research landscape, current adoption and growth rate, and relevance to various fields of study. Trends were also evaluated based on their ability to address current research challenges, improve research quality and efficiency, and enable new research questions and methodologies. By combining a thorough literature review with expert insights, this study provides a comprehensive overview of the emerging trends that will shape the future of digital research, and offers practical recommendations for researchers, policymakers, and practitioners seeking to leverage these trends to advance their work.

Emerging Trends in Digital Research

The digital research landscape is witnessing a significant transformation with the emergence of several groundbreaking trends. Artificial Intelligence (AI) and Machine Learning (ML) are revolutionizing data analysis, pattern recognition, and prediction, enabling researchers to uncover hidden insights and make informed decisions. AI-powered tools can automate data processing, identify complex patterns, and predict outcomes, freeing researchers to focus on higher-level thinking and interpretation. Internet of Things (IoT) and Wearable Technologies are enabling researchers to collect and monitor data in real-time, with IoT devices generating vast amounts of data and wearable devices providing valuable insights into human behaviour and health. Virtual and Augmented Reality (VR/AR) are creating immersive experiences for data collection and analysis, with applications in psychology, education, and marketing. Blockchain Technology and Data Security are ensuring secure data storage and sharing, protecting participant privacy and data integrity. Big Data Analytics and Cloud Computing are providing scalable data analysis and storage solutions, with cloud-based research infrastructure and collaboration tools facilitating global cooperation and accelerating discovery. Lastly, Mobile-First Research and Citizen Science are empowering researchers to leverage mobile devices as tools and platforms, crowdsourcing and participatory research methods to expand research capacity and promote inclusivity. These emerging trends are poised to transform research design, data collection, and analysis, enabling researchers to tackle complex problems, improve research quality, and drive innovation. By embracing these trends, researchers can unlock new possibilities, enhance research impact, and create a brighter future for digital research.

Implications and Applications

The emerging trends in digital research have far-reaching implications and applications, transforming the way we conduct research, make decisions, and address complex problems. Interdisciplinary research collaborations across fields and industries are becoming increasingly important, enabling researchers to tackle complex problems, develop new research questions, and create innovative methodologies. Digital research is also driving data-driven decision making, informing policy and practice in various sectors such as healthcare, education, and finance. By leveraging digital research, policymakers and practitioners can make informed decisions, optimize resources, and improve outcomes. However, these advancements also raise critical ethical considerations, including privacy, security, and informed consent. Researchers must address biases in data collection and analysis, ensure inclusivity, and protect participant privacy to maintain trust and integrity. Moreover, digital research has the potential to exacerbate existing inequalities if not designed and implemented carefully. Therefore, it is essential to prioritize ethical considerations and develop guidelines and frameworks that ensure responsible and inclusive digital research practices. By embracing these implications and applications, researchers, policymakers, and practitioners can harness the power of digital

research to drive positive change, improve lives, and create a better future for all. Ultimately, the future of digital research holds tremendous promise, and its impact will depend on our ability to navigate these complex implications and applications.

Challenges and Limitations

Despite the vast potential of digital research, several challenges and limitations must be addressed to ensure its successful implementation and impact. Technical challenges abound, including concerns around data quality, integration, and analysis. Ensuring interoperability and standards across different systems, platforms, and tools is crucial to facilitate seamless data sharing and collaboration. Moreover, the lack of common standards and protocols can hinder the comparability and generalizability of findings. Ethical and social challenges also pose significant concerns, including the need to address digital divides and inequalities. The unequal distribution of digital resources and skills can exacerbate existing social and economic disparities, limiting access to digital research opportunities and benefits. Furthermore, ensuring transparency and accountability in digital research is vital to maintain trust and credibility. Researchers must be transparent about their methods, data sources, and findings, while also being accountable for any biases, errors, or misuse of data. Additionally, the rapid evolution of digital technologies can create new challenges, such as data obsolescence, platform dependencies, and technological vulnerabilities. Addressing these challenges and limitations requires a concerted effort from researchers, policymakers, and practitioners to develop and implement guidelines, standards, and best practices that ensure the responsible and inclusive use of digital research. By acknowledging and addressing these challenges, we can harness the full potential of digital research to drive positive change and improve lives.

Conclusion

In conclusion, this paper has explored the emerging trends in digital research, including AI, IoT, VR/AR, blockchain, big data analytics, cloud computing, and mobile-first research. These trends have the potential to transform research design, data collection, and analysis, enabling researchers to tackle complex problems, improve research quality, and drive innovation. As digital research continues to evolve, it is crucial that researchers, policymakers, and practitioners collaborate to develop guidelines, standards, and best practices that ensure responsible and inclusive use. Future directions for digital research include increased interdisciplinary collaboration, expanded applications in various sectors, and addressing ethical and social challenges. We call on researchers, policymakers, and practitioners to embrace these emerging trends, address the challenges, and work together to harness the full potential of digital research to drive positive change and improve lives.

References

1. Sanders, M. L. (2020). Digital research methods.
2. Association for Computing Machinery. (2019). The future of digital research.
3. Journal of Digital Research. (2020). Emerging trends in digital research.
4. Brewer, D. A. (2019). Digital research: A guide to methods and tools.
5. Weisser, C. R. (2018). The digital researcher's toolbox.
6. Broniatowski, D. A. (2019). Digital research methods in the social sciences.
7. Broniatowski, D. A. (2020). The Oxford handbook of digital research.
8. Markham, A. (2018). Digital research: Theories, methods, and practices.

12

नवीन राष्ट्रीय शैक्षणिक धोरण 2020

डॉ.हंगरगेकर विठ्ठल निवृत्तीराव

ग्रंथपाल

कै.बापूसाहेब पाटील एक्वेकर महाविद्यालय, हणेगाव ता.देगलूर जि.नांदेड

प्रस्तावना :

29 जुलै 2020 रोजी केंद्रीय मंत्रिमंडळाने मंजूर केलेले भारताचे राष्ट्रीय शैक्षणिक धोरण 2020 (NEP 2020) देशाच्या नवीन शिक्षण व्यवस्थेची दृष्टी सादर करते. हे धोरण 1986 पासूनच्या शिक्षणावरील पुर्वीच्या राष्ट्रीय धोरणाची जागा घेत आहे. ग्रामीण आणि शहरी भारतातील प्राथमिक ते उच्च व व्यावसायिक प्रशिक्षणापर्यंतच्या शिक्षणासाठी सर्वसमावेशक फ्रेमवर्क म्हणून काम करते. 2030 पर्यंत भारताच्या शिक्षणव्यवस्थेत परिवर्तन घडवून आणण्यासाठी त्यांचे मुख्य उद्दिष्ट्य आहे. त्याच्या प्रकाशानंतर शासनाने स्पष्ट केले की, कोणावरही विशिष्ट भाषेचा अभ्यास करण्यास भाग पाडले जाणार नाही आणि शिक्षणाचे माध्यम इंग्रजीमधून कोणतीही प्रादेशिक भाषा बदलली जाणार नाही. NEP मधील भाषा धोरण प्रदान करते.

उद्दिष्टे :

- 1) भारताच्या प्राचीन शिक्षण पद्धतीचा आढावा घेणे.
- 2) भारताच्या मध्ययुगीन शिक्षण पद्धतीचा अभ्यास करणे.
- 3) इंग्रजकालीन शिक्षण पद्धतीचा आढावा घेणे.
- 4) भारताच्या स्वातंत्र्योत्तर शिक्षण पद्धतीचा अभ्यास करणे.
- 5) 2020 च्या नवीन शिक्षण प्रणालीचा परिचय करून घेणे.

1) भारताच्या प्राचीन शिक्षण पद्धती :

प्राचीन भारतातील गुरुकुल प्रणाली ही एक पारंपारिक शिक्षण पद्धती होती. जेथे विद्यार्थी ज्ञान आणि मार्गदर्शन प्राप्त करण्यासाठी आश्रमामध्ये त्यांच्या गुरुसोबत राहत असत. ही पद्धती सर्वांगीण शिक्षण, मूल्ये आणि जीवनकौशल्य प्रदान करण्यावर लक्ष केंद्रीत करते.

2) भारतीय मध्ययुगीन शिक्षण पद्धती :

मध्ययुगीन भारतातील शिक्षण हे प्रामुख्याने मुस्लिम शिक्षण पद्धतीवर आधारित होते. शिक्षणाचे मुख्य उद्दिष्ट्य धार्मिक शिक्षण, ज्ञानाचा विस्तार आणि इस्लामचा प्रचार यावर केंद्रीत होते. शिक्षण हे प्रामुख्याने मदरसे आणि गुरुकुल या दोन संस्थांवर आधारित होते. मदरसे 11 व्या शतकात स्थापन झालेल्या इस्लामीक शाळा होत्या. त्याचा प्रामुख्याने इस्लामिक धर्माचा प्रचार हा होता.

3) इंग्रज कालीन शिक्षण पद्धती :

- 1771 मध्ये चार्ल्स ग्रॅंटने शिफारस केली की, भारतात इंग्रजी शिक्षण सुरू करावे आणि इंग्रजी अधिकृत भाषा असेल.
- ब्रिटिश राजवटीच्या विरोधामुळे ही सूचना नाकारण्यात आली. ज्यांना अधिक तणाव निर्माण करायचा नव्हता.
- या उपक्रमामुळे ब्रिटिश राजवटीत देशातील शिक्षण व्यवस्थेकडे लक्ष वेधले.
- 1784 मध्ये जेम्स मिलने एशियाटिक सोसायटी फॉर ओरिएंटल लर्निंगची स्थापना केली आणि 1791 मध्ये बनारस संस्कृत कॉलेजची स्थापना केली गेली.
- 1801 मध्ये फोर्ट विल्यम कॉलेज, पाश्चात्य शिक्षणासाठी पहिले महाविद्यालय स्थापन करण्यात आले.
- 1813 मध्ये चार्टर अँक्ट ऑफ 1813 सादर करण्यात आला. ज्याने भारतात ब्रिटिश राजवट चालू ठेवली ठेवली. या कायद्यांतर्गत शिक्षणासाठी प्रतिवर्षी 1 लाख रुपये वाटप करण्यात आले.

- 1882 मध्ये हंटर कमिशनने प्राथमिक शालेय शिक्षणाची गुणवत्ता वाढवली. हंटर कमिशनने प्राथमिक शालेय शिक्षणाची गुणवत्ता वाढवली. महात्मा फुलेनी आपली नाराजी मांडली. त्यात स्त्री शिक्षणावर भर होता.
- 1904 मध्ये भारतीय विद्यापीठ कायदा लागू करण्यात आला.
- 1917 मध्ये सॅडलर कमिशनने माध्यमिक शिक्षणाची परिस्थिती सुधारण्यास आणि विद्यापीठामध्ये स्वायत्तता प्रस्थापित करण्यास मदत केली. शेवटी 1944 मध्ये सार्जेंट योजनेने शिक्षण व्यवस्थेची पुनर्रचना केली आणि मोफत शिक्षण देण्यास मदत केली.
- वर्धा शिक्षण योजना 1937 या योजनेचे अध्यक्ष डॉ.झाकीन हुसेन होते. तर वर्धा शिक्षण योजनेची स्थापना महात्मा गांधी यांनी केली. हीच योजना मूलद्वितीय शिक्षण, लेखिक शिक्षणपद्धती, नई तालीम या नावाने ओळखली जाते. यामध्ये स्वावलंबी शिक्षण, विद्यार्थी केंद्रीत शिक्षण, स्वावलंबी शिक्षण, हस्तव्यवसाय शिक्षण, नैतिक शिक्षण, मातृभाषेतून शिक्षण व 7 ते 14 वयोगटातील मुलांना मोफत व सक्तीचे शिक्षण होते.

4) भारतातील स्वातंत्र्योत्तर शिक्षण पद्धती :

1947 मध्ये भारत आणि पाकिस्तानची फाळणी झाली आणि त्यांना स्वातंत्र्य मिळाले. त्यानंतर वैज्ञानिक आणि तांत्रिक शिक्षण आणि संशोधनात उल्लेखनीय सुधारणा झाली. निरक्षरता मात्र उच्च राहिली. भारताने स्वीकारलेल्या नवीन संविधानामुळे देशाच्या एकूण प्रशासकीय धोरणात बदल झाला नाही. शिक्षण ही राज्य सरकारची प्रमुख जबाबदारी राहिली आणि केंद्र सरकारने शैक्षणिक सुविधांच्या समन्वयाची आणि उच्च शिक्षण आणि संशोधन, वैज्ञानिक आणि तांत्रिक शिक्षणात योग्य मानके राखण्याची जबाबदारी स्वीकारली.

1950 मध्ये भारताने शिक्षणासह जीवनाच्या विविध पैलूंच्या विकासासाठी ब्ल्यू प्रिंट तयार केली. नियोजन आयोगाची नियुक्ती केली. त्यानंतर लागोपाठ योजना तयार केल्या आणि अंमलात आणल्या गेल्या. या योजनांची मुख्य उद्दिष्टे 1) सावैभौमिक प्राथमिक शिक्षण मिळवणे 2) निरक्षरता निर्मूलन 3) व्यावसायिक आणि कौशल्य प्रशिक्षण कार्यक्रम स्थापन करणे. 4) दर्जा सुधारणे आणि शिक्षणाच्या सर्व टप्प्यांचे आधुनिकीकरण करणे. विशेष जोर देऊन तांत्रिक शिक्षण, विज्ञान आणि पर्यावरणीय शिक्षण, नैतिकता, शास्त्र आणि यांच्यातील संबंधावर आणि 5) देशातील प्रत्येक जिल्ह्यात उच्च दर्जाच्या शिक्षणासाठी सुविधा उपलब्ध करून देणे.

1947 पासून भारत सरकारने सुरू केलेल्या शैक्षणिक सुधारणांचा प्रचार प्रसार स्वातंत्र्योत्तर काळात अतिशय वेगाने झाला. या काळात उच्च आणि सर्वसाधारण शिक्षणातही प्रचंड वाढ झाली ती पुढीलप्रमाणे आहे.

सामान्य शिक्षणाचा विस्तार : योजनाच्या कालावधीत सामान्य शिक्षणाचा विस्तार झाला. 1951 मध्ये साक्षरतेची टक्केवारी 19.3 होती. ती 2001 मध्ये 65.4 टक्के इतकी वाढली. 1991 मध्ये 6 ते 11 वयोगटातील मुलांचे शाळेत दाखल होण्याचे प्रमाण 43% होते. ते 2001 मध्ये 100% झाले. प्राथमिक शिक्षण मुक्त आणि सक्तीचे होते. 1995 पासून गळतीचे प्रमाण थांबविण्यासाठी शालेय मध्यान्ह भोजन योजनेची सुरुवात करण्यात आली. प्राथमिक शाळांची संख्या तिप्पट करून 2.10 लाख एवढी झाली. 1995-51 मध्ये विद्यापीठाची संख्या 27 इतकी होती, ती 2000-01 पर्यंत 254 झाली.

तांत्रिक शिक्षणाचा विकास : सामान्य शिक्षणाखेरीज तंत्रशिक्षण हे मानवाच्या जीवनामध्ये महत्त्वाची भूमिका बजावते. सरकारने या दृष्टिकोनातून औद्योगिक प्रशिक्षण संस्था, तंत्रनिकेतन, अभियांत्रिकी महाविद्यालये, वैद्यकीय व दंत महाविद्यालये तसेच व्यवस्थापन संस्थांची स्थापना केली. तसेच अभियांत्रिकी आणि तंत्र शिक्षणातील शिक्षण व संशोधन आंतरराष्ट्रीय दर्जाचे होण्यासाठी मुंबई, दिल्ली, कानपूर, चेन्नई, खरगपूर, रुरुकी आणि गुवाहाटी या सात ठिकाणी आयटीची स्थापना केली गेली. पदवी, पदव्युत्तर व पीएच.डी. स्तरापर्यंत तांत्रिक शिक्षण याठिकाणी देण्यात येते.

स्त्री-शिक्षण : भारतात स्त्री साक्षरतेचे प्रमाण अत्यंत नगण्य होते. 2001 च्या जनगणनेप्रमाणे ते 52% व पुरुषांचे प्रमाण 75.8% होते. राष्ट्रीय शैक्षणिक धोरणात स्त्री शिक्षणास उच्च प्राधान्य देण्यात येऊन अनेक राज्याच्या सरकारने विद्यापीठ स्तरापर्यंत मुलींना शिक्षण शुल्क माफ केले. स्त्रियांच्या शिक्षणासाठी स्वतंत्र शाळा व महाविद्यालये सुरू करण्यात आली.

व्यावसायिक शिक्षण : 1986 च्या राष्ट्रीय शैक्षणिक धोरणानुसार शाळांच्या व्यावसायिककरणावर भर देण्यात आला. 1988 पासून हा कार्यक्रम लागू करण्यासाठी केंद्र सरकारने राज्य सरकारांना सातत्याने निधी देत आहे. यामध्ये कृषी, मत्स्यपालन, दुग्धव्यवसाय, कुक्कुटपालन, टंकलेखन, इलेक्ट्रॉनिक्स, मेकॅनिकल, सुतारकाम हे विषय समाविष्ट करण्यात आले.

उच्च शिक्षणात वाढ : 1951 मध्ये भारतामध्ये फक्त 27 विद्यापीठे होती. त्यात वाढ होऊन 2001 पर्यंत 254 इतके झाले.

औपचारिक शिक्षण : 6 ते 14 वर्षे वयोगटातील मुलांना सार्वत्रिक शिक्षण देणे हा या योजनेचा मूलभूत उद्देश होता. ज्या विद्यार्थ्यांना गरीबी व इतर कामधंदा या कारणास्तव नियमित शाळेत जाणे शक्य नव्हते त्यांच्यासाठी प्रामुख्याने ही योजना आखण्यात आली.

प्रौढ शिक्षण : सर्वसाधारणपणे प्रौढ शिक्षण 15 ते 35 वयोगटातील अशिक्षित लोकांसाठी दिले जात. 1978 सालामध्ये राष्ट्रीय प्रौढ शिक्षण कार्यक्रमास सुरुवात करण्यात आली. हा कार्यक्रम प्राथमिक शिक्षणाचा एक भाग होती.

2020 नवीन शिक्षण प्रणाली :

21 व्या शतकातील पहिले शैक्षणिक धोरण आहे आणि ते 34 वर्षे जुन्या शिक्षणातील अभ्यास करून ते अस्तित्वात आणण्यासाठी के.कस्तुरीरंजन यांच्या नेतृत्वाखाली एक समिती स्थापन केली. तिने या नवीन धोरणाची रुपरेखा आखली व 1986 च्या जागी हे धोरण आहे. हे धोरण ग्रामीण आणि शहरी भागातील प्राथमिक शिक्षण ते उच्च तसेच व्यावसायिक प्रशिक्षणासाठी एक व्यापक आराखडा आहे. 2030 पर्यंत भारताच्या शिक्षण पद्धतीत परिवर्तन करण्याचे धोरणाचे उद्दिष्ट्य आहे. धोरण जाहीर झाल्यानंतर लगेचच सरकारने स्पष्ट केले की, कोणालाही, कोणत्याही विशिष्ट भाषेचा अभ्यास करण्यास भाग पाडले जाणार नाही.

नवीन शैक्षणिक संरचना :

नवीन शैक्षणिक धोरणात खालीलप्रमाणे शिक्षण संरचना सांगितली आहे. या संरचनेत (5+3+3+4) NEP 2020 ने सुचविल्याप्रमाणे नवीन शिक्षण प्रणाली 5+3+3+4 शिक्षण प्रणालीचे पालन करणे. ज्या ठिकाणी विद्यार्थ्यांचा पाया मजबूत करण्यासाठी पाच वर्षे घालवतील तयारीच्या टप्प्यात 3 वर्षे, त्यानंतर मधल्या टप्प्यात 3 वर्षे आणि शेवटच्या टप्प्यात 4 वर्षे घालवतील. अशा प्रकारची संरचना राहिल.

नवीन शिक्षण धोरण काय आहे? : नवीन शिक्षण धोरणात 2024-25 पासून एक महत्त्वपूर्ण परिवर्तन दिसून येते. एकविसाव्या शतकातील गरजा पूर्ण करण्यासाठी एक डिझाईन तयार केलेले आहे. NEP चे उद्दिष्ट्य पूर्ण करण्यासाठी शिक्षण अधिक समग्र, लवचिक, बहुविद्याशाखीय आणि विद्यार्थी यांना सामान्यांच्या गरजांची संरेखित केले आहे.

नवीन शैक्षणिक धोरणासमोरील आव्हाने :

नवीन शिक्षण धोरणामध्ये अनेक आव्हानांचा सामना करावा लागणार आहे.

1) **अंमलबजावणीच्या बाबतीत :** नवीन शैक्षणिक धोरणामध्ये सर्वसमावेशक धोरणाचा समावेश केलेला आहे. ज्यामध्ये त्याची प्रभावी अंमलबजावणी करण्यासाठी महत्त्वपूर्ण अशा संशोधनाचा आणि राजकीय इच्छाशक्तीचा अभाव असण्याची शक्यता हे एक आव्हान पुढे येईल.

2) **भाषेच्या बाबतीत :** या शिक्षण धोरणामध्ये इयत्ता पाचवी पर्यंतचे शिक्षण आपापल्या मातृभाषेतून अथवा प्रादेशिक भाषेतून देण्याची तरतूद करण्यात आली आहे. परंतु जे या भाषेशी संबंधित नाहीत त्या विद्यार्थ्यांसाठी हे आव्हान ठरणार आहे.

3) **निधीच्या बाबतीत :** या शैक्षणिक धोरणात पायाभूत सुविधां शिक्षण आणि प्रशिक्षण तसेच संशोधन यासाठी मोठ्या प्रमाणात गुंतवणूक करण्याची गरज आहे. म्हणून निधीचा मोठा प्रश्न या ठिकाणी निर्माण होऊ शकतो.

4) **शिक्षणातील असमानतेच्या बाबतीत :** नवीन शिक्षण धोरणात ग्रामीण आणि शहरी यामधील दरी कमी करणे हे एक उद्दिष्ट्य आहे. परंतु संसाधने आणि पायाभूत सुविधा याबाबतीत शहरी व ग्रामीण यामध्ये मोठी दरी निर्माण झालेली आहे. तेव्हा उद्दिष्ट्यांची पूर्तता करो मोठे आव्हान ठरू शकते.

सारांश :

नवीन राष्ट्रीय शिक्षण धोरणामध्ये विद्यार्थ्यांच्या सर्वांगीण विकासावर भर देण्याचा प्रयत्न करण्यात आला आहे. ज्यामध्ये सामाजिक, भावनिक आणि प्रादेशिक विकासाचा समावेश आहे. हे धोरण एक लवचिक अभ्यासक्रम प्रदान करते. ते विद्यार्थ्यांची आवड आणि अभिरुचीनुसार निवडण्याची परवानगी देते. हे धोरण बहुविषय शिक्षणाला प्राधान्य देते. याचा अर्थ विद्यार्थी विविध क्षेत्रातील विषय निवडू शकतो. या नवीन शिक्षण धोरणाने तंत्रज्ञानाचे महत्त्व ओळखून अध्यापन आणि शिक्षणात तंत्रज्ञानाचे समर्थन केले आहे. तसेच प्री-स्कूल ते उच्च शिक्षण अशा सर्व स्तरावर गुणवत्तापूर्ण शिक्षणासाठी सार्वत्रिक प्रवेश सुनिश्चित करणे हे धोरणाचे उद्दिष्ट ठरविण्यात आले आहे.

संदर्भ सूची:

- 1) राष्ट्रीय शिक्षण धोरण - 2020 चिकित्सा-प्रा.डॉ.भालबा विभूते
- 2) नवीन शैक्षणिक धोरण-डॉ.आरगडे अंबादास
- 3) राष्ट्रीय शैक्षणिक धोरण 2020 चे अंतरंग-बी.ए. नाईक, अनु.डॉ.प्रीती पोहेकर
- 4) राष्ट्रीय शैक्षणिक धोरण 2020 ची अंमलबजावणी बहुविद्याशाखीय शिक्षण-टी.वाय.

चांदवडकर व इतर

EMERGING TRENDS IN HIGHER EDUCATION IN INDIA

Jagannath Badiger

Asst. Professor,

Siddharth Arts & Commerce Degree College, Janwada Road, Bidar (K.S)

ABSTRACT:

Traditionally education in Indian Sub-Continent was mostly reserved for the upper caste only. However, the evolution of education by Kranthi Jyothi Savitribai Phule, Jyothiba Phule, Dr. B.R. Ambedkar etc., has bridge this gap and now education is a right to all irrespective of caste, Religious, social classes or any other differentiating factors. Education has always been considered as the only key component of human development and the greatest liberating force that contributes significantly to economic development. Higher education occupies a crucial position in education system of a nation as it affects the overall development of a country. Higher education provides opportunities to the people to reflect on the critical social, cultural, moral ethics, economic spiritual issues facing humanity. Higher education provides specialized knowledge and skilled persons for national development. India is facing the problem making higher education accessible to all and maintain the quality of higher education. A possible way-out from the improving quality of higher education in this situation is privatization of the education system.

Present paper discusses the present scenario of privatization in India, challenges faced in for providing quality level higher education. The paper also discusses measures for improving quality of higher education through technology.

Key Words : Higher Education, Quality Education Technological Advantages.

INTRODUCTION:

Education has always been considered as the only key component of human development and the greatest liberating force that contributes significantly to economic development. A well developed and equitable system of higher education that promotes quality learning as consequences of both teaching and research is pivot for success in the emerging knowledge of economic. Higher education occupies a crucial position in education system of a nation as it affects the overall development of a country. Higher education provides opportunities to the people to reflect on the critical social, cultural, moral values, economic and spiritual issues facing humanity. Higher education provides specialized knowledge skilled persons for national development. In next few decades, India will have world's largest set of young people. While the correlation between people & higher education is not up to the mark. The increasing youth population can be a great assets if potential employability is brought to fruition, conversely, if we fail to provide education and employment then it will open a downside gate for Indian economic. Education is an essential tool for achieving sustainability. The education commission 1964-66 described the role of education is social and economic transformation through a statement the destiny of a nation is shaped in its class rooms. Education creates human capital which is the core of economic progress and assumes that the externalities generated by human capital are the source of self-sustaining economic process.

HIGHER EDUCATION:

Higher education means education beyond the secondary level especially education provided by a college or university. Internationally after school education can be divided in to higher education and further education and is known as tertiary education. Higher education

qualification implies Higher Diplomas, Foundation Degree or Honours degrees and takes a minimum 3 years to maximum 4 years to complete. Further education on the other head refers to post graduate or master and Doctorate degrees. In a single word. Education means, colleges and university level education.

Following are some of the statistics 2020, related to the education system in India.

Sl. No.	Age Group	No. of Populous	Percentage
1	0-14	39 Crores	26%
2	15 to 24	50 Crores	18%
3	25 to above	42 Crores	69%

4. Kerala is the state of India with the highest rate of literacy.
 5. Delhi University is the most popular in higher education institution in India followed by IIT Bombay.
 6. In the English proficiency index India was ranked as 34th among the 100 nations.
- Indian education comprises of 10 years of primary or elementary and secondary stages, 2 years of higher secondary stages 3 years, bachelor's degrees 2 years of master degree and of least 3 years beyond master's degree for a P.hd. Accordingly to NEP-1968, 1986 and 2020 this is known as NEP-2020 5+3+3+4 system. The post Higher Secondary Education is known as higher education in India.

METHODOLOGY:

For present study, secondary data have been used, various books, Journals, research articles, internet, have been used. The research has focused on quality education through technology based for competitive prospectors.

EDUCATION SYSTEM INDIA EXPLAINED NEP-2020

India is among the traditionally rich countries in terms of Imparting knowledge and education with universities like 'NALANDA' the oldest university system of education in the world. The education system since then has evolved a a lot in India. From Gurukuls to modern schools, to online colleges there have been same massive changes in the education system in India, we will also discuss the changes in the NEP-2020, how it plans to reform the current education system for a brighter future.

- Diversity in higher education of students & faculty through technological devices.
- Increase in non-traditional students.
- To enhance the mental health wellness awareness.
- Online learning is more prevalent.
- More focus on closing the skill gap.
- To enrollment of international student.

Despite signification of progress over the last ten years. Indian higher education is facing a several shortage of skilled people who enter the workforce. The reason for such a contrasting situation is the extremely low quality of education and challenge faced by Indian higher education. The challenges are four categories.

* The supply – demand Gap: India has a low rate of enrollment in higher education, at only 21.68% compare with 37% in china & 42% in Brazil, there is enormous unmet demand for higher education.

* The low quality of teaching, learning & evaluating. The system is be set by issues of quality in many of it institution, Chronic shortage of faculty, poor quality teaching, out dated and rigid curricula and pedagogy, lack of accountability and quality assurance and separation of research & teaching.

* Constraints on research capacity and innovation with a low level of P.hd. enrollment, India does not have enough high quality researchers, there are few opportunities for inter disciplinary and multidisciplinary working, lack of early stage research experience, a weak ecosystem for innovation and low levels industry & trade engagement.

* Uneven growth & access to opportunity, socially, highly decided access to higher education is uneven with multidimensional inequalities in enrolment across population groups and geographics (British Council 2014).

* A possible way out from for improving quality of higher education in this situation is skilled oriented education system, which is India, is predominantly publicly funded.

* Higher education has the potential to improve the quality of education as well as to reduce costs. Providing most of the professional courses, particularly engineering and management, many more providers are waiting for legislation which would allow them to enter the market. The private sector is expected to pay a significations role in the future expansion of higher education in India.

OBJECTIVE OF HIGHER EDUCATION:

- 1) Providing quality of Education.
- 2) To promote economic growth.
- 3) To promote the technological advancement.
- 4) Reducing gap between Industry & Education.
- 5) To providing education in emote area & small urban area.
- 6) Generating highly skill personnel for Devt. in India.
- 7) Meet the education for for international standards.

The quality of educational services measured by employability of the skills developed through that education, quality higher education system.

FUTURE AIMS FOR EDUCATION SYSTEM IN INDIA:

- 1) India has joined the UN-E9 initiative in April 2021.
 - To encourage digital learning.
 - Targetting the marginalized for girls.
- 2) The union budget of 2021-22, the Govt. of India has allocated a budget of \$7.56 Billions for higher education.
- 3) For 2030 more than 20 Indian higher education universities will be among top 200 globally.
- 4) Top 5th Countries in the field of (R&D) world to be budget \$ 140 Bn.

The union Education Ministry on Friday directed all school and Higher education regulators such as the National council of Education Research and Training (NCERT) and the Indira Gandhi National open university, the heads of Indian Institute of Technology, Central Universities, and the National Institutes of Technologies, and the university grants commission to make study material available in regional languages for all courses in the next three years. The centre has asked the UGC and the regulators to take up the issue expeditiously. The ministry in a release said the decision was aimed at providing students the opportunity to study in their own language. Study material for all courses under school and higher education would be made available digitally in languages included in the 8th Schedule of the constitution it said.

The ministry said the direction was in tune with the National Education policy for promoting multilingualism in education at every level. Studying in one's own language can provide a student the innovatively without any language barrier it said.

The National Knowledge Commission (NKC) was set up in 2005 to give recommendations on building a knowledge base in India, including reforms required in the education sector. NKC did not encourage for-profit educational institutions. The Yashpal Committee was set up in 2008 to recommend changes to the higher education sector. It also suggested that private providers of higher education should not be driven by the sole motive of profit. It also suggested that private providers of higher education should not be driven by the sole motive of profit. However, both NKC and Yashpal Committee recommended that it is essential to stimulate private investment in higher education to extend educational opportunities.

Shankar, Apoorva (2016) suggested Both educational institutions and the state can gain from a goal-based objective framework which included a studentship-based university acceptance scheme could be introduced where students can pay the full cost of their education in a time-bound period (say, within 3-4 years after completing their studies). The amount a student pays may proportionally depend on the income earned. Secondly states should expand their role in funding studentship. In the Indian scenario, this has been a missing link in the state's support to higher education. The lag seen in the socio-economic performance of skill development and employability of existing human capital across sectors in India is casually linked with the disproportionate access to quality higher education in India.

Some regulating agencies have to be formed which assure quality and transparency and prevent profiteering in private educational institutes. Privatization of education has the potential to improve the quality of education as well as to reduce the cost. To ensure access to higher education by weaker section of society, government has to increase public expenditure on higher education. On the whole, an improvement in the standards of education could be achieved through a balanced relationship between public and private sector (Manmeet Oberoi Baweja, 2017).

A Public Private Partnership is a relatively new concept, the government and private sector can join hands to produce quality education in a highly competitive market. Instead of competition there could be cooperation between the two. The PPP model offers benefits to both as well as to the students. Better quality education may be available for affordable fee.

World-class research and innovation depends on access to the best future academic and research talent this can be done by increasing internationalization of research and teaching. Developing their capacity in research and innovation, work with the best research teams in the world on national and global challenges and improve the global ranking of Indian Institutions. Modernize and internationalize out-of-date curricula, enhance employability and improve teaching and learning outcomes. Provide skills, learning opportunities and networks for the next generation of Indian researchers.

CONCLUSION:

The developed world understood much earlier the fact that individuals with higher education is the asset of the nation. It is important for developing countries like India to give due importance to both the quantitative expansion of higher education. The mission of higher education is to achieve access, equality, justice, quality, employability, inclusiveness and create a knowledge society / economy. Today's education system is not preparing youth who can generate knowledge and perform high quality research. The basic reason for this is low quality of education and non-affordable education to talented and poor youth. The situation can be improved with the joint affair of private sectors and government. Hiring good

quality teachers, providing high quality facilities and making education accessible to all at low cost.

REFERENCE:

1. The Hindu Daily News paper.
2. Internet Google Research.
3. Research article open access ideology of education in ancient and present society in India.
4. The relevance of Gurukul system of education in our modern education system in India.
5. NAAC & IQAC manual of UGC.
6. www.wekepedia.com

Impact of ICT on Libraries

Mr. Ambadas Vasant Khilare

Librarian,

Shri Kumarswami Mahavidyalaya, Ausa, Dist. Latur (Maharashtra)

=====

Abstract:We are living in a ICT age. Information is available in digital form at a large scale. The progress in information and communication technology has given a new face lift to the information systems and Libraries. This paper highlights on impact of ICT on Libraries, Library services and Library Professionals.

Keywords:ICT, ICT environment, Library services, Subject gateways, Subject portals etc.

Introduction: The internet has become a life blood for the communication of information and for sharing the same not only among the libraries but in also every field of human life. With the advent of Information and Communication Technology, production, storing and dissemination of information have changed dramatically. Today's challenge is to understand the latest advancement in technology like, use of open source software, developing institutional repositories, cloud based services. The ICT based Library services have brought a revolution in providing Library services. As the user satisfaction is the primary objective of any Library, the changing information needs and formats of the users create a pressure on the Librarians to update their professional skills related to the recent trends and technologies of Library, information retrieval and information technology.

Impact of ICT on Libraries: The ICT has dramatically changed all the things. Now every thing is digitalized. Every work is on the computers – acquisition, cataloguing and circulation and so on. The impact of ICT is quite perceptible right from the beginning as the Libraries started adopting ICT in the form of Library automation. The ICT environment demands changes the way we think, we work and organize, to train the manpower to take up new Challenges like

- Shift from print to electronic resources.
- Acquisition and owing the resources from anywhere and at any time.
- Providing access to the users on their personal desktop.
- Consortia approach.
- Seamless access to global resources.

ICT based new Library services:

➤ **Internet Services:** Internet is not only a medium of communication but also the world's largest repository of information, large segments of user groups may still be deprived of personal access to internet facilities.

➤ **OPAC:** OPAC provides access to the catalogue through a computer terminal. It allows searching the entire catalogue conventionally and quickly.

➤ **Subject gateways:** A subject gateway is a facility that allows easier access to network based resources in a given subject area.

➤ **Subject portals:** Portals are on amalgamation of services to the users where the amalgamation is achieved through seamless integration of existing services by using binding agents such as customization and authentication service and search protocol, loan protocol and e-commerce.

➤ **Ask a Librarian:** Ask a Librarian service is a internet based question answer service that connects users with the person who posses specialized subject knowledge and skill in conducting precision service.

Impact of ICT on Library professionals: The traditional Library skills and practices to handle information storage and retrieval are becoming clearly inadequate and insufficient in today's ICT environment. Challenges associated with the application of ICT in Libraries such as inadequate funding, automation in infancy level and lack of search skill. Following basic technological skills which are must for Library professionals in the ICT age.

- Library professional have to know the downloading and installing program, understanding the system setting.
- Knowing what to ask a library users who reports a technology – related problem concerned with either hardware or software. Knowing how to replicate a problem. Knowing how to research a solution on the web.
- Knowing how electronic resources work.
- Knowing what different library systems do and how they work together to provide users to access to information resources.
- Knowing how to write for the web.
- Knowing how to create QR code.
- Kowing how to create and edit images and videos foe the web.
- Kowing how to utilise social media such as Facebook, Instagram and Twitter.
- Understanding the mobile devices and related technology that are applicable to a library.

Conclusion: Information and Communication technology (ICT) present many opportunities for the Libraires and is constantly evolving new ways to reach the new generation of information users. In the present ICT era the professionals have to change themselves as the information profession is being changed. Collection are changing, users are changing, further days will be good if we adopt and implement the innovations to optimize the library services and user satisfaction.

References:

1. Bhavanthi, K. (2012) "Role of LIS professionals in the ICT environment: A festschrift volume of Prof. S. Sudarshan Rao on information management: Today and Tomorrow". B. R. publication corporation, New Delhi. p.450-462.
2. Kumar, Gireesh T. K., and Murali. (2013) Information Communication Technology in Library (ICTL): Skill for library professionals in digital Era. Information Management Today and Tomorrow. B. R. publication corporation, New Delhi.
3. Panday, Uttama& Mehrotra, Neha. (2014) Digital Librarianship. Library professionals Association, New Delhi. p.53-56
4. Saravathy, P. ...etc (2012) Changing role of librarians in the virtual/digital era. SRELS journal of information management. Vol.49, No.5. p.495-500
5. Vijaylatha, C & Khan, K.M. (2018), "Role of Library professionals and libraries in digital era" Genius, Vol.VI, Ajanta Publication, Aurangabad. p.100-107

Impact of Artificial Intelligence (AI) on Research

Mr. Mahadev N. Chavan

Librarian,

Baburao Patil College of Arts & Science, Angar

Dr. Vikram V.Giri

Librarian,

Shahid Bhagatsingh Mahavidyalya, Killari

=====

Abstract

Artificial intelligence (AI) has developed into a powerful tool that Academics can exploit for their research, writing, and cooperation in recent years. AI can speed up the writing and research processes, improve teamwork, and provide fresh perspectives for the academic world. In addition to discussing the potential drawbacks of introducing AI into research. This paper has also explored the meaning of AI, literature on AI, Information about AI Based Research Tools, impact of AI on research, the Use of AI in Research Ethical, Responsibilities of an AI Researcher. The findings also demonstrate that AI has the potential to be an effective research tool but it also has the ability to be misused to get over moral constraints.

Keywords

Artificial Intelligence, Semantic Scholar, Word tune, Chat GPT, Consensus, Browse AI, scite, Elicit, Perplexity, Research Rabbit, Connected Papers, Scholarcy, Gemini, Ithaka

Introduction

Artificial intelligence (AI) has grown in importance as a study topic in the twenty-first century in almost every discipline, including engineering, science, medical, education, business, accounting, finance, marketing, economics, the stock market, and law (Halal (2003), The increasing potential of Artificial Intelligence (AI) presents a crucial point of convergence for higher education research, bridging the gap between academic research and technology innovation. This goes beyond just using cutting-edge instruments to enhance research. Rather, AI is beginning to challenge accepted practices, moral frameworks, and core ideas that have long influenced academic research. This essay aims to have a critical discussion about AI's place in research. Particular tasks are especially vulnerable to this, including writing, data analytics, and automated content analysis in literature reviews.

Objective

The rest of this paper is organized as follows.

To Understanding meaning of AI.

To Survey of literature on AI.

To give Information about AI Based Research Tools.

To Exploring impact of AI on research.

To give information about the Use of AI in Research Ethical.

To Exploring Responsibilities of an AI Researcher.

Research Methodology

Survey research method has been used for this article. Scholarly articles that were reviewed in this paper were searched in journal databases such as google scholar & Website. The search terms that were used when searching for articles included artificial intelligence, AI tools, the impact of AI on research, Responsibilities of an AI Researcher.

Meaning of Artificial Intelligence

The simulation of human intelligence processes by machines, particularly computer systems, is known as artificial intelligence. Expert systems, natural language processing (NLP), speech recognition, and machine vision are a few applications of artificial intelligence. Machine learning algorithms in AI require certain hardware and software in order to be written and trained. Although there isn't just one programming language used for AI, Python, R, Java, C++, and Julia are all widely used by AI engineers.

Review of Literature

Pal,S.(2023).Artificial Intelligence (AI) has dramatically altered the landscape of academic research, acting as a catalyst for both methodological innovation and broader shifts in scholarly paradigms.

Juarez-Orozco et al (2020).Its transformative power is evident across multiple disciplines, enabling researchers to engage with complex datasets and questions at a scale previously unimaginable.

Brynjolfsson & McAfee, (2011).Notably, AI's capacity for automation liberates researchers from time-consuming and often monotonous tasks that traditionally constituted the initial stages of research.

Burger et al.,(2023).This automation isn't merely about expediency; it also serves to enhance the reliability and reproducibility of research. As many studies show, AI can significantly reduce human error in data collection and analysis.

AI Based Research Tools

You can find fresh sources for your literature review or research assignment with the aid of artificial intelligence (AI) techniques. These technologies are designed to discover the most relevant articles and save researchers' time by synthesizing data from massive databases of intellectual output. But just like with our research databases and other search tools, you should never depend solely on one source for your research because you run the risk of overlooking crucial details about your area of interest.

- **Semantic Scholar**

A powerful AI tool that assists you in locating pertinent literature reviews is called Semantic Scholar. Several alternatives from published studies appear when you enter relevant keywords. The search can be narrowed down by author, field of research, and year of publication. They can be cited in the style of your choice using the 'Cite' option.

- **Word tune**

As you write more, you should make sure that the work is of a high caliber. Wordtune is a clever artificial intelligence tool that supports you all the way through. It helps you start writing, proofread your work for grammar errors, and improve the content. You can elaborate on the subject, reduce complexity by shortening sentences, and establish the tone you want.

- **Chat GPT**

Although most people think of the AI chatbot ChatGPT as a writing tool, it can also be useful for identifying additional sources and for idea generation in the early stages of research. (Remember to carefully check the reliability of sources.)

- **Consensus**

An AI tool called Consensus delivers research results. Since it draws from established sources, you can be sure that the data in your research is accurate. Just pose your query, and our tool will provide you with objective, well-vetted answers. To further ensure accuracy, it also shows the amount of research studies that quote the data.

- **Browse AI**

A pre-built robot called Browse AI is available to retrieve data from research papers and journals that are available on Google Scholar. With just one click, you can obtain the article's title, description, link, and author data along with pertinent keywords.

- **scite**

Researchers can identify papers, develop their themes, and search citations in context (which indicates whether the piece presents evidence that is in favor of or against) with the use of scite's suite of tools.

- **Elicit**

Elicit searches papers and citations for pertinent material, extracting and synthesizing it into a useful format.

- **Perplexity**

.Similar to Chat GPT, Perplexity is a search engine that offers AI-generated responses, along with citations that are linked above the summaries.

- **Research Rabbit**

A citation-based mapping tool called Research Rabbit focuses on the connections between research publications. Researchers can locate related publications and other researchers working in the same subject by using visualizations.

- **Connected Papers**

In order to identify related research, Connected Papers focuses on the connections between research articles. Additionally, Connected Papers can be used to provide a visual summary of a field of study.

- **Scholarcy**

When scholars are gathering information on a certain subject, Scholarcy compiles the main ideas and assertions of articles into "summary cards" that they may read, distribute, and annotate.

- **Gemini**

Google created Gemini, formerly known as Bard, an AI-powered chatbot that provides pertinent information in response to natural language inquiries. Gemini can help researchers with topic development and preliminary source identification, just like Chat GPT does.

- **Ithaka**

Ithaka S+R has developed a Generative AI Product Tracker that includes pricing details, a feature and limitation list, and a list of tools sorted by main uses.

Impact of AI on research

Artificial intelligence (AI) is transforming the process of research visibility and impact in a number of ways. Here are a few examples:

- **AI help literature search:**

Even in huge and complicated datasets, AI can assist researchers in finding pertinent material fast and effectively. By doing this, researchers can save time and remain current with the most recent findings in their field.

- **AI Help Rescuing from the Data Overload**

In the end, confusion and topic drift arise from data overload. This is when sophisticated technologies like Wordtune and ChatGPT become useful. Artificial Intelligence (AI) facilitates navigation, whether obtaining data to support a conclusion or locating statistics to increase the research's impact

- **AI powered writing assistance**

AI can assist researchers in producing publications that are more effective, succinct, and clear..

- **AI powered dissemination tools**

AI can assist researchers in more efficiently sharing their findings with a larger audience. AI can be used, for instance, to create blog entries, social media posts, and other kinds of content that highlight the work of researchers.

- **AI powered impact measurement tools**

AI can be used, for instance, to monitor downloads, citations, and other indicators that show the extent to which a researcher's work is being utilised.

- **AI help Structuring the Research**

There comes a point at which everything is prepared. The next step is to put it all together into a research paper, but you have no idea where to start or how to organize the information.

- **AI help Getting the Details**

Obtaining the important details is a major issue in the manual research process. Even if you might receive useful knowledge, it might be difficult to locate specifics to quote.

- **AI help Citing Metrics**

When conducting research, we frequently worry about the reliability of a source and are compelled to double-check the data across several platforms.

Use of AI in Research Ethical

- You may question whether using AI tools for assistance is morally appropriate. If your AI assistants don't compose the whole study paper while you browse Instagram, then it's ethical.

- Utilize these AI resources in tandem to improve your study. Tools like as Consensus, for instance, guarantee the veracity of the aforementioned claims. Simultaneously, programs such as Word tune assist you in aligning the entire text with your selected style.

- Expert advice on deploying AI in a responsible and moral manner can be found here: Ascertain that the AI tools you use are trustworthy and moral. When using AI, never use it excessively. In the end, it ought to be unique and "you" owned. When doing research, always credit your sources.

Responsibilities of an AI Researcher

- Creating and carrying out experiments to validate theories across multiple AI fields.
- Creating models and algorithms to enhance AI and machine learning skills. .
- Keeping up with the most recent developments in AI research and trends to guide project direction and methodology.
- Composing reports and research papers to record findings and submit to conferences and scholarly publications.
- Examining and commenting on other studies to help validate and enhance studies on artificial intelligence.
- Submitting financing and research grant applications to assist current and upcoming AI projects.
- Creating proof-of-concept apps and prototypes to showcase the potential of AI research breakthroughs.
- Explaining intricate AI findings and concepts to interested parties, including non-technical audiences.

Conclusion

There are several ways that artificial intelligence may support academics in their writing, research, and teamwork. Artificial intelligence (AI) has the potential to be a useful research tool, but it can also be used in ways that are immoral. To prevent this, researchers must ensure that ethical standards are upheld and that the research methodology is transparent. In many ways, artificial intelligence is changing how research is seen and has an

impact. Researchers can write more efficiently, share their work more extensively, save time, and more precisely gauge the impact of their work by utilizing AI tools and technology.

References

1. Brynjolfsson, E., & McAfee, A. (2011). *Race against the machine: How the digital revolution is accelerating innovation, driving productivity, and irreversibly transforming employment and the economy*. MIT Press.
2. Burger, B., Kanbach, D. K., Kraus, S., Breier, M., & Corvello, V. (2023). On the use of AI-based tools like Chat GPT to support management research. *European Journal of Innovation Management*, *26*(7), 233–241. <https://doi.org/10.1108/EJIM-02-2023-0156>
3. Elaies, Ramadan (2023). The Impact of Artificial Intelligence on Academics: A Concise Overview. *International Journal of Academic Multidisciplinary Research (IJAMR)*, Vol. 7 Issue 4, April - 2023, Pages: 218-220.
4. Halal, W. E (2003). Artificial intelligence is almost here, On the Horizon - The Strategic Planning Resource for Education Professionals, Vol. 11, No. 2. 2003.
5. Juarez-Orozco, L. E., Martinez-Manzanera, O., Storti, A. E., & Knuuti, J. (2019). Machine learning in the evaluation of myocardial ischemia through nuclear cardiology. *Current Cardiovascular Imaging Reports*, <https://doi.org/10.1007/s12410-019-9480-x>
6. Pal, S. (2023). A paradigm shift in research: Exploring the intersection of artificial intelligence and research methodology. *International Journal of Innovative Research in Engineering & Multidisciplinary Physical Sciences*, *11*(3). <https://doi.org/10.37082/IJIRMP.S.v11.i3.230125>
7. <https://www.wordtune.com/blog/conduct-research-with-ai#1-literature-review>
8. <https://www.tealhq.com/career-paths/ai-researcher>

16

Emerging Technologies in Education

Ms. More Pallavi Bharat

Librarian

VDF School of Pharmacy, Latur

Ms. Basude Revati Rajvilas

Assistant Librarian

MIMSR Medical College, Latur

Abstract:

An emerging technology is one that is not in 'common' use currently in education, but which has the potential to be more widely adopted to support improvements in learning and teaching. Many of these technologies have been emerging for a number of years. Many continue to evolve at pace and will be in a state of continuous 'emergence'.

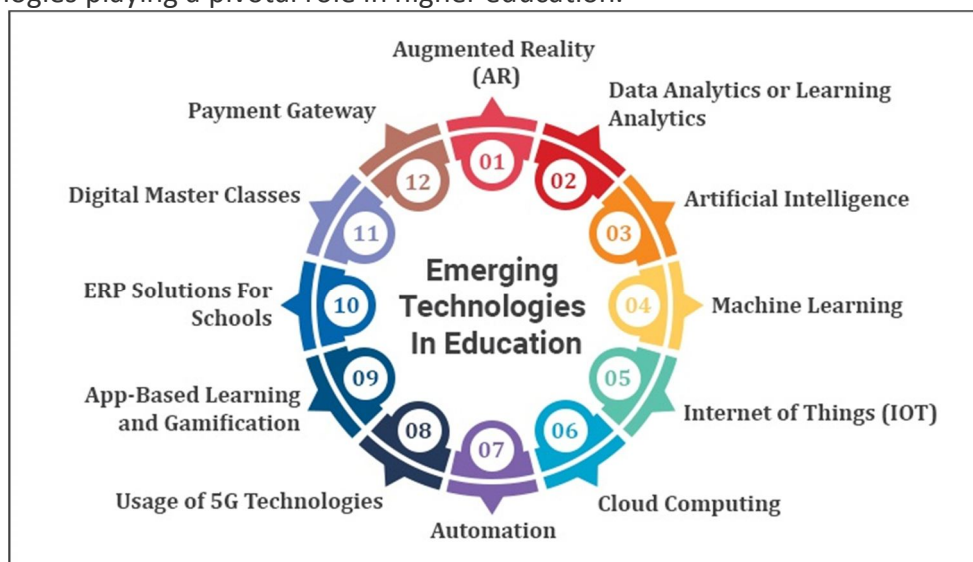
Technologies are shaped by – and in turn shape – the context in which they are used. For this reason this briefing links both technologies and practices.

On this basis definition for Emerging Technology in Education is so far - 'When simply defined, particularly within the context of education, emerging technologies are those that have the potential to change the current state of affairs in education'.

Keyword: Emerging Technology, AR-VR, Artificial Intelligence, Cloud Computing,

Introduction

The biggest transformation ever occurred in the Education sector brought some substantial changes with Technology. Education sectors are incorporating emerging technologies like Artificial intelligence, Machine Learning, Big data, AR-VR(Augmented Reality – Virtual Reality), and similar others that are making a difference in the higher education process. The list has just expanded with time and there are many other technologies playing a pivotal role in higher education.



Emerging Technology that will reshape the Education sector in 2022 has a long list.

❖ **1.1Augmented Reality (AR)**

Far away from reality, this term itself makes many of us excited about unique ways of learning. Integrating augmented reality is one of the best innovations an industry can expect. In the area of graphics, Augmented Reality and Simulations have had an impact. Its widespread influence has now begun to influence how students study and collaborate with their teachers.

It is, nonetheless, regarded as one of the world's best-emerging technologies due to its ever-developing nature. According to studies on AR and education, it is anticipated that by 2022, it will have a stronger impact on how people think about education.

Augmented Reality and virtual reality are the different ways of engaging students and faculty.

Educational technology can engage students and the use of learning analytics will help to predict the best way to improve the education process among students. By 2022, it is expected to increase student engagement and assist them in making their imaginations come true with online programs in order to improve their learning process.

❖ 1.2 Data Analytics or Learning Analytics in Academics and Sports

There is no analytics without data and there is no data with analytics. Both these things go hand in hand. The application of data analytics in schools is a cutting-edge notion. Student data obtained from numerous sources such as application forms, admission forms, mark sheets, and other documents that provide a picture of their background, learning activities history, health difficulties, and other variables can be used to better understand and influence their future learning prospects. New technologies in the education sector brought by technology trends incorporate a hands-on learning environment and exceptional educational experience.

Data analytics or Learning Analytics will be able to map and measure each student's development in sports and academics, as well as construct individualized academic programs and work on significant issue areas. Sports can also benefit from data analytics. This type of data analysis is non-invasive, accurate, and highly interactive, and it records and archives games for later retrieval, making it the ideal tool for coaches to connect more effectively with students on their teams.

❖ 1.3 Artificial Intelligence

Artificial intelligence has the ability to speed up and simplify regular school administration processes, which is one of the most essential and impactful things it can do in the educational arena. Artificial intelligence can assist instructors and administrators with grading homework, analyzing essays, gauging student responses, and creating courses, among other things.

All of these methods take time, and they will eat up crucial one-on-one time with pupils from the teacher. Teachers and administrators, on the other hand, may simply carry out these activities with the help of artificial intelligence-controlled technology, which increases their productive time. AI aids with the identification of kids who are having academic difficulties and instructs teachers to offer that student extra attention. It can also help in the development of new educational materials to supplement existing ones.

❖ 1.4 Machine Learning

Everyone knows that Machine learning is an inseparable part of Artificial Intelligence (AI). It enables computer Algorithms to students for students to make intelligent decisions based on all past data. In the same arena of education, teachers can use machine learning to save time on non-classroom duties. Teachers can use virtual assistants who work from home for their kids. This type of aid can boost students' progress and accomplishment by enhancing their learning experience.

Many problems associated with a lack of personalization can be solved using machine learning applications in education. In today's LMS, the same premise applies. Introduce machine learning to create a one-of-a-kind experience for each customer/student. Machine learning allows you to simply evaluate data based on customer experience, smooth on boarding, and multiple other plans.

Machine learning in schooling can take up a whole new degree of personalization. Technology has the ability to assess all of the data supplied by the user and modify the system to match the needs of the consumer. This results in high motivation among students and there will be high retention rates.

❖ 1.5 Internet of Things (IoT)

In layman's words, the internet of things refers to linking all physical objects to the Internet, such as lighting up bulb, starting a car, or any other material object. It can be done from a distance using IoT. Many of you are asking how the internet of things may be applied in the field of education. You may now be asking how the Internet of Things will benefit schooling. Let's take a look at some of the IoT's learning environment uses.

The Internet of Things (IoT) aids in the formation of a Good association & communication among teachers and students. This allows students and teachers to communicate with their peers all across the world. Another application is that it improves school security by installing RFID devices for student attendance, school bus GPS systems, and remotely controlled school surveillance systems, among other things.

❖ 1.6 Cloud Computing

Let's take a closer look at how cloud computing helps and is transforming the educational scene. The truth is that students are not always physically able to attend class.

Many institutions have made full or partial online learning a standard practice. The rise of eLearning is affecting all students' access to information. Likewise, sharing notes has never been simpler. Previously, notes were handwritten and then photocopied or manually copied. That's why the integration of cloud computing in the education sector became the biggest advantage like accessing documents at anytime from anywhere, which also saves time and money.

❖ 1.7 Automation

Automation has been ruling the world and industries to a larger extent than what we live in. As engagement rises, business and economic sectors utilize the facility of automating the education process to better give enhanced and speedier experiences. The school sector will undoubtedly profit from the advantages of automation. Students have a better probability of obtaining lectures at precise times because of automation. You can arrange lectures digitally. Not to add, automation facilitates more effective implementation of artificial intelligence.

❖ 1.8 Usage of 5G Technologies in Education

The wireless technology has now seen its fifth Generation also known as 5G. Anyone who uses it can enjoy high performance and low latency wireless technology thanks to its upgraded upgrades. Students are more likely to benefit from this unique invention since it allows them to receive student materials and resources quickly and connect to more powerful networks.

❖ 1.9 App-Based Learning and Gamification

Much has already been said about this technology. Today, gamification is a notion whose proposal was made by a variety of businesses as a way to better manage people. Incorporating App-based learning and gamification into the classroom can benefit students in a variety of ways.

App-based learning allows students to access resources at any time and from any location, ensuring that their education is never interrupted. Gamification raises the stakes for students at all levels by providing rewards for innovation and making learning more enjoyable, engaging, and interactive. This strategy is helpful for kids who have a short attention span or who demand constant changes in their learning concepts.

❖ 1.10 ERP Solutions for Schools

Governing a school or university is a difficult endeavor that necessitates a huge staff. The correct ERP solution may make the process easier and more efficient. Here are three ways you could gain, as well as some of the potential drawbacks. Massive volumes of data, including student information, must be collected, stored, and analyzed by educational institutions. Many organizations have already gone paperless by digitizing their records. Your information management can be significantly more efficient with an ERP solution. ERP software facilitates the easy sharing of stored data across various departments. Teachers, students, and office staff can update information in real-time, and it can be viewed from anywhere.

When a school uses ERP software, it may provide students with the ease of collecting all the information and assignments online while avoiding many of the roadblocks and additional resources to manage the process. ERP software lets you keep track of inventory and resource consumption, as well as your finances, in real-time. Reporting is becoming more straightforward, and transparency is increasing. New educational ERP solutions can help a school or university optimize its operations while using less human resources, saving time and money that students can pass on later.

❖ 1.11 Digital Master Classes

With the advancement of digital technology, enrolling in classes taught by a team of experts from any corner of the globe has become quite simple. Digital Master Classes allow users to learn from the finest from the comfort of their own Smartphone's or mobile devices. Digital Master Classes are similar to other master classes but the only difference is that it takes place on a global level. This enables many benefits such as you can learn about global practices, and education patterns and even making stronger connections. This provides a lot of freedom and produces a lot of enthusiasm and motivation for increasing learners' skill sets in their chosen fields.

❖ 1.12 Payment Gateway

If you wonder why you need payment systems, it is because there are many Payment related problems in school, university, or course fees that take a lot of time and effort. Since students or their parents must go to educational institutions or centers and stand in lines to make payments. The time and money spent paying fees could be better spent elsewhere. Cash-based fee payments will be obsolete as a result of digital payments. Students will be able to pay at their leisure, remotely, and in smaller installments thanks to online and mobile payments.

❖ Conclusion

Finally, several emerging technologies for teaching and learning are expected to disrupt education in significant ways. By investigating each of the following new technologies, students may make better use of them. Students can gain unique insights about how to get the most out of their usage by researching each one and this insightful blog has already made many revelations in favor which could help the education fraternity to enhance its roots and grow higher.

❖ Bibliography

1. Shomirzayev, M. K. "Technology of Educational Process in School Technology Education." *American Journal of Social Science and Education Innovations* 02, no. 07 (July 30, 2020): 212–23.
2. Krynitz, Roy. "Educational Technology." *IALLT Journal of Language Learning Technologies* 5, no. 3 (January 17, 2019): 14–22.
3. Miśra, Ramākānta. *Śaikṣikapravidhiḥ: Educational technology*. Vārāṇasī: Caukhambā Surabhārati Prakāśana, 2006.

Gaikwad, A. P. (2010):E-resources: A revolution for libraries in New Dimensions in Libraries management, conference proceeding of national seminar, Aurangabad.

Study of Scaling ICT Library Broadband Networks to Address Knowledge Gaps and Data Limitations of Library Users

Prof. Rajesh Baliram Gore

LIBRARIAN,

Shri Sant Gadge Maharaj Mahavidyalaya Loha Tq. Loha Dist. Nanded

Abstracts

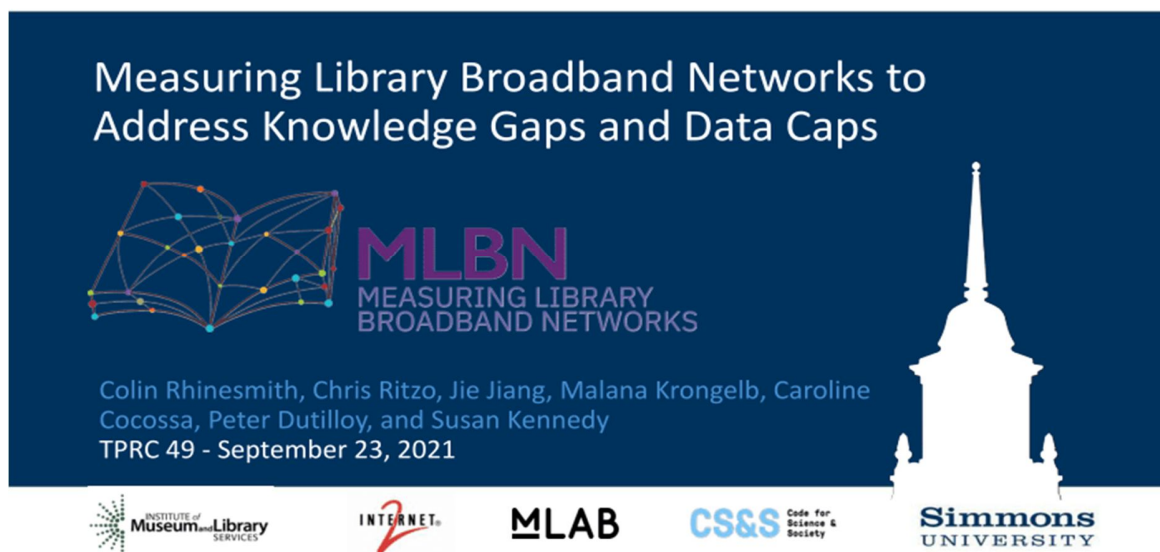
Herein, we report on the findings of a three-year study supported by the Institute of Museum and Library Services that looked into the potential of cutting-edge broadband measuring tools to bolster infrastructural and societal service provision. While previous studies have shown the increased digital demands of library users, they have also highlighted the ongoing bandwidth issues faced by academic libraries. Few large-scale studies, however, have taken automated longitudinal assessments of library broadband speeds and quality of service across time, even during off-hours or while the library is closed. The following research question was developed with the purpose of filling this gap in the existing literature: How can academic libraries make use of broadband measuring technologies to improve their knowledge of the broadband speed and quality of service they receive?

Keywords: -ICT Library, Library Users, MLBN,

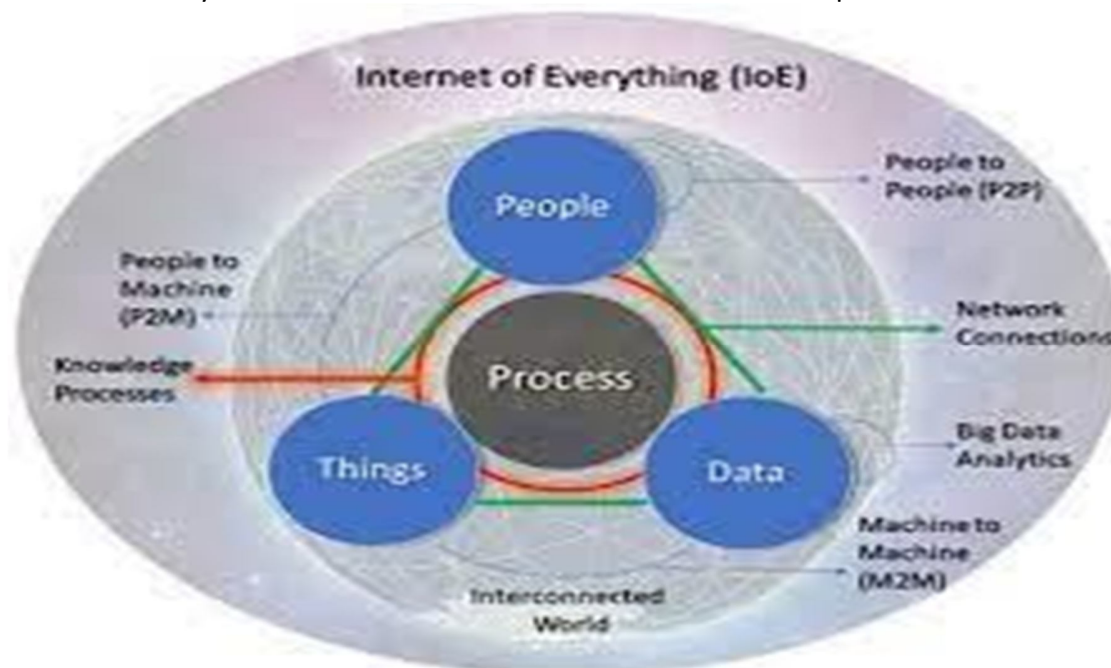
Introduction

Foreword The COVID 19 pandemic has shown how wide the digital gap is in the US . During this period, individuals and families in tribal, rural and urban communities had low monthly incomes; lacked access to computers and the Internet, and broadband was unavailable or cheap. Across races and ethnicities, the digital gap has been proven to expand over the course of many decades of study. Home computer and broadband internet access are more common among the wealthy, the white, and the educated. People who don't have access to certain resources often depend on public places like libraries and community centers. This pandemic also shows how vital academic libraries are in satisfying the public's need for access to computers and the Internet. We begin with a brief review of key research that highlights the important role of Academic libraries in promoting digital equity, and discuss research that measures the importance of broadband connectivity in Academic libraries.

We are particularly focused on highlighting the opportunities and challenges of connecting Academic libraries with high-speed Internet connections and educating Academic librarians, other researchers, and policymakers about the implications of broadband infrastructure and services. We present the results of a quantitative analysis of broadband measurement data that highlight that continuous, locally collected measurements can improve libraries' understanding of the Internet. Concluding the article with a discussion of our research's contribution to academic scholarship, we briefly discuss implications for state and federal policymakers interested in better understanding the role that library broadband measurement data can play in promoting a healthy digital asset ecosystem.



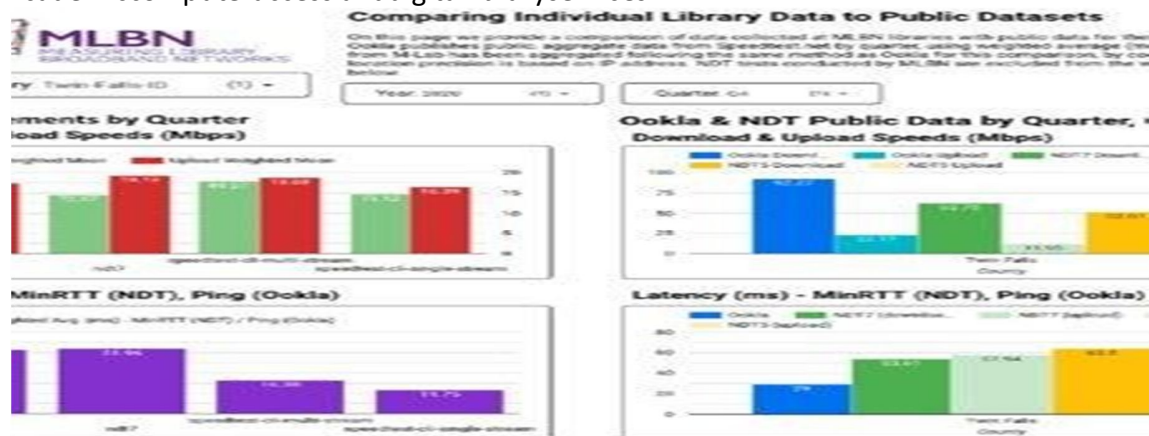
Broadband Measurements in Academic Libraries Many Academic libraries, especially small, rural and tribal libraries, continue to face challenges in obtaining accurate information about their broadband speed and quality of service. Lack of information can limit their ability to provide a wide range of applications and services to society. As Bertot, Riel, and Jaeger conclude, one of the challenges facing Academic libraries is that the speed of Academic library Internet connections "varies widely depending on local population density." 9 In response to this situation, Academic librarians have shown there is a great interest and need in gaining knowledge of the current broadband performance of their libraries. Digital inclusion scholars suggest topics that future Academic library and broadband measurement research should explore.



These topics include how to better inform Academic librarians to help them plan and how

toprovide communities with adequate and quality broadband connectivity. Other topics includeresearch on how data from "empirical measurements, especially longitudinal measurements"can be used to help Academic libraries justify their need for workstations and bandwidth.These and other questions remain largely unanswered in the academic literature. MeasuringLibrary Broadband Networks (MLPN) Project and Research Design Research Questions andResearch Implications Our study sought to address this gap in Academic library broadbandmeasurement scholarshipthrough the following research question:How are methods formeasuring internet speeds and educational resources used in academic libraries? What is thelevelof serviceprovided in academiclibraries?

To address this, our research team created an open-source broadband measuring system anddeployed it in 30 academic libraries around the United States, collecting quantitative data onusers' experiences with the internet. Our research is important because the answers to thesequestionswillhelpstrengthenAcademiclibrariesascritical institutionsandpartnersinprovidingdatameetthedigitalneedsoftheircommunities.Ourfindingsmayh elpAcademiclibrariesmeetthechallengeofbuildingamoreintegrated,equitable,anddynamicinfrastruct urefor Academiccomputeraccess anddigitallibraryservices.



But while speed tests can provide useful indicators for understanding general trends andanomalies, they also require a proper understanding of what they do and don't do. Showing anad-level speed test doesn't mean users of that network won't experience latency as content isdelivered to their computers over the same connection. As the federal government prepares toallocate infrastructure money to states to improve Internet access and service, libraries andother Academic institutions in each state will need specific data and understand the nuancesandnuances.ConclusionInthispaperwehavetriedtoimprovetheawarenessofservicespeedand quality of Internet connections in Academic libraries, which is low among library andinformation science and broadband policy makers. Library staff and administrators needinformationtounderstandandcommunicatelibrarynetworkcapabilities,managementpractices, and diagnostic or monitoring information. Availability of metrics from differentsources helps build a common understanding of library Internet connectivity between librarystaffandITornetworkadministrators.Admittedly,speedtestsarelimitedinwhattheycantellabout Internet capability, but accessible library staff These types of metrics, along with otherinformation provided by library IT staff, allow for better communication with patrons aboutissuesofInternetstabilityandabilitytosupportthelibrary'smission.Basedonourobservationsofthe collecteddata,wecanusetheMLBNmeasurementmethodtodeeppentheunderstandingoflibrary web servicesandnetwork management.

MLBN Library has established subscription service standards, and Ookla measurements verify that the library's measured connection speeds are at or above those levels. Libraries are able to discover a mismatch between actual and desired service levels by comparing measurements. By continuously measuring libraries, we can keep tabs on this vital service on a local level, as well as critique and investigate discrepancies in data from the perspective of online measurement sites, their topologies, tests, and measurements.

Conclusion

Although speed tests are helpful for observing these patterns, they are not necessarily representative of the actual experience that users have when accessing and utilizing online content and services. New research and leadership from the Internet metrics community is needed to enable accurate and realistic assessments of network performance and user experience. A growing body of academically published research and analysis can be incorporated into the MLBN system to support improved Academic understanding of Internet connection quality and user experience. We hope that this thesis and our research will help Academic libraries in the ongoing measurement and evaluation of their Internet services, and that Academic libraries play an important role in their Internet services. Influencing state and federal policy makers. Native Digital Equity Ecosystem.

References

- MeasurementLabAddtont7runnertoforceallteststobenonTLS(2020)<https://github.com/mlab/Murayama/commit/3770d6b63ebd9ad62b3754e0642bd0e9216e171e>MLBN
- Data Studio Report, Page 1 Overview of MLBN Libraries <https://datastudio.google.com/s/gHTW2GMVfl>
- MLBN Data Studio Report, Page 2 Individual Library Data <https://datastudio.google.com/s/kPpdGF3I8C4>
- MLBN Data Studio Report Page 2 Individual Library Data page, Andover, Massachusetts <https://datastudio.google.com/s/uNPY5Z1M21g>
- MLBN Data Studio Report Page 2 Individual Library Data for Clarkston, Michigan, MERIT Networks' Nearest Ookla Server Selected <https://datastudio.google.com/s/pQPcybmHAj8>
- MLBN Data Studio Report Page 2 Max Speeds by Month Clarkston, Michigan https://datastudio.google.com/s/hyljK_mPVL4
- MLBN Data Studio Report Page 2 Daily Speeds Westchester County, NY <https://datastudio.google.com/s/ixGn8V4R3IA>

Modern Librarianship and Ethics: Navigating Information Landscapes

Prof.A.S.Deore

Librarian,

BSSPM'S Arts, Commerce & Science College, Songir (Dhule)

=====

Abstract:

Modern librarianship is undergoing a transformative shift, evolving beyond its traditional role to meet the dynamic challenges of today's information-driven society. This paper explores the multifaceted aspects of modern librarianship and the ethical considerations that librarians grapple with in their daily practices. From ensuring equitable access to information and upholding intellectual freedom to navigating the complexities of technology and fostering community engagement, librarians play a vital role in shaping information ecosystems. The ethical framework guiding librarians includes principles of privacy, information literacy, and social responsibility. By examining these key components, this paper seeks to provide insights into the evolving nature of librarianship and its ethical dimensions, shedding light on the critical role librarians play in fostering a diverse, inclusive, and intellectually vibrant community.

Keywords: Modern librarianship, Ethics, Intellectual freedom, Information landscapes

1. Introduction:

Modern librarianship is undergoing a profound transformation in response to the dynamic and rapidly changing information landscape of the 21st century. Traditionally viewed as custodians of books and repositories of knowledge, librarians now find themselves at the intersection of technology, information access, and ethical considerations. This shift reflects the evolving role of libraries from static repositories to dynamic hubs that empower individuals with information literacy skills and foster a culture of intellectual freedom.

In this context, the ethical dimensions of modern librarianship play a pivotal role in guiding the profession's practices and principles. Librarians today face challenges related to ensuring equitable access to diverse information, upholding the right to intellectual freedom, and navigating the ethical implications of rapidly advancing technologies. This introduction provides an overview of the key components that define contemporary librarianship and the ethical considerations that shape the profession's landscape. As we delve into the multifaceted aspects of modern librarianship, it becomes evident that librarians are not only keepers of knowledge but also stewards of democratic values, committed to fostering inclusivity and engaging with the diverse needs of their communities. From privacy and confidentiality to community engagement and social responsibility, librarians navigate a complex web of ethical considerations to create environments that promote learning, critical thinking, and the responsible use of information. This paper aims to explore the intricate interplay between modern librarianship and ethics, shedding light on the profession's evolving nature and the ethical frameworks that guide librarians in their daily practices. By examining the role of librarians in the digital age, we gain insights into the challenges and opportunities that shape their commitment to intellectual freedom, information literacy, and the overall well-being of the communities they serve.

2. Aspects of modern librarianship and ethics:

Modern librarianship encompasses a range of roles and responsibilities, from curating collections to providing information services and promoting literacy. In the digital age, librarians are

also involved in managing electronic resources, facilitating access to information, and navigating issues related to intellectual freedom, privacy, and ethics. Here are some key aspects of modern librarianship and ethics:

1. Access to Information:

- Librarians strive to provide equitable access to information for all users, promoting inclusivity and diversity in their collections.
- They work to bridge the digital divide by ensuring access to technology and online resources for all members of the community.

2. Intellectual Freedom:

- Librarians uphold the principles of intellectual freedom, supporting the right of individuals to access a wide range of ideas and information without censorship.
- They resist efforts to limit or restrict access to certain materials based on political, religious, or social grounds.

3. Privacy and Confidentiality:

- Librarians are committed to protecting the privacy of library users, ensuring that their borrowing records and personal information remain confidential.
- They follow ethical guidelines and legal frameworks to safeguard user privacy in the digital age, where data security is a growing concern.

4. Information Literacy:

- Librarians play a crucial role in promoting information literacy, helping users critically evaluate and navigate the vast amount of information available.
- They teach research skills, digital literacy, and the ability to discern credible sources in an era of misinformation.

5. Copyright and Fair Use:

- Librarians navigate the complex landscape of copyright law, balancing the need to provide access to information with respecting the rights of content creators.
- They educate users on copyright issues, fair use, and open access initiatives.

6. Community Engagement:

- Modern librarians actively engage with their communities, seeking to understand the unique needs and interests of diverse user groups.
- They collaborate with local organizations, schools, and businesses to enhance community resources and support lifelong learning.

6. Technological Challenges:

- Librarians embrace technology while addressing the challenges it brings, such as digital preservation, cyber security, and ensuring equal access to digital resources.

7. Professional Development and Continuing Education:

- Librarians commit to ongoing professional development to stay current with evolving technologies, information management practices, and ethical considerations.

8. Advocacy:

- Librarians advocate for the value of libraries in society, emphasizing their role as community hubs, centres of learning, and guardians of intellectual freedom.

9. Environmental Sustainability:

- Libraries are increasingly adopting sustainable practices, from eco-friendly building designs to promoting digital resources as an environmentally conscious alternative to print.

10. Continuing Education:

- Librarians commit to ongoing professional development and education to stay current with evolving technologies, information management practices, and ethical considerations.

3. Soft skills of Librarianship:

Soft skills play a crucial role in the field of librarianship, enhancing the ability of librarians to effectively interact with patrons, collaborate with colleagues, and adapt to the evolving needs of their communities. Here are some key soft skills that are valuable in librarianship:

1. **Communication Skills:** Librarians need strong communication skills to effectively interact with patrons, colleagues, and community members. Clear communication is essential for providing assistance, conducting training sessions, and conveying information.

2. **Customer Service:** Providing excellent customer service is fundamental in librarianship. Librarians should be approachable, helpful, and attentive to the needs of patrons, ensuring a positive and welcoming environment.

3. **Interpersonal Skills:** Building positive relationships with patrons and colleagues requires strong interpersonal skills. Librarians should be empathetic, understanding, and able to collaborate effectively with diverse individuals.

4. **Adaptability:** The ability to adapt to changing technologies, user needs, and library policies is crucial in the dynamic field of librarianship. Librarians should embrace change and be open to new ways of delivering services.

5. **Problem-Solving:** Librarians often encounter various challenges, and effective problem-solving skills are essential. Whether it's resolving technical issues, addressing patron concerns, or optimizing library processes, librarians need to approach problems with a solution-oriented mindset.

6. **Teamwork and Collaboration:** Librarians frequently work as part of a team, collaborating with colleagues on projects, programs, and initiatives. Strong teamwork skills contribute to a positive work environment and the successful implementation of library services.

7. **Flexibility:** Flexibility in scheduling, task management, and adapting to unexpected situations is crucial in librarianship. Librarians should be able to handle a diverse range of responsibilities and priorities.

8. **Empathy:** Understanding the needs and concerns of library patrons requires empathy. Librarians with strong empathy can better tailor their services to meet the diverse requirements of their community members.

9. **Time Management:** Efficient time management is essential for librarians who often juggle multiple responsibilities. Prioritizing tasks, meeting deadlines, and managing time effectively contribute to the smooth functioning of library operations.

10. **Cultural Competence:** Libraries serve diverse communities, and librarians should be culturally competent. This involves understanding and respecting the cultural backgrounds, beliefs, and values of patrons to provide inclusive and equitable services.

11. **Leadership Skills:** In various capacities, librarians may take on leadership roles, whether leading a project, heading a department, or contributing to community initiatives. Leadership skills help in inspiring and guiding others toward common goals.

12. **Negotiation Skills:** Librarians may need to negotiate with vendors, partners, or colleagues. Effective negotiation skills can help in reaching mutually beneficial agreements and resolving conflicts.

Soft skills complement the technical expertise of librarians and contribute to the overall success and impact of library services. These interpersonal skills are essential for fostering positive relationships with patrons, creating an inclusive environment, and ensuring that libraries remain dynamic and responsive to the needs of their communities.

4. Conclusion:

Modern librarianship is a multifaceted profession that extends beyond traditional bookkeeping to encompass a dynamic and technology-driven landscape. Librarians today face diverse challenges and opportunities, requiring a combination of technical expertise and soft skills to navigate the evolving needs of their communities. The ethical foundation of librarianship remains a cornerstone, with principles such as intellectual freedom, privacy, and equitable access to information guiding the profession.

Librarians play a crucial role in fostering information literacy, providing excellent customer service, and adapting to technological advancements. Their commitment to community engagement, advocacy, and environmental sustainability underscores the broader impact of libraries on society. Continuous learning and professional development are essential, allowing librarians to stay abreast of changing technologies and information management practices.

Soft skills, including effective communication, adaptability, problem-solving, and cultural competence, complement the technical aspects of librarianship. These skills contribute to creating a welcoming and inclusive library environment, enhancing patron experiences, and building positive relationships within the community.

In essence, the modern librarian is a versatile professional who embraces change, advocates for intellectual freedom, and actively engages with diverse communities. As libraries continue to evolve, librarians remain at the forefront, upholding the principles of their profession while adapting to the dynamic and interconnected world of information. The future of librarianship holds exciting possibilities as librarians continue to innovate, collaborate, and champion the importance of access to information and knowledge in an ever-changing society.

References:-

1. Association of College and Research Libraries. (2023). Developing Interpersonal Skills for Librarians. <http://www.ala.org/acrl/resources/personal-interpersonal-skills>.
2. Brown, A. R. (2019). Navigating change: The role of adaptability in modern librarianship. In L. M. Davis (Ed.), *Proceedings of the International Conference on Library Innovations* (pp. 112-128). Academic Press
3. Carter, E. J. (Ed.). (2015). *Collaborative Practices in Libraries: Fostering Effective Teamwork*. Springer.
4. Davis, M. J. (Ed.). (2016). *Ethical Challenges in Contemporary Librarianship*. Springer.
5. Davis, K. L. (2021, September 10). Safeguarding patron privacy in the digital era. *Library Trends*, 21-26.
6. Garcia, S. R. (2022, February 5). Innovative problem-solving in libraries. *Library Management Today*, 34-40.
7. Jones, S. M. (2021). *Adapting to the Digital Age: Modern Practices in Librarianship*. Academic Press.
8. Smith, R. C. (2018). Ethical considerations in library services: Balancing privacy and access. *Journal of Librarianship and Information Science*, 42(2), 123-140. <https://doi.org/xxxx>
9. Turner, L. A. (2020). Information literacy in the digital age: Challenges and opportunities. In P. R. Harris (Ed.), *Proceedings of the International Conference on Library Innovations* (pp. 78-95). Academic Press.
10. Turner, M. P. (2017). Enhancing library services through excellent customer service. *Journal of Library Service Excellence*, 15(2), 87-103. <https://doi.org/xxxx>
11. White, L. K. (2020). *Effective Communication in Librarianship: Connecting with Patrons and Colleagues*. Academic Press.

Study of Information and Communication Technology (ICT) Skills and Competencies of Library Professionals Working in Sindhudurg District

Rahul K. Shewale

Librarian,

Shri Pancham Khemraj Mahavidyalaya, Sawantwadi

Dr. Yogesh M. Borse

Librarian,

Vidyadhan Commerce College, Dhule

=====

Abstract: The present study highlights the information communication technology (ICT) skills and competencies of library professionals in Sindhudurg district. A questionnaire was designed to obtain information about ICT skills and competencies from library professionals and a total of 71.42 % responses were received. This questionnaire was sent with the help of Google Forms. The findings of the study show that the majority of library professionals develop ICT competency through workshops, seminars, conferences, refresher courses, and web-based tutorials such as YouTube, and webinars. Majority of the library professionals agree that inadequate skills and lack of software are the problems when using ICT applications.

Keywords: ICT, ICT Literacy, ICT skills and competencies, Library Professionals

1. Introduction:

Education is a continual process and it is essential for every human being. Education has become the most important source of change in the wealth of knowledge and skills of one generation to another. Education always plays a dynamic role in the process of knowledge, developing skills, and growing the growth and productivity of the nation.

Information and communication technology are commonly used everywhere all over the world. In the present century, information technology has a vital role to play in academic libraries' activities and to improve user satisfaction using information communication technologies. The ICTs not only provide a platform to maintain the proper way of all the academic library activities like acquisition, cataloguing, reference services, circulation management, and serial control but also save the time of staff and users.

2. Concept of Information Communication Technology: Information communication technology is commonly used in information creation, processing, storage, and dissemination with the help of the computer internet. It is multifaceted and integrates telecommunication, computer, and essential accessories including software, middleware storage devices, and an audio-visual system that enables users to access information in various formats and store, process, disseminate, and manipulate information.

Definition of ICT

"Information and communication technology (ICT) is the study of the technology used to handle information and aid communication".

Encyclopedia of Library and Information Science defines "ICT as electronic technologies for collecting, storing, processing, the information there are two main communication categories, those which process information such as computer systems and others which transfer. Information

such as computer system and other which transfer information such as telecommunication system” (Gawali and Surwade, 2016).

3. Review of Literature:

Togam and Khairnar (2022) studied the Information and communication technology literacy of library professionals working in law colleges. Most of the respondents consider themselves their level of ICT literacy at the Intermediate level. Most of the respondents themselves have an ICT literacy level at the Intermediate level. Most library professionals were familiar with social media and Dspace library automation software. Studies have shown that almost all LIS professionals need training to enhance their ICT skills.

Singh and Kushawaha (2020) in their study, identified the problems of LIS professionals while using ICT in the library of eastern state university libraries of Uttar Pradesh. Also, investigated the level of competencies among LIS professionals. The majority of LIS professionals face various problems while utilizing LIS applications.

Bajpai and Madhusudhan (2019) investigated the ICT skills of library professionals in college libraries. In this study, the majority of LIS professionals have basic knowledge of ICT skills to manage libraries. This study provides a platform to Find an area of focus to learn and update their ICT skills in a digital environment through LIS Professionals to efficiently provide library services for the betterment of the entire library.

Viswe (2019) conducted a study titled “Assessment of ICT Literacy Skills of Library and Information Science Professionals in Selected University Libraries in Gujrat, India”. The findings of the study are the majority of LIS professionals are literate in using ICT tools and technologies. The majority of Libraries use SOUL automation software. Also, the majority of LIS professionals of literate about Dspace digital library software. Insufficient ICT training at the workplace is a problem for LIS professionals.

4. Objectives:

1. To determine the ICT skills of library professionals working in Sindhudurg district.
2. To investigate the level of ICT competencies amongst library professionals working in Sindhudurg district.
3. To identify the problems faced by library professionals while using ICT in the library.

5. Scope and Limitation of Study: The scope of the present study is an ICT skills and competency study of only library professionals in degree colleges in the Sindhudurg district.

6. Research Methodology:

The research method of the present study is based on the survey research method. A structured questionnaire was designed to obtain information about ICT skills and competencies from LIS professionals. This questionnaire was sent with the help of Google Forms. A total of 21 questionnaires were distributed to LIS professionals, and out of these 15 responded. A total of 71.42 % response was received. The collected data were put under analysis through MS Excel (in Average and percentage). Used a 5-point Likert scale such as 1-Excellent, 2-Good, 3-Fair, 4-Poor and 5-Undecided.

7. Data analysis and discussion:

7.1 Demographic details

Gender	No. of respondents	Percentage
Male	12	80
Female	3	20
Total	15	100

Table 1: Demographic details

Table-1 gives the demographic details of the library professionals. The results showed that 80% of library professionals were male while 20% were female.

7.2 Work experience of respondents

Work experience (years)	No. of respondents	Percentage
1-10	11	73.33
11-20	2	13.33
21-30	1	6.66
31-40	1	6.66
Total	15	100

Table 2: Work experience of respondents

Table-2 The total working experience of library professionals ranged between 0–10 and 31–40 years. In this context, the relevant data was presented into four groups of working experience less than 10 years, 11–20 years, 21–30 years, and 31–40 years. The table indicates that 11 (73.33%) of library professionals had less than 10 years of working experience, 2 (13.33%) of professionals had working experience of 11–20 years, and 1 (6.66%) of professionals had working experience of 21–30 years. Only one library professional's working experience is in between 31-40 years.

7.3 Methods for development of ICT competency

Particular	No. of respondents	Percentage
Formal education (diploma/degree)	5	33.33
Short-term courses	6	40
Workshops/seminars/conferences/refresher courses	10	66.66
Colleagues/friends	5	33.33
Self-study	8	53.33
Web-based tutorial (YouTube, webinars)	10	66.66

Table 3: Methods for development of ICT competency

Table-3 shows that 10 (66.66%) library professionals developed their skills through Workshops/seminars/conferences/refresher courses, 6 (40%) library professionals developed their skills through short-term courses, 8 (53.33%) library professionals acquired their skills through Self-study, and 10 (66.66%) library professionals became skilled through Web-based tutorial (YouTube, webinars). Formal education (diploma/degree) was the medium for about 5 (33.33%) of library professionals while 5 (33.33%) of library professionals developed their skills through their Colleagues/friends.

7.4 ICT skills and competency toward library automation

Particular	Excellent	Good	Fair	Poor	Undecided	Total
Acquisition	9(60)	6(40)	0	0	0	100
Circulation	9(60)	6(40)	0	0	0	100
Serial control	5(33.33)	9(60)	0	1(6.66)	0	100
Cataloguing	6(40)	8(53.33)	1(6.66)	0	0	100
OPAC/ Web OPAC	7(46.66)	8(53.33)	0	0	0	100

Table 4: ICT skills and competency toward library automation

Table 4 lists the measures of ICT skills in the automation activities of LIS professionals in the Sindhudurg District. The result confirmed that 9 (60%) library professionals had excellent skills in the acquisition work of the library. This was followed by 9 (60%) library professionals with excellent ICT skills concerned with circulation functions in the library, 9 (60%) library professionals had good ICT skills and 5 (33.33%) excellent ICT skills related to serial control activities, 8 (53.33%) library professionals had good ICT skills about the Cataloguing while 8 (53.33%) LIS professionals had good ICT skills about OPAC/ Web OPAC.

7.5 Skills and competency toward operating systems

Particular	Excellent	Good	Fair	Poor	Undecided	Total
Windows	8(53.33)	7(46.66)	0	0	0	100
Linux	2(13.33)	6(40)	3(20)	3(20)	1(6.66)	100
UNIX	2(13.33)	5(33.33)	2(13.33)	4(26.66)	2(13.33)	100

Table 5: Skills and competency toward operating systems

Table 5 gives the level of skills and competency of library professionals while utilizing three operating systems Windows, Linux, and UNIX. It was found that 8 (53.33%) library professionals had excellent skills and competency in using Windows. 6 (40%) library professionals had good skills and competency in using Linux operating systems.

7.6 Skills and competency toward bibliographic and metadata standards

Particular	Excellent	Good	Fair	Poor	Undecided	Total
MARC 21	2(13.33)	9(60)	2(13.33)	1(6.66)	1(6.66)	100
Z39.50	1(6.66)	8(53.33)	3(20)	2(13.33)	1(6.66)	100
Dublin Core	1(6.66)	8(53.33)	2(13.33)	3(20)	1(6.66)	100

Table 6: Skills and competency toward bibliographic and metadata standards

Table 6 gives an account of the skills and competency of library professionals toward bibliographical description and metadata standards. The result indicates that 9 (60%) library professionals were having good skills related with the MARC 21. About 8 (53.33%) library professionals possessed good skills and competency about the Z39.50 and 8 (53.33%) of professionals had good skills related to Dublin Core. In the context of Dublin Core, 3 (20%) library professionals showed poor skills and competency.

7.7 Skills and competency towards ILMS software

Particular	Excellent	Good	Fair	Poor	Undecided	Total
e-Granthalaya	5(33.33)	9(60)	0	1(6.66)	0	100
KOHA	5(33.33)	6(40)	0	3(20)	1(6.66)	100
NewGenLib	3(20)	5(33.33)	3(20)	4(26.66)	0	100
SOUL	5(33.33)	6(40)	0	3(20)	1(6.66)	100

Table 7: Skills and competency towards ILMS software

Table 7 gives an analysis of library professionals' skills and competency toward integrated library management system software in the library. The result exposes that 9 (60%) library professionals were good skills and competency in using e-Granthalaya software, 6 (40%) library professionals had good skills and competency toward KOHA Software, and about 5 (33.33%) library professionals had excellent skills and competency toward KOHA Software. There were 5 (33.33%) library professionals who had good skills and competency in the NewGenLib software; 6 (40%) professionals had good skills in SOUL software and 5 (33.33%) of library professionals had excellent skills and competency related to SOUL Software.

7.8 Skills in institutional repository software

Particular	Excellent	Good	Fair	Poor	Undecided	Total
DSpace	6(40)	7(46.66)	0	2(13.33)	0	100
Greenstone	3(20)	5(33.33)	2(13.33)	4(26.66)	1(6.66)	100
Fedora	2(13.33)	5(33.33)	3(20)	4(26.66)	1(6.66)	100
E prints	3(20)	5(33.33)	2(13.33)	4(26.66)	1(6.66)	100

Table 8 Skills in institutional repository software

Table 8 indicates that library professionals had good skills in DSpace with 7 (46.66%) and 6 (40%) in excellent ratings. Respectively 5 (33.33%) of Greenstone, Fedora, and E print software had good skills and competency in library professionals, and 4 (26.66%) respectively poor skills and competency.

7.9 Skills and competency towards content management system

Particular	Excellent	Good	Fair	Poor	Undecided	Total
Joomla	2(13.33)	7(46.66)	3(20)	3(20)	0	100
Drupal	5(33.33)	5(33.33)	2(13.33)	3(20)	0	100

Table 9: Skills and competency towards content management system

Table 9, it was found that 7 (46.66%) of library professionals had shown good skills and competency in Joomla content management software and 3 (20%) had poor skills in Joomla. About respectively 5 (33.33%) LIS professionals had excellent and good skills and competency and 3 (20%) of professionals were poor in Drupal content management system.

7.10 Skills in Plagiarism software

Particular	Excellent	Good	Fair	Poor	Undecided	Total
TURNITIN	5(33.33)	5(33.33)	0	3(20)	2(13.33)	100
URKUND	4(26.66)	6(40)	0	3(20)	2(13.33)	100

Table 10: Skills in Plagiarism software

Table 10 indicates LIS professionals' skills in Plagiarism software, about 5 (33.33%) respectively LIS professionals had shown excellent and good skills in TURNITIN and 6 (40%) of LIS professionals had good skills and competency in URKUND software.

7.11 Skills and competency towards Reference Management software.

Particular	Excellent	Good	Fair	Poor	Undecided	Total
EndNote	2(13.33)	8(53.33)	1(6.66)	4(26.66)	0	100
Mendeley	4(26.66)	6(40)	1(6.66)	2(13.33)	1(13.33)	100
RefWorks	3(20)	6(40)	1(6.66)	4(26.66)	1(6.66)	100
Zotero	5(33.33)	6(40)	1(6.66)	3(20)	0	100

Table 11: Skills and competency towards Reference Management software

Table 11 shows that 8 (53.33%) of library professionals had good skills and competency in EndNote software, respectively 6 (40%) of Mendeley, RefWorks, and Zotero software had good skills and competency in LIS professionals.

7.12 Problems faced by LIS professionals while using ICT applications

Problem	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total
Inadequate skills	3(20)	7(46.66)	1(6.66)	3(20)	1(6.66)	100
Lack of knowledge	3(20)	6(40)	2(13.33)	3(20)	1(6.66)	100
Lack of ICT competency	3(20)	4(26.66)	2(13.33)	4(26.66)	2(13.33)	100
Lack of software	3(20)	7(46.66)	3(20)	2(20)	0	100

Table 12: Problems faced by LIS professionals while using ICT applications

Table 13 show that the problems faced by library professionals while using ICT applications in the library. It was observed that 7 (46.66%) of library professionals Agree that having inadequate skills; 6 (40%) library professionals agreed to face problems Lack of knowledge; 4 (26.66%) library professionals disagreed towards the lack of ICT competency and 4 (26.66%) professionals agreed that having lack of ICT competency in the library. 4 (26.66%) of LIS professionals face the problem of a Lack of software. Overall the result indicates that the majority of the library professionals were facing various types of problems while utilizing ICT applications.

Conclusion: ICT includes computers and communication technology for the processing, storage, and retrieval of information effectively. With the help of ICT, library professionals can introduce new resources and services to the target users. The findings of the present study establish that the majority of library professionals have a few advanced skills. Many library professionals develop their ICT skills and competencies through workshops, seminars, conferences, refresher courses, self-study, and web-based tutorials such as YouTube, and webinars. Most library professionals were between 1-10 years of work experience. The majority of library professionals was good ICT skills and competencies in the area of library automation. Many library professionals have good skills with DSpace software. Most library professionals have excellent skills and competencies in circulation and acquisition modules of software. Usually, the study found that most library professionals face problems like inadequate skills and lack of software when using ICT applications.

References:

1. Ali, K. (2022). Digital Information Literacy Skills among Library and Information Science Professionals in University Libraries of Sindh Pakistan. *Journal of Information Management and Practices (JIMP)*, 2(1), 41-61.
2. Bajpai, V. K., & Madhusudhan, M. (2019). ICT Skills and Competencies of Library and Information Science Professionals working in College Libraries, University of Delhi: A study. *Library Philosophy & Practice*. Retrieved July 30, 2023, from <https://digitalcommons.unl.edu/libphilprac/2275>
3. Gawali, D. Y., & Surwade, Y. P. (2016). Use of Information Communication Technology (ICT) in Libraries. *International Research Journal of India*, 2(3), 1-4.
4. Kushawaha, P. P., & Verma, S. (2018). ICT Skills and Attitude of Library Professionals of Mahatma Gandhi Kashi Vidyapith and Sampurnanand Sanskrit Vishwavidyalaya: a comparative study. *International Journal of Information Movement*, 2(11), 217-221.
5. Kushawaha, P. P. (2018). Impact of ICTs on libraries and its service in digital era. *International Journal of Information Movement*, 2(9), 69-71.

6. Singh, M. P., & Kushawaha, P. P. (2020). An Assessment of Information Communication Technology Skills and Competencies of Library and Information Science Professionals Working in Eastern State University Libraries, Uttar Pradesh: a study. *World Digital Libraries-An international journal*, 13(2), 77-86.
7. Togam, M., & Khairnar, C. (2022). ICT Literacy of Library Professionals Working in Law Colleges. *International Journal of Advance and Applied Research*, 10(1), 147-155.
8. Viswe, R. R. (2019). Assessment of ICT Literacy Skills of Library and Information Professionals in Selected University Libraries in Gujarat, India. *Journal of Advancements in Library Sciences*, 6(2), 62-72.

20

राष्ट्रीय शैक्षणिक धारेण : एक आकलन

प्रा.डॉ.प्रविण मुरलीधरराव भोसले

क्रीडा विभाग प्रमुख

स्वामी रामानंद तीर्थ महाविद्यालय, अंबाजोगाई

प्रास्ताविक :

मानवीसमाजजीवनवशिक्षणांचा अत्यंत घनिष्ठ संबंध असून कालानुक्रमे मानवास प्राप्त झालेल्या व मानवाने मिळवलेल्या ज्ञानविकास साधनेतून त्याने सातत्याने चकाहीनाकाही तरी मिळविण्याचे, शोधण्याचे व जाणण्याचे कार्य केले आहे. मानवी ज्ञानोपासना ही प्रगत काळास अनुसरून त्या त्या वेळी अत्यंत उपयोगी पडलेली असून मानवी जीवनाच्या अनेक विधक्षेत्रास त्याने बुद्धीवज्ञान कौशल्याने हस्तगत केले आहे. असेच नसून त्यावर त्याने ताबा, हक्क व अधिकार मिळवले आहेत.

शिक्षण क्षेत्राचा विचार करताना ही आजपर्यंत शिक्षण आयोग आणि समित्या ही पुढे आलेल्या दिसतात.

मानवाच्या विकास प्रगतीत सुधारणावाद आदर्शवाद हा मूल्य शिक्षणातून देण्याबरोबरच अलीकडे चमू जेच सन 2020 मध्ये शिक्षणात काहीनवे जुने फेरबदल लक्षात घेता राष्ट्रीय शैक्षणिक धोरण पुढे आले आहे.

या धोरणासंदर्भात अनेकांची अनेक मतमतांतरे ही निर्माण झालेली असून आज शिक्षणारे व शिक्षक व नात्यांच्या विचारधारेत व चर्चेत ही एक नवी आशा, दिशा आणि वादळ ही निर्माण केले आहे.

राष्ट्रीय शैक्षणिक धोरणाबाबत कोणाची काहीही मतमतांतरे असोत व असतात ही.

मला आकलन झालेल्या या राष्ट्रीय शैक्षणिक धोरणाची मांडणी मी माझ्या अत्यल्प शब्दात प्रस्तुत राष्ट्रीय शैक्षणिक धोरण : एक आकलन या लघुशोधनिबंधातून करत आहे.

संशोधनसमस्येची गरज व महत्त्व :

आपण जेव्हा कोणत्याही विषयावर संशोधनास सुरुवात करतो तेव्हा ते संशोधन करणे का गरजेचे आहे व त्याचे कोणते महत्त्व आहे हे जाणून घेणे संशोधनाची परिपूर्ती करतो.

प्रस्तुत लघुशोधनिबंधाच्या संदर्भात ही राष्ट्रीय शैक्षणिक धोरणाबाबत मला ज्ञात झालेली काही निवडणूक माहिती व त्याचे स्वरूप,

महत्त्व आणि उपयोजनाबाबत मांडणी आवश्यक वाटल्यामुळे या चर्चेपोटी ही संशोधनसमस्या निवडून त्यातून जे काही थोडे फार महत्त्व जाणून घेता येईल ते या अर्थाने ही मांडणी करण्यात येत आहे.

संशोधनाची उद्दिष्ट्ये :

कोणत्याही विषयाच्या संशोधन परिपूर्तीसाठी संशोधकास त्या संशोधनाची उद्दिष्ट्ये काय?

व कोणती आहेत अथवा असावित आणि असली पाहिजेत हे लक्षात घेऊन संशोधन पूर्ण करावे लागते.

प्रस्तुत विषयानुषंगिक अशी काही नेमकी उद्दिष्ट्ये पुढील प्रमाणे आहेत.

1. शिक्षण

व शिक्षण प्रणाली ही महत्वाची असून शिक्षणात येणाऱ्या नव्या धोरणांना लक्षात घेणे व सामाजिक जीवनात त्याचे स्थान व उपयोजन काय आहे हे जाणणे.

2. नविन राष्ट्रीय शैक्षणिक धोरणाबाबतचे आकलन त्रोटक शब्दात शब्दात मांडणे.

3. शिक्षण प्रणाली व्यवस्थित पणे कशी कार्यरत राहिल्यासंदर्भाने लेखन, वाचन आकलन करून घेणे.

गृहितके :

संशोधनाच्या परिपूर्तीसाठी गृहितके महत्वाची असतात.

कारण काही तरी गृहीत धरल्याशिवाय लघुशोधनिबंधाची परिपूर्ती होत नाही व त्या विषयाचे सखोल पणे स्पष्टीकरणही करता येत नाही.

1. शिक्षणातील बदलती परिमाणे, पद्धती, आधार व ध्येय धोरणे ही बऱ्याच वेळा आकलन होत नाहीत.

2. हीध्येयधोरणे जाणून घेण्यासाठी त्यावर सातत्याने लेखन, संशोधन केले पाहिजे.

3. प्रत्येकध्येयधोरणे ही समाप्त पुरकवप्रेरक असता ते लक्षात घेवून राष्ट्रीय शैक्षणिक धोरणाकडे दूरदृष्टीने पाहिले पाहिजे.

शोधनिबंधाच्या निर्धारित आराखड्याप्रमाणे वाकृतीबंधानुसार मंडणी केल्यानंतर मी राष्ट्रीय शैक्षणिक धोरणाबाबत मला ज्ञात झालेले आकलन हे पुढील अत्यल्प शब्दात मंडण्याचा प्रयत्न करत आहे.

सामाजिक समाज जीवनाचा परिघ व काळ पटहा विस्तीर्ण असून प्रगत काळखंडानुसार प्रगत जीवन असते व असले पाहिजे. शिक्षण क्षेत्रातील परिवर्तने लक्षात घेता कोठारी आयोग, मुदलियार आयोग, राधाकृष्णन आयोग, एन.सी.ई.आर.टी. तसेच त्या वेळीलोकमान्य बाळगंगाधर टिळक यांनी मंडलेली राष्ट्रीय शैक्षणिक धोरणाची मूलभूत संकल्पना व मंडणी ही तशी मला जुनीच वाटते. हेच शिक्षण धोरण आज पुन्हा 2020 मध्ये नव्याने पुढे घेवून आपणास ते नविन वाटत आहे. या धोरणात काही नवे जुने असे फेरबदल झालेले आहेत. कारण हे धोरण आजच्या काळात जसे च्या तसे पुढे आणले गेले नाही.

संस्थात्मक पातळीवरील फेरबदल, संस्थांना अधिकार, क्रेडीत बेस्ड शिक्षण, बहुआयामी शिक्षण, विषयव्यक्ती स्वातंत्र्यांना प्रेरणास्थान, सर्वांना समान संधी व समान शिक्षण, चार वर्षांची बी.एड. पदवी, पदवीवर्गात असतानाच संशोधनाची संधी, मागे लयाला व पाहिजेतसे आणि पाहिजे तिथे शिक्षण, समता व स्वातंत्र्याबरोबर योग्य न्याय, नविन अभ्यासक्रम, तंत्रज्ञानास व तंत्रज्ञान पुरक शिक्षण, नविन अध्ययन व अध्यापन पद्धती क्लस्टर, कॉलेज, स्वायत्त महाविद्यालये,

सेवानिवृत्तीनंतरही उत्तम अध्यापक व प्राध्यापकांना सेवेच्या संधी, कामतसादाम म्हणजे चेत्या त्या योग्य कार्यानुसार त्याचा योग्य वेळीच मोबदला, अध्यापन शास्त्रास प्राधान्य, अप्रशिक्षित अध्यापक व प्राध्यापकांना प्रशिक्षित करणे अशा अनेकार्थाने हे राष्ट्रीय शैक्षणिक धोरण पुढे आलेले दिसते. एका अर्थाने समाप्तीसर्वा अर्थाने सशक्त, समर्थ व समृद्ध असे सर्व व्यापी व कौशल्याधारीत शिक्षण म्हणजे राष्ट्रीय शिक्षण होय. जॉन ड्यूई सारखे पाश्चात्य शिक्षण तज्ज्ञ लक्षात घेता शिक्षणाच्या व्यापक मूलभूत दृष्टी असणारे शिक्षण तज्ज्ञ म्हणून आपणास विचार करता येतो.

बदलत्या काळानुसार बदलती द्येयधोरणे ही महत्वाची असतात. त्यात राष्ट्रीय शिक्षण धोरण ही अपवाद ठरत नाही. प्रत्येक व्यक्ती व कुटुंब आणि समूह व समाजाने या धोरणाकडे व्यापकतेने पहावे. संकुचितपणा आणि निडोळसपणा हा समाज विघातक ठरत असतो.

संशोधनाची व्याप्ती :

प्रस्तुत लेख संशोधनाची व्याप्ती लक्षात घेता शिक्षण क्षेत्राशी निवडीत असलेल्या नविन राष्ट्रीय शैक्षणिक धोरणाशीच निगडीत आहे. कारण अव्याप्ता व अती व्याप्ता कोणत्याही संदर्भात अविश्वासनीय ठरत असते.

संशोधनाची पद्धती :

प्रस्तुत लेख शोधनिबंधाच्या परिपुर्तीसाठी सहसंबंधात्मक संशोधन पद्धतीचा अवलंब करण्यात आलेला आहे. कारण प्रस्तुत विषय हा वर्तमान काळाशी निगडीत असून महत्वाचाही आहे.

निष्कर्ष :

प्रस्तुत विषयानुषंगाने पुढील काही निष्कर्ष सांगता येतील.

1. हे राष्ट्रीय शैक्षणिक धोरण महत्त्वचे व दूरदृष्टीचे आहे.
2. या धोरणोड व्यापे दृष्टी कोनातून पाहिले पाहिजे.
3. शिक्षणात पारंपारिक शिक्षणास स्थान व महत्त्व नसे.
4. काळक्रमानुसार नवे घेणे व स्वीकारणे अपरिहार्य असते.
5. शिक्षण सर्वासाठी व सर्वार्थाने योग्य, पुरक व प्रेरक असले पाहिजे.

संदर्भग्रंथ :

1. प्रा. बन्सी बिहारी पंडित शिक्षणातील संशोधन
2. डॉ. वि. रा. भिंतोड - शैक्षणिक संशोधन
3. प्राचार्य डॉ. मा. गो. माळी भारतीय शिक्षणातील मूलभूत समस्या
4. प्रा. डॉ. रुद्देवाड बी. पी. शिक्षण व राष्ट्रीय शैक्षणिक धोरण.

5. प्रा.डॉ. रूदेवाडबी.पी. सामाजिकवशैक्षणिकसमाजशास्त्र

Artificial intelligence is changing the teaching-learning process in education

Dr. Awchar Savita Sadashivrao

Librarian

Bahirji Smarak Mahavidyalaya, Basmat Dist. Hingoli

=====

Abstract:

The contribution of computer science (AI) within the field of education has invariably been important. From robotic teaching to the event of an automatic system for answer sheet analysis, AI has invariably helped each the lecturers and also the students. during this research we've got done thorough analysis of the assorted analysis developments that were applied across the world like computer science techniques applied to education sector thus on summarize and highlight the role of AI in teaching and student's analysis. Our study shows that AI is that the backbone of all the information science enabled intelligent tutor systems. These systems helps in developing qualities like self reflection, responsive deep queries, partitioning conflict statements, generating artistic queries, and choice-making skills.

Introduction:

Education plays a key role in the development of human civilization. Since ancient times, the method of learning is constantly evolving and undergoing numerous changes due to new technologies. We are all familiar with traditional ways of learning where education is imparted within the walls of classrooms to a group of students. With the intervention of the internet and digital technology, the online platform is trending slowly and surely taking the place of classrooms. Thus, the modern education system has completely eradicated the space limitation of a classroom by encouraging the participation of more students from every corner of the world. By providing knowledge through online platforms or websites, the modern education system has been able to attract a variety of students and teachers to participate in technology-based learning. Freed from any kind of limitations of time, space or number of students, the popularity of online learning is increasing day by day. Still constantly changing to ensure the quality of education, online learning has a number of benefits – flexibility, lower costs, and wide range of content.

In recent decades, Artificial Intelligence (AI) has become increasingly present in our lives, having a significant impact in various fields, including education. Education has undergone a series of changes and under the impact of artificial intelligence that brings with it the opportunity to transform, to adapt the way the teaching/learning process is carried out. There is a need to research the impact that artificial intelligence is having on education as we know it, and how we can use this discovery to improve the experiences of students and teachers. Therefore, we start this study with the definition and characteristics of artificial intelligence. Thus, artificial intelligence refers to the development of systems and machines that can simulate intelligent human behavior, such as learning, reasoning, and problem-solving. It involves the use of algorithms and complex mathematical models to enable machines to learn and improve their performance autonomously and the fundamental purpose of AI is to enable machines to exhibit traits specific to human intelligence.

One of the key elements of Artificial Intelligence is the ability to learn. Intelligent systems are designed to learn from data and experiences, identify patterns and trends, and improve their performance over time.

Key Words: Use of artificial intelligence in education, Artificial Intelligence in Education, various fields where AI has an impacted.

Artificial intelligence is changing the teaching-learning process in education:

Since the origin of the establishment of education, the strategies of teaching and also the bond shared between learners and educators have evolved considerably. Teaching strategies across the world became additional structured to administer higher, additional efficient results. This transformation will be majorly attributed to the continued intervention of technology.

On the rear of continuous technological advancement, we tend to square measure witnessing paradigm shift within the teaching-learning method. The connection between educators and students is dynamical, wherever educators became additional approachable and far higher at understanding their students' views. Technology has created learning additional cooperative, as academics and students square measure operating in bicycle-built-for-two to realize higher outcomes.

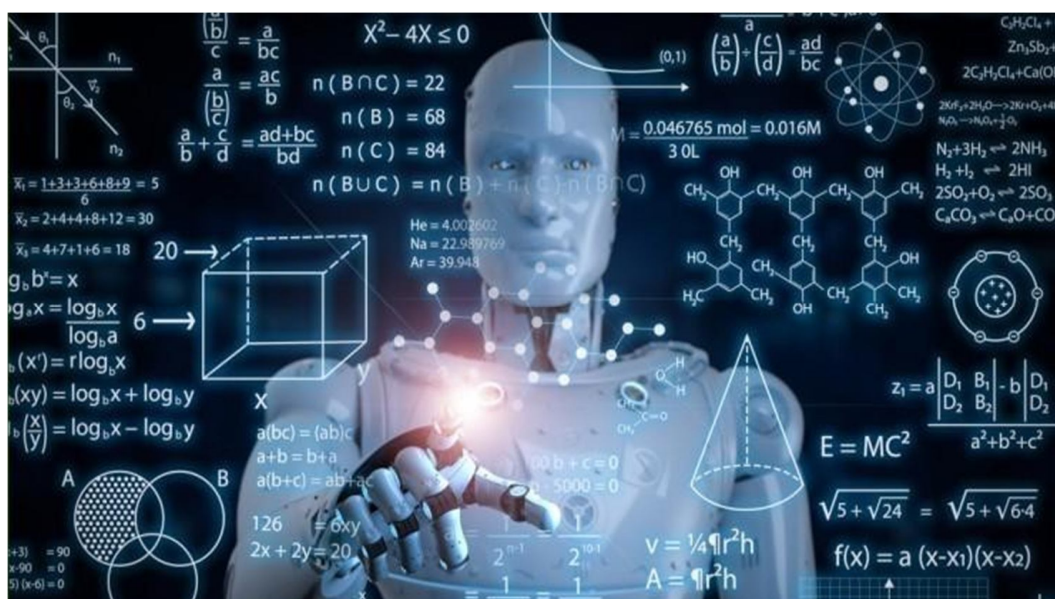


Image Source: <https://thedata scientist.com/general-ai/>

❖ Use of artificial intelligence in education:

The use of Artificial Intelligence continues to grow in the education sector. It is becoming increasingly clear to all that it offers many exciting possibilities for the learning outcomes of pupils/students and already promises important help in achieving modern educational goals. We will briefly examine some potential benefits that AI offers to students and teachers.

AI brings benefits and opportunities to education by facilitating personalization of learning, providing instant feedback and improving efficiency in the assessment process. Thus, artificial intelligence can be integrated into online learning platforms, allowing content and activities to be customized according to the needs and knowledge level of each student. Learning management systems can use artificial intelligence to provide personalized recommendations, automatic feedback and monitor student progress. Thus, pupils and students can access relevant materials and resources according to their individual needs. Virtual reality can also help students encourage collaboration and teamwork, and tools like social media can be used to connect students with their peers and instructors.

Furthermore, AI can be used to create tutorials and interactive virtual assistants, systems

that can answer students' questions, provide additional explanations, and guide students in real-time through the learning process. Thus, through tutorials and virtual assistance students can benefit from additional support and learn at an individualized pace receiving real-time guidance to support the learning process (Mahendra 2023).

A highly effective use of AI is to forecast performance through data analysis, identifying patterns and trends. By collecting and analyzing data about student performance and behavior, AI can provide valuable insights into individual performance and make predictions about a student's success or failure. This can help teachers and schools make informed decisions and provide early intervention to support pupils/students.

❖ **Artificial Intelligence in Education:**

1. **AI can automate basic activities in education, like grading.**

While AI might not ever be ready to actually replace human grading, it's obtaining pretty shut. It's currently potential for academics to alter grading for nearly every kind of multiple alternative and fill-in-the-blank testing and automatic grading of student writing might not be so much behind..

2. **Students could get additional support from AI tutors.**

These programs will teach students fundamentals, however up to now aren't ideal for serving to students learn high-order thinking and creative thinking, one thing that real-world lecturers square measure still needed to facilitate. Nonetheless that shouldn't rule out the likelihood of AI tutors having the ability to try to these items within the future.

3. **AI-driven programs can give students and educator her lapful feedback.**

AI cannot solely facilitate academics and students to craft courses that are bespoke to their wants; however it may give feedback to each concerning the success of the course as an entire. These sorts of AI systems enable students to urge the support they have and for professors to search out areas wherever they'll improve instruction.

4. **It could change the role of teachers.**

There will always be a job for teachers in education, but what that role is and what it entails may change because of new technology within the type of intelligent computing systems. As we've already discussed, AI can take over tasks like grading, can help students improve learning, and should even be a substitute for real-world tutoring.

5. **Data powered by AI can change how schools find, teach, and support students.**

Smart data gathering, powered by intelligent computer systems, is already making changes to how colleges interact with prospective and current students. From recruiting to helping students choose the foremost effective courses, intelligent computer systems are helping make every a neighborhood of the faculty experience more closely tailored to student needs & goals.

❖ **Latest Applications of Artificial Intelligence recent trends real world:**

:-The reared various fields where AI has an impacted on it,

1. **AI in Marketing: Customer data is been used with the help of Machine learning to predict a person's actions and helps for easy segmentation for the marketers.**

2. **AI in Banking:** Fast growing approach where many banks are using the AI driven techniques to detect fraud of credit cards, detect anomalies and provide Customer support via Electronic Virtual Assistant.

3. **AI in Finance:** DS uses this approach to detect patterns in market in very short spanof time. These machines keep a view on past data patterns and predict future insights of the data.

4. **AI in Agriculture:** Use of some automation approach it helps farmers for the better yield of their crops and also to protect them from weeds.

5. AI in Healthcare: It uses complex algorithms to detect and emulate complicated human conditions and provide medication in advance.
6. AI in Gaming: for generation of adaptive and intelligent behaviour for Players.
7. AI In Space Exploration: AI and ML is the best way to handle and process data in this scale. This AI is been used for NASA'S next Mission Mars 2020.
8. AI in Autonomous Vehicles: AI System collects data from the vehicles radar, cameras, GPS, and cloud services to produce control signals that operate the vehicle.
9. AI in Chat Bots: Virtual Assistance are been widely used in every house today, such as Siri, Alexa, Cortana. It can be used to control devices in house, Book Cabs, Order Food etc.
10. AI in Artificial Creativity: Artificial Creativity such as Social Platforms like Face book. AI uses Machine learning and Deep Learning algorithm techniques for Face detections and Automatic Tagging, design feed based on our interest, detect hate speech and Negative Content.

❖ **AI and Future Workforce:**

The World Economic Forum estimates that, by 2022, an outsized proportion of firms can have adopted technologies like machine learning, and thus powerfully encourages governments and education to concentrate on apace raising education and skills, with attention on each STEM (science, technology, engineering and mathematics) and non- cognitive soft skills.

- Know how to employ changing technology, such as AI, to their advantage
- Understand away to work with people during at exam to drawback solve effectively

Preparing students to figure aboard AI within the future will begin early. As most youngsters are snug with digital technology by the time they're of faculty age, teaching them the abilities they'll have to be compelled to thrive during a digital work is vital. Add the inclusion of AI in education, and also the forces of the longer term are going to be higher ready to face the unknown challenges of the work of tomorrow.

References:

1. Artificial intelligence and its scope in different areas with special reference to the field of education. Retrieved from Educational Journal, Verma, M. (Jan, 2018).
2. Business Insider Nederland, Consumer-goods giant Unilever has been hiring employees using brain games and artificial intelligence – and it's a huge success, 2017
3. Coşman, Oana. 2021. „Universal Robots: What are collaborative robots and how can we work alongside them.” Available at <https://zoom.vodafone.ro/universal-robots-ce-sunt-robotii-colaborativi-si-cum-putem-lucra-alaturi-de-ei/>, accessed on May 23, 2023.
4. Mahendra, Sanksshep. 2023. „How is AI Being Used in Education.” Available at <https://www.aiplusinfo.com/blog/how-is-ai-being-used-in-education/>, accessed on May 23, 2023.
5. Using AI to augment human sander design operations, Rehan Khan, BT contact consulting, Jan 2019.
6. Vimal, Daga. 2022. „Impact of AI on future job roles.” *The times of India*. Available at <https://timesofindia.indiatimes.com/blogs/voices/impact-of-ai-on-future-job-roles/>.

नाविण्यपूर्ण अध्ययन आणि अध्यापन पद्धती

प्रा.डॉ.रुहेवाड बी.पी.

मराठी विभाग प्रमुख

स्वामी रामानंद तीर्थ महाविद्यालय, अंबाजोगाई

प्रारंभावरण :

सामाजिक समाज जीवनास पुरक व प्रेरक असणाऱ्या शिक्षण पद्धती व शिक्षण पद्धती व शिक्षण प्रणालीमध्ये सातत्याने नवनवे फेरबदल होत आहेत. शिक्षक आणि शिक्षण हे दोन्ही घटक अनंत काळाची गरज आणि अनंत काळाचे साक्षीदारही असतात हे आपणास कदापीही विसरता येत नाही. व्यक्ती, कुटुंब व समूह आणि समाजासाठी तसेच राज्य राष्ट्र व देशहितासाठी आणि विकासासाठीही शिक्षण घेणे व देणे म्हणजेच अध्ययन अध्यापन करणे अत्यंत महत्वाचे असते. प्रस्तुत लघु शोध निबंधात मी काही अध्यापन पद्धती व नविन अध्यापन पद्धती संदर्भात त्रोटक संदर्भात मांडणी करणार आहे.

संशोधन समस्येची गरज व महत्त्व-

उपनिर्दिष्ट विषयानुषंगाने संशोधन समस्येची गरज व महत्त्व पुढील प्रमाणे विशद करता येते.

1. शिक्षण प्रक्रियेत अध्ययन अध्यापनाचे महत्त्व.
2. कालानुरूप बदलणाऱ्या शिक्षण पद्धती व अध्यापन पद्धती.
3. राष्ट्रीय शैक्षणिक धोरणानुकूल अभिप्रेत असणारे शिक्षण आणि अध्ययन अध्यापन पद्धती.
4. समाज जीवनास पुरक व प्रेरक असणारे सातत्यपूर्ण शिक्षण. यावरील व अन्य काही महत्त्वपूर्ण संदर्भ घटकांना लक्षात घेण्यासाठी संशोधन समस्येची गरज भासते व या शोधातून आणि अभ्यासातून त्याचे महत्त्वही जाणून घेता येते.

संशोधनाची उद्दिष्ट्ये :

कोणत्याही शिक्षणात विशेषतः शिक्षण शास्त्रात संशोधनाची उद्दिष्ट्ये ही महत्त्वपूर्ण ठरतात. उद्दिष्टाशिवाय संशोधन हे साधार, चिकित्सक, योग्य आणि परिपूर्ण होत नाही. यासाठी या वरील विषयानुषंगाने लघु शोध निबंधाच्या परिपुर्तीसाठी पुढील काही उद्दिष्ट्ये निर्धारित केलेली आहेत.

1. शिक्षणातील अध्ययन अध्यापनाचे महत्त्व जाणून घेणे.
2. विषय निहाय व वर्गनिहाय अध्ययन अध्यापन पद्धती बदलणे,
3. अध्ययन अध्यापनाचे शास्त्रीय अधिष्ठाण मांडणे.
4. परिवर्तनशील व नव्या अभ्यासक्रम रचना व नव्या शिक्षण धोरणानुसार अध्ययन अध्यापनाची नव्याने मांडणी व नव्या अध्यापन पद्धती संदर्भात शोध घेणे.

संशोधनसंदर्भातील गृहितके :

प्रस्तुत विषयानुषंगाने पुढील काही महत्त्वपूर्ण गृहितके लक्षात घेऊन विषयाची संशोधनात्मक मांडणी करता येईल.

1. अध्ययन अध्यापन प्रक्रियेत उत्तमपणे ज्ञानदान होत नाही.
2. बहुतेक शिक्षित व अप्रशिक्षित अध्यापक प्राध्यापकांना मुळातच अध्यापन पद्धती, प्रकार, स्वरूप, महत्त्व हे अज्ञातच आहेत.
3. वर्गविविषयनिहाय पातळीवरून अध्यापन करताना नवनवीन अध्यापन पद्धती वापरल्या पाहिजेत पण असे होताना दिसत नाही.
4. शिक्षण शास्त्र पदविका, पदवी व पदव्युत्तर विद्यालय व महाविद्यालयात प्रशिक्षण व शिक्षण घेवून शिक्षकी आणि प्राध्यापकी पेशामध्ये आलेल्या व्यक्तींनाच अध्ययन अध्यापन पद्धती माहित असून अन्य व्यक्ती व अध्यापक,

प्राध्यापकांना याची माहिती व जाणिवना ही वाटते. अशालघुशोधनिबंधाच्या परिपुर्तीसाठी पुरक ठरणाऱ्या वरील आकृती बंधाच्या रचने नुसार मांडणी केल्यानंतर प्रस्तुत विषयानुषंगाने पुढील प्रमाणे मांडणी करता येईल.

शिक्षण ही सातत्याने गतीमान असलेली एक पद्धती, प्रक्रिया व प्रणाली असल्यामुळे या मध्ये किती? कुठे?, कसे?, कुठपर्यंत फेरबदल होतील हे सांगता येत नाही.

प्राचीन कालीन गुरूगृही अध्ययन अध्यापन करण्याची पद्धती संपुष्टात येऊन पुढे पुढे कालक्रमानुसार शाळा महाविद्यालयातून वेगवेगळे विषय वेगवेगळ्या वर्गात शिकवले जाऊ लागले.

शिकणे व शिकविणे ही प्रक्रिया आणि पद्धती आजही काय मराहिली असून अध्यापनाच्या विविध पद्धतींची माहिती व जाणिव असणारे अध्यापक व प्राध्यापक चाही वेळोवेळी फार पद्धतीने वेगवेगळ्या अध्यापन पद्धती वापरून वर्गात शिकवतात.

वास्तविक पाहता शिकणे आणि शिकविणे ही एका अर्थाने कला तर दुसऱ्या अर्थाने पद्धत, शास्त्र आहे याची जाणिव मुळात अध्ययनार्थी व अध्यापकांना असली पाहिजे. पण असे होताना दिसत नाही. कोणत्याही एखाद्या वर्गात कोणताही विषय उत्तम पणे शिकण्यासाठी व शिकवण्यासाठी बहुतेक बाबी, घटक, संदर्भ, साधने ही अत्यंत महत्वाची असतात.

अध्ययनार्थींच्या दृष्टीने प्राथमिक स्वरूपात अध्यापना वेळी वर्गात असणारे अवधान, वर्गबोल्यांची स्वच्छता, बसण्याची उत्तम सोय वर्गातील स्वच्छता, शाळा महाविद्यालयातील इतर महत्त्वपूर्ण सोई सुविधांची उपलब्धता, विद्यार्थी उपस्थिती,

आणि आर्थिक पाठबळ अथवा परिपुर्ती या सर्व बाबी विद्यार्थ्यांच्या अध्ययनास परिपूर्ण करण्यासाठी महत्त्वपूर्ण, प्रबळ व अत्यावश्यक ठरतात. वर्गाध्ययन करणारे अध्यापक हे त्या विषयातील शिक्षित, प्रशिक्षित, विषयतज्ञ, उत्तम वाचक व अभ्यासक आणि लेखन करणारे ही असले पाहिजेत. वर्गात शिस्त ठेवणारे, स्वतः शिस्त बद्ध असलेले, सातत्याने नव्या अनुभवाने शिकवणारे, वेळ प्रसंगी विद्यार्थ्यांना कमी अधिक आर्थिक कमी करणारे, प्रबलन करणारे व प्रसंगी शिक्षा व मार्गदर्शन करणारे असले पाहिजेत. उत्तम फलक लेखन, विषय विवेचन व स्पष्टीकरण, आशय युक्त अध्यापन पद्धतींचा अवलंब करून शिकवणारे, वर्ग व विषय निहाय अशा पातळीवरून अध्यापन प्रक्रिया पुर्ण करणारे अध्यापक व प्राध्यापक असले पाहिजेत. शिक्षकास एका पेक्षा अधिक अध्यापन पद्धती माहिती असणे अभिप्रेत आहे. व्याख्यान, कथन, गट चर्चा, प्रकल्प, समस्या निराकरण, ससूह, याबरोबरच प्राध्ययन प्रश्नाध्ययन पद्धती आणि काही स्वनिर्मित व स्वनिर्धारित अशा अध्यापन पद्धतीचा वापर अवलंब करून अध्यापन केले पाहिजे.

नविन अध्यापन पद्धती मध्ये PPT च्या माध्यमातून Online माध्यमातून, तसेच यू-ट्यूब, गुगल मिट वापरातून सचित्र पणे प्रयोगिक पणे वेगवेगळ्या अन्य साधनांद्वारे व माध्यमांद्वारे ही वेगवेगळ्या अध्यापन पद्धती, शैली,

अभिव्यक्ती, अविष्कार व रसाविष्कार वापरून अध्ययन अध्यापन तर केले पाहिजेच पण याशिवाय आपल्या अध्यापनातून अध्यापकाने वेगवेगळी अध्यापनाची पुरक व प्रेरक आणि नविन विनंति माने ही वापरली पाहिजेत.

उत्तम अध्ययन अध्यापनाच्या परिपुर्तीसाठी ज्ञान व नविन अध्यापन पद्धती महत्त्वपूर्ण ठरतात अगदी त्याच प्रमाणे अध्यापनाची प्रतिमाने ही अत्यंत महत्वाची ठरतात.

काळानुसार कालक्रमानुसार वर्ग व विषय निहाय अध्ययन अध्यापन पद्धती वापरल्या जातात व वापरल्याही लागतात.

केवळ ज्ञान असून चालणार नाही तर प्राप्त असलेले ज्ञान हे वारंवार पणे वर्ग व विषय निहाय पातळीवरून उत्तम पणे इतरांना देता आले पाहिजे,

यासाठी प्रत्येक अध्यापक व प्राध्यापकांना विविध अध्यापन पद्धती माहित असणे, त्या पद्धती वापरणे अभिप्रेत असते.

आज प्रगत ज्ञान,

विज्ञान आणि माहिती तंत्रज्ञानाच्या काळात ही केवळ तंत्रज्ञान असून चालणार नाही. तर कोणते ज्ञान हे कुठे?, किती?, कसे?, कोणत्या पद्धतीने, शैलीने, रितीने, अविष्काराने, अभिव्यक्तीने विद्यार्थ्यांना द्यावे हे अध्यापकांना माहित असले पाहिजे.

माहिती आणि त्याचा सुयोग्य वापर या दोन्ही बाबी अध्ययन अध्यापनात महत्वाच्या असतात.

संशोधन पद्धती :

प्रस्तुतविषयानुषंगानेसादरकरण्यातयेणाऱ्यालघूशोधनिबंधाचीव्याप्तीहीकेवळअध्ययन-
अध्यापनाशीनिगडीतअसणाऱ्यानिवडकअध्यापनपद्धतीशीनिगडीतआहे.

संशोधकन्यादशाचीनिवड :

प्रस्तुतन्यादशाचीनिवडहीवर्तमानकालीन,
सद्यःकालीनअस्तित्वातअसलेल्याशिक्षणातीलअध्ययनवअध्यापनपद्धतीलाअनुसरूनकरण्यातआलेलीआहे.

संशोधनाचीपद्धती :

वर्णनात्मकवसहसंबंधात्मकसंशोधनपद्धतीवापरलेलीआहे.

निष्कर्ष :

प्रस्तुतविषयानुषंगानेसादरकरण्यातआलेल्यालघूशोधनिबंधाचेनिष्कर्षहेपुढीललघूशोधनिबंधाचेनिष्कर्षहेपुढीलप्रमाणेआहेत.

1. दिवसेंदिवस शिक्षणपद्धती, प्रवाहातबदलहोतआहेत.
2. शिक्षणपद्धतीतबदलहोणेहेअभिप्रेतचअसते.
3. कालक्रमानुरूपशिक्षणपद्धतीवध्येयधोरणेस्वीकारणेहेमहत्वपूर्णअसूनअपरिहार्यहीअसते.
4. शिक्षणातीलअध्ययन-अध्यापनपद्धतीमहत्वाच्याअसतात.
5. प्रत्येकअध्यापकवप्राध्यापकांनाअध्यापनाच्यानवनविनपद्धतीमाहितअसणेवत्यावापरणेमहत्वाचेअसतेपणअसेहोतानादिसतनाही.

6. प्रशिक्षितवशिक्षणशास्त्रपदविका,
पदवीवपदव्युत्तरअभ्यासक्रमपूर्णकरूनअध्यापनकरणाऱ्याअध्यापकवप्राध्यापकांनाअध्यापनपद्धतींचीमाहिती,
जाणीवअसतेवअसेशिक्षकअध्ययनअध्यापनपद्धतीबद्दलजाणकारअसताततेअनभिज्ञअसतनाहीत.

7. अध्यापनक्षेत्रातकार्यरतअसणाऱ्यापूर्वप्राथमिक, प्राथमिक, माध्यमिक,
उच्चमाध्यमिकववरिष्ठअध्यापक,
प्राध्यापकांनीउत्तमअध्ययनअध्यापनासाठीवअध्यापनपद्धतींचीमाहितीहोवूनत्यावर्गवविषयनिहायपातळीवरूनयोग्य
पणेत्यात्यावेळीवापरण्यासाठीशिक्षणशास्त्रविद्यालयआणिमहाविद्यालयातूनशिक्षणघेणेवप्रशिक्षितहोणेहीअत्यंतमहत्वाचेआहे.

8. केवळबोलणेकिंवाप्राप्तमाहितीअथवाविषयज्ञानहेवर्गातसांगणेकिंवामांडणेम्हणजेअध्यापननसतेहेअध्यापकप्राध्यापकांनीलक्षातठेवलेपाहिजे.

9. उत्तमअध्ययनवअध्यापनासाठीवर्गातकालक्रमिक,
कालक्रमानुरूपवयोग्यअसणाऱ्यायोग्यवउत्तमअध्यापनपद्धतींचाअवलंबववापरकेलापाहिजे.

सारांश :

शिक्षणप्रवाहपद्धतीतअध्ययनअध्यापनपद्धतीमहत्वाच्याअसूनत्यांचायोग्यवेळी,
योग्यतेथेपुरकवप्रेरकअसाउपयोगकरूनउत्तमपणेशिकवलेपाहिजेतसेचअध्ययनअध्यापनाचेस्वरूप, महत्व,
उपयोजनहेप्रत्येकांनीवेळोवेळीजाणलेचपाहिजे. याशिवायअसेहीमहत्वायेईलकी,
ज्यांनाअध्ययनवअध्यापनपद्धतीमाहितनाहीतवत्यावापरताहीयेतनाहीतअसेव्यक्तीहेउत्तमअध्यापकवप्राध्यापकअसूच
शकतनाहीतकारणशिक्षणवअध्ययनआणिअध्यापनहेएककलाआणिउत्तमशास्त्रहीअसतेहेसर्वांनीजाणलेवमानलेचपाहिजे,
याशिवायपर्यायनाहीहेचखरेआहे.

संदर्भग्रंथ :

1. शैक्षणिकसंशोधनपद्धती-डॉ.वि.रा. भिंताडे (नित्यनुतनप्रकाशन) (प्रकाशक-मिलींदजोगळेकर) दत्तवाडी,
पुणे
2. शैक्षणिकसंशोधनओळखडॉ. हेमलतापारसनीस (नित्यनुतनप्रकाशन) (प्रकाशक-मिलींदजोगळेकर)
दत्तवाडी, पुणे

Integrating Artificial Intelligence in Higher Education: Advancing Research Skills and Enhancing Knowledge Transfer

Gade Anantha Rameshwar¹, Thange Tukaram Govind²

1.M.S.P. Mandal's Rajmata Jijau Mahavidyalaya, Kille-Dharur, Dist. Beed.

2. Yogeshwari Mahavidyalaya, Ambajogai, Dist. Beed

ABSTRACT

Artificial Intelligence (AI) is bringing enormous changes to higher education by improving research skills and accelerating the exchange of information. This article focusing on impact of AI on research skills and knowledge transfer. By analysing the integration of AI into educational frameworks the paper explores how AI-driven tools enhance the capabilities of teachers, students and institutions. It highlights the potential for AI to personalize learning experiences, streamline administrative tasks and foster innovative research methodologies. We delve into the challenges associated with the adoption of AI in academia, including ethical considerations, technical limitations and the need for robust infrastructure. This exploration seeks to provide a refined understanding of AI's role in reshaping higher education, ultimately advancing research skills and enhancing knowledge transfer in the digital age. The study emphasizes the importance of continuing to explore and use AI to fully unlock its potential in transforming education.

INTRODUCTION

1. Historical perspective on technology integration:

The integration of technology into education has evolved significantly over the past few decades. Initially, the adoption of basic tools like calculators and overhead projectors marked the beginning of technology's influence in classrooms. The advent of personal computers and the internet further revolutionized educational practices by providing access to vast amounts of information and enabling new forms of communication and collaboration. As technology continued to advance, the focus shifted towards more interactive and multimedia-based tools, such as educational software and online learning platforms.

2. Recent trends in digital education:

In recent years, digital education has embraced a range of innovative technologies. The rise of online learning platforms, such as Massive Open Online Courses (MOOCs) and Learning Management Systems (LMS), has transformed how education is delivered and accessed. These platforms allow students with flexibility in their studies [1-3]. Additionally, the use of virtual and augmented reality (VR and AR) in education offers immersive learning experiences, while big data and analytics are increasingly used to track and enhance student performance. These trends highlight a shift towards more personalized, interactive, and data-driven educational practices.

3. Overview of AI in education:

Artificial Intelligence (AI) is rapidly transforming various aspects of our lives, and education is no exception. AI technologies, including machine learning, natural language processing and data analytics are being increasingly integrated into educational systems to enhance teaching and learning experiences. In higher education, AI tools are providing new opportunities to personalize learning, streamline administrative processes and support research activities. For instance, AI-driven adaptive learning platforms adjust educational content to meet individual student needs, while AI-based research tools can analyse vast amounts of data more quickly and accurately than

traditional methods. As AI continues to evolve, its potential to reshape higher education becomes more evident, promising a more efficient and effective learning environment [5,6,8].

4. Need of AI in higher education:

Traditional educational approaches often struggle to keep pace with the growing demands for research and skill development. Issues such as outdated teaching methods, limited access to resources and inefficient knowledge transfer processes obstruct both educators and students. For example, research methodologies in some fields have not yet adapted to modern data analysis techniques. Furthermore, the conventional one-size-fits-all approach to education may not address diverse learning needs, impacting overall student performance. There is a pressing need to enhance research skills and improve the ways knowledge is shared and applied. AI offers potential solutions to these challenges but understanding its role and effectiveness in this context remains a critical area of exploration [4-6].

5. Importance of AI in higher education:

This study holds significant value for multiple stakeholders in higher education. For educators, understanding AI's potential can lead to more effective teaching strategies and enhanced student engagement. AI tools can help identify individual learning gaps and work towards better learning outcomes. For students, AI-driven tools can provide personalized learning experiences and better prepare them for the evolving job market [5,6]. Furthermore, AI can facilitate better access to research resources, skills development and making students more competitive in their fields. For institutions, integrating AI can improve operational efficiency, streamline administrative tasks and foster a more innovative learning environment. Overall, this research will provide valuable insights into how AI can address current educational challenges, enhance research capabilities, and contribute to the advancement of higher education.

This paper aims to:

1. Explore the role of AI in higher education, examining how it is being integrated into various educational practices and its effectiveness in addressing educational challenges.
2. Assess how AI technologies contribute to advancing research skills, focusing on their impact on research efficiency, quality and innovation.
3. Evaluate the influence of AI on knowledge transfer, considering how AI can improve the dissemination and application of knowledge in academic settings and enhance collaboration among researchers.

Authors have made significant contributions in recent years with their publications on advanced mathematical techniques [9-13].

REVIEW OF ROLE OF AI IN HIGHER EDUCATION

1. Role of AI in Modern Research Methodologies

AI is increasingly being integrated into research methodologies, offering powerful tools for data analysis and interpretation. Machine learning algorithms can process large datasets with high accuracy, uncovering patterns and insights that might be missed using traditional methods. Natural language processing (NLP) enables researchers to analyse textual data, such as academic papers and social media content more efficiently [1-2]. AI-driven tools also facilitate the automation of repetitive tasks, allowing researchers to focus on more complex and creative aspects of their work. Study have demonstrated AI's effectiveness in fields ranging from medical research to social sciences which showcasing its potential to accelerate discovery and innovation.

2. AI-Enhanced Knowledge Transfer Methods

Knowledge transfer methods have evolved from traditional lecture-based approaches to more interactive and technology-enhanced methods. Historically, knowledge was spread through textbooks and direct instruction which often limited the engagement and retention of information.

AI-enhanced methods, such as intelligent tutoring systems and personalized learning platforms provide more dynamic and tailored learning experiences. These systems adapt to students learning styles and progress, offering targeted feedback and resources. The shift towards AI-driven knowledge transfer methods represents a move towards more effective and efficient ways of distributing and applying knowledge [1-2].

The integration of AI into teaching and learning processes has led to significant improvements in both effectiveness and efficiency. AI tools support educators by automating administrative tasks, analysing student performance data and providing insights for personalized instruction. The use of AI in education not only enhances the learning experience but also helps bridge gaps in educational access and equity.

3. Several Impactful AI Technologies

Adaptive Learning Systems: Platforms that adjust content and assessments based on individual student performance [3-5].

Natural Language Processing: Tools for analysing and generating human language which is useful for automated essay grading and language learning [5].

Machine Learning Algorithms: Used for predictive analytics, identifying learning patterns and recommending resources [4-5].

Chatbots and Virtual Assistants: Provide students with on-demand support and answer queries about course content and administrative matters [5].

INTEGRATION OF AI INTO HIGHER EDUCATION

Impact on Research Skills

1. Increased Efficiency:

AI tools automate repetitive and time-consuming tasks in research, such as data entry and preliminary analysis. This automation allows researchers to focus on more complex aspects of their work, leading to increased productivity and faster progress.

Examples:

- **Automated Data Entry:** AI systems can extract and enter data from research papers and experiments, reducing the time researchers spend on manual data handling.

- **Preliminary Analysis:** AI algorithms can perform initial data analysis, such as identifying trends and correlations, which helps researchers to quickly understand their data.

Impact:

- Researchers experience greater efficiency and productivity as AI tools handle routine tasks, allowing them to dedicate more time to in-depth analysis and interpretation.

2. Advanced Data Analysis:

AI enables advanced data analysis using machine learning and statistical models. These techniques can uncover trends, correlations and insights that may be missed with traditional methods, leading to more accurate and detailed research

Examples:

- **Machine Learning Models:** AI models can analyse large datasets to identify patterns and predict outcomes. For instance, in genomic research, AI can detect genetic markers and predict disease susceptibility.

- **Statistical Analysis Tools:** AI-powered tools can perform complex statistical analyses, providing researchers with detailed insights into their data.

Impact:

- AI enhances the accuracy and depth of data analysis, leading to more robust and reliable research results.

3. Research Enhancement:

AI significantly enhances research capabilities by streamlining data collection, processing, and analysis. Machine learning algorithms can quickly analyse large datasets, identify patterns and generate insights, which accelerates research

Examples:

- IBM Watson: Watson assists researchers by analysing vast amounts of data and extracting valuable insights[14]. For example, Watson can help identify relevant literature, generate hypotheses and suggest new research directions based on data trends.

- Google Scholar: Google Scholar uses AI to improve literature searches and data mining [15]. Its algorithms rank research articles based on relevance and citation metrics, helping researchers quickly find pertinent studies and understand the current state of knowledge in their field.

Impact:

- AI tools enhance the efficiency of research by automating routine tasks and providing advanced analytical capabilities.

- They enable researchers to uncover new insights and make data-driven decisions faster than traditional methods.

4. Enhanced Collaboration:

AI-powered platforms facilitate collaboration among researchers by connecting individuals with similar interests and providing tools for sharing and discussing research. These platforms can recommend relevant studies and potential collaborators based on research interests.

Examples:

- ResearchGate: ResearchGate uses AI to recommend relevant papers and potential collaborators based on user profiles and research interests [16]. This helps researchers discover new connections and opportunities for collaboration.

- Collaborative Tools: AI-driven platforms like Slack and Microsoft Teams offer advanced features for team communication and project management, enhancing collaborative research efforts [17,18].

Impact:

- AI facilitates effective collaboration by connecting researchers and providing tools for seamless communication and resource sharing, leading to more innovative and collaborative research.

5. Innovation in Research Methods:

AI introduces innovative methodologies in research, such as predictive analytics and automated literature reviews. These methodologies enhance research approaches and lead to new discoveries by providing advanced tools and techniques.

Examples:

- Predictive Analytics: AI models can predict future trends and outcomes based on historical data. For example, in climate research, AI can forecast climate patterns and potential impacts.

- Automated Literature Reviews: AI tools can quickly review and summarize large volumes of literature, helping researchers stay updated with the latest developments in their field.

Impact:

- AI-driven methodologies lead to new research approaches and discoveries, enhancing the overall quality and impact of research.

Impact on Knowledge Transfer

1. Personalized Learning:

AI technologies have revolutionized personalized learning by creating adaptive learning platforms customized to individual student needs. These systems use algorithms to analyse data

from student interactions, performance metrics and learning preferences to offer customized educational experiences.

Examples:

- Knewton: This platform personalizes learning by adjusting the difficulty of assignments based on real-time data about student performance [19]. It recommends additional resources and exercises to address specific learning gaps. For instance, if a student struggles with algebraic concepts, Knewton might suggest supplementary practice problems and interactive tutorials focused on that area.

- DreamBox: DreamBox adapts math instruction to each student's level by analysing their responses and adjusting the difficulty of questions dynamically. The platform provides immediate feedback and hints, helping students understand concepts they find challenging [20]. DreamBox's adaptive algorithms ensure that students receive the right level of challenge and support.

Impact:

- Personalized learning improves student engagement and mastery of subjects by catering to individual learning styles and needs.

- By focusing on areas where students need the most help, these systems increase the efficiency of learning and help students achieve better academic outcomes.

2. Intelligent Tutoring Systems:

AI-powered tutoring systems simulate one-on-one tutoring experiences by using natural language processing (NLP) and machine learning. These systems provide tailored assistance by interpreting student queries and offering relevant explanations or problem-solving strategies.

Examples:

- Carnegie Learning's MATHia: MATHia uses AI to offer personalized math tutoring. It analyses student responses to identify misconceptions and adapts the instruction to address these gaps [21]. For example, if a student repeatedly makes errors in solving equations, MATHia will provide targeted exercises and explanations to correct these misunderstandings.

- AI Tutor by the University of Arizona [22]: This system leverages AI to assist students with real-time problem-solving and concept reinforcement. It can interact with students in a conversational manner, answer questions and provide instant feedback.

Impact:

- Intelligent tutoring systems enhance learning by providing immediate, personalized feedback and support.

- They help students reinforce their understanding of complex concepts and improve problem-solving skills through continuous interaction and guidance.

3. Enhanced Accessibility:

AI technologies, such as language translation and text-to-speech, make educational resources more accessible to a diverse range of learners. These technologies improve knowledge dissemination across different linguistic and cultural backgrounds.

Examples:

- Language Translation Tools: AI-powered translation tools like Google Translate make educational content available in multiple languages, enhancing accessibility for non-native speakers.

- Text-to-Speech: AI-driven text-to-speech technologies convert written content into spoken words, supporting learners with visual impairments or reading difficulties.

Impact:

- Enhanced accessibility ensures that educational resources are available to a broader audience, promoting inclusive learning environments.

4. Immersive Learning Technologies:

AI enhances educational experiences through virtual and augmented reality (VR and AR), providing immersive and interactive learning environments. These technologies create simulations of real-world scenarios, making learning more engaging and experiential.

Examples:

- Virtual Labs: Platforms like Labster offer virtual science labs where students can conduct experiments in a simulated environment [23]. This provides a hands-on learning experience without the constraints of physical lab facilities.

- Augmented Reality for Historical Sites: AR applications allow students to explore historical sites and artifacts in an interactive manner. For example, AR can overlay historical information on real-world locations, enhancing the learning experience.

Impact:

- Immersive learning technologies make complex subjects more accessible and engaging by providing interactive and experiential learning opportunities.

- They offer students a deeper understanding of concepts through visualization and simulation, enhancing their overall learning experience.

5. Administrative Efficiency:

AI automates various administrative tasks in higher education, including grading, scheduling and student support. This automation reduces the administrative burden on educators and staff, allowing them to focus more on teaching and strategic activities.

Examples:

- Automatic Grading Systems: AI-driven systems can grade multiple-choice exams and assignments efficiently. For example, platforms like Gradescope use AI to streamline the grading process [24], providing quick and consistent evaluations of student work.

- Course Scheduling Systems: AI systems can optimize course schedules by analysing student enrolment patterns, faculty availability and resource constraints. This helps in creating efficient schedules that accommodate the needs of both students and instructors.

Impact:

- Automating administrative tasks frees up valuable time for educators and staff, allowing them to concentrate on enhancing the educational experience.

- It improves the efficiency and accuracy of administrative processes, leading to better resource management and student support.

6. Real-Time Feedback:

AI systems provide immediate feedback on assignments and assessments, helping learners understand their performance and areas for improvement. This continuous feedback loop supports effective learning and knowledge application.

Examples:

- AI Grading Systems: AI systems can automatically grade assignments and provide detailed feedback on student performance, identifying strengths and areas for improvement.

- Interactive Learning Platforms: Platforms like Duolingo offer real-time feedback on language learning exercises [25], helping users improve their skills through immediate corrections and suggestions.

Impact:

- Real-time feedback enhances the learning process by providing timely insights into performance, allowing learners to make adjustments and improve their understanding.

AI USE FOR TEACHERS, STUDENTS AND INSTITUTION

Teaching Strategies and Curriculum Design:

Adaptive Learning: Educators need to design curricula that incorporate AI tools capable of providing personalized learning experiences. This involves integrating adaptive learning platforms that adjust content based on individual student needs and progress.

AI Literacy: Teachers should include AI literacy in their own professional development to effectively use AI tools and understand their impact on education. This might involve training in AI basics and how to leverage AI for enhancing teaching practices.

Innovative Pedagogies: Incorporating AI can lead to the development of new pedagogical approaches. For example, project-based learning supported by AI can offer real-world problem-solving experiences, enhancing student engagement and learning outcomes.

Learning Outcomes and Skill Acquisition:

Personalized Learning: AI tools enable a more personalized learning experience, which can lead to improved learning outcomes. Students receive tailored content and feedback, addressing their individual strengths and weaknesses.

Skill Development: AI technologies can aid in the acquisition of new skills, such as data analysis, coding and critical thinking. Interactive AI-driven platforms can provide hands-on practice and instant feedback, helping students develop these skills more effectively.

Lifelong Learning: AI supports lifelong learning by offering resources and learning opportunities beyond traditional classroom settings. Students can access online courses, tutorials, and educational tools at any time, fostering continuous skill development.

Policy Implications and Infrastructure Requirements:

Policy Development: Institutions should create policies that govern the use of AI in education, including data privacy, ethical considerations and equitable access. Policies must ensure that AI tools are used responsibly and that students' data is protected.

Infrastructure: Implementing AI requires significant infrastructure investment, including high-speed internet, robust data storage solutions and advanced computing resources. Institutions must plan and budget for these technological needs to support AI integration.

Professional Development: Institutions should invest in professional development for educators to familiarize them with AI tools and their application in teaching. This includes training programs and workshops to build AI competencies among faculty.

CHALLENGES IN INTEGRATING AI IN HIGHER EDUCATION

Technical Challenges- Data Privacy and Security Concerns:

The use of AI in education involves collecting and analysing large amounts of student data [1,3]. Ensuring that this data is handled in compliance with privacy regulations (like GDPR or FERPA) is crucial. Institutions must implement robust data protection measures to prevent unauthorized access and misuse of sensitive information.

AI systems can be vulnerable to cyberattacks. Institutions need to safeguard against potential breaches that could compromise both personal data and the integrity of educational tools. This requires continuous monitoring and updating of security protocols to address emerging threats.

Pedagogical Challenges- Training Needs for Educator:

Successful implementation of AI tools necessitates adequate training for educators [1,3]. Many teachers may lack the technical expertise to effectively use AI in their teaching practices.

Institutions must invest in comprehensive training programs to equip educators with the skills needed to leverage AI tools effectively and integrate them into their curricula.

FINDINGS AND DISCUSSION

1. AI in Research Skill Enhancement

AI-Powered Literature Review Tools: Tools like Iris.ai help researchers by automatically scanning and summarizing large volumes of research papers, making the literature review process faster and more comprehensive.

Data Analysis and Visualization: Platforms like Tableau and Google AI offer advanced data analytics and visualization capabilities, allowing researchers to gain insights from complex datasets more efficiently.

AI-Assisted Writing Tools: Tools such as Grammarly and Hemingway Editor support researchers in drafting and editing their manuscripts, improving clarity and coherence.

2. AI's Role in Personalized Learning

Adaptive Learning Systems: Platforms like Knewton and DreamBox use AI to tailor educational content to individual learning styles and paces, enhancing the effectiveness of the learning process.

Intelligent Tutoring Systems: Tools like Duolingo leverage AI to provide personalized feedback and support to learners, addressing their specific needs and improving their learning outcomes.

FUTURE RESEARCH DIRECTIONS

- Investigate the long-term effects of AI on educational outcomes including student performance and career success.
- Examine how AI tools can be designed to address educational inequities and ensure equitable access for all students.
- Study the ethical implications of AI in education, focusing on privacy, data security and the potential for bias in AI systems.
- Develop and evaluate strategies for effective AI integration in diverse educational contexts, including both traditional and non-traditional learning environments.

CONCLUSION

In recent years, Artificial Intelligence (AI) has significantly impacted higher education, transforming various aspects of the academic experience. AI impact on personalized learning, intelligent tutoring, research enhancement, administrative efficiency and immersive learning. Its impact on research skills includes increased efficiency, advanced data analysis, enhanced collaboration and innovative research methods. For knowledge transfer, AI provides tailored content, enhances accessibility, offers efficient content summarization and delivers real-time feedback which contributing to a more effective and inclusive educational experience.

The Impact Assessment Framework, supported by theoretical models such as TAM, DOI and UTAUT, provides a comprehensive approach to evaluating AI's impact on research skills and knowledge transfer in higher education. Case studies from institutions like University of Arizona, Harvard University, Stanford University, MIT, and UC Berkeley illustrate how these frameworks and models are applied to assess effectiveness, efficiency, accessibility, and user satisfaction. By integrating both quantitative metrics and qualitative insights, the study aims to offer a thorough understanding of AI's role in enhancing higher education and its associated outcomes.

This research contributes to existing literature by providing a comprehensive overview of AI's impact on higher education, particularly in enhancing research skills and knowledge transfer. It integrates recent examples of AI applications and discusses their implications for educators,

students, and institutions. By highlighting both the benefits and challenges of AI integration, this study offers valuable insights for stakeholders seeking to understand and leverage AI in academic settings.

Note: The ongoing developments in AI and its applications in higher education will likely lead to further innovations, continuously shaping the future of academic research and learning.

REFERENCES:

1. Rolfe, V., & Gray, D., The Role of AI in Research: Opportunities and Challenges. *Journal of Information Technology Education: Research*, 19, 29–44, (2020).
2. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F., Systematic Review of Research on Artificial Intelligence Applications in Higher Education – Where are the Educators, *International Journal of Educational Technology in Higher Education*, 16(1), 39(2019).
3. Woolf, B. P., Lane, H. C., Chaudhri, V., & Kolodner, J., AI Grand Challenges for Education. *AI Magazine*, 34(4), 66-84(2013).
4. Selwyn, N., Should Robots Replace Teachers? AI and the Future of Education. *British Journal of Educational Technology*, 50(6), 1383-1392, (2019).
5. Tsai, Y. S., & Gasevic, D., Learning Analytics in Higher Education – Challenges and Policies: A Review of Eight Learning Analytics Frameworks. *Proceedings of the Seventh International Learning Analytics & Knowledge Conference*, 233-242, (2017).
6. Chassignol, M., Khoroshavin, A., Klimova, A., & Bilyatdinova, A., Artificial Intelligence Trends in Education: A Narrative Overview. *Procedia Computer Science*, 136, 16-24, (2018).
7. Rai, D., & Chukwuma, C. A., AI-Powered Education Systems: A Review of Recent Advances. *Journal of Educational Computing Research*, 58(8), 1343-1376,(2020).
8. Smith, J., & Anderson, K., Artificial Intelligence in Higher Education: Enhancing Research and Knowledge Transfer, *Journal of Educational Technology & Society*, 26(2), 85-100, (2023).
9. Thange, T.G., & Gade, A.R., On Aboodh Transform for Fractional Differential Operator, *Malaya Journal of Matematik*, 8(1), 225-229 (2020).
10. Thange, T.G., & Gade, A.R., Fractional Shehu Transform and Its Applications. *South East Asian Journal of Mathematics & Mathematical Sciences*, 17(2), 1-10 (2020).
11. Thange, T.G., & Gade, A.R., Analytical Solution for Time-Fractional Diffusion Equation by Laplace-Carson Decomposition Method, *Our Heritage*, 17(02), 45-52 (2020).
12. Thange, T.G., & Gade, A.R., A New Approach for Solving a System of Fractional Partial Differential Equations, *Advances in Mathematics: Scientific Journal*, 9(4), 1933-1944 (2020).
13. Thange, T.G., & Gade, A.R., Laplace-Carson Transform of Fractional Order, *Malaya Journal of Matematik (MJM)*, 8(4), 2253-2258 (2020).
14. IBM Watson, *Watson AI – Overview*: <https://www.ibm.com/watson>
15. Google Scholar, *Google Scholar*: <https://scholar.google.com>
16. ResearchGate, *Find and Share Research*: <https://www.researchgate.net>
17. Slack, *Slack: Where Work Happens*: <https://slack.com>
18. Microsoft, *Microsoft Teams*: <https://www.microsoft.com/en-us/microsoft-teams/group-chat-software>
19. Knewton, *Adaptive Learning Technology*: <https://www.knewton.com>
20. DreamBox, *DreamBox Learning Math*: <https://www.dreambox.com>
21. Carnegie Learning, *MATHia: Adaptive Math Software*. Retrieved from: <https://www.carnegielearning.com/mathia/>
22. University of Arizona, *AI Tutor for Personalized Learning*: <https://www.arizona.edu/news/university-arizona-develops-ai-tutor>

23. Labster, *Virtual Labs for STEM Education*: <https://www.labster.com>
24. Gradescope, *AI-Driven Grading Platform*: <https://www.gradescope.com>
25. Duolingo, *Learn a Language for Free*: <https://www.duolingo.com>

Innovative Pedagogies for Attainment of Optimal Learning Outcomes and Effective Implementation of NEP-2020

Dr.Sanjay Bhagwat Salunke

Assistant Professor, Department of English
Lokmanya Tilak Mahavidyalaya Wadwani Dist Beed, Maharashtra

=====

Introduction

The purpose of education is to develop good human beings capable of rational thought and action, possessing compassion and empathy, courage and resilience, scientific temper and creative imagination with sound ethical moorings and values. The recent National Education Policy 2020-NEP 2020 mandates that the learning should be holistic, integrated, inclusive, enjoyable, and engaging. The aim of education will not only be cognitive development, but also building character and creating holistic and well rounded individuals equipped with the key 21st century skills. NEP-2020 is the outcome of mammoth exercise to integrate Indian traditional value-based education with the present technology dominated teaching and learning process. It aims to overhaul the existing education system through a multipronged approach, one of which is developing a pedagogy that makes education more experiential, holistic, integrated, inquiry-driven, discovery-oriented, learner-centred, discussion-based, flexible and enjoyable.

As the NEP 2020 strives to develop well-rounded, competent individuals with 21st-century skills, the curricula and pedagogies have to be reoriented and revamped for the same, which includes raising the standard of curricula and using appropriate pedagogies to deliver effectively to the learners. In this process it is essential to understand the innovative ways of teaching and showcase, disseminate and replicate the innovative strategies of successful teachers all aspects of curriculum and pedagogy will be reoriented and revamped to attain these critical goals.

Keywords : Pedagogy, Innovation, NEP-2020, Flipped classroom, Cutting Edge Pedagogy
Art Integrated Learning

NEP-2020 on Pedagogy and Innovation

The NEP 2020 is learner centric in its approach, and teachers play a pivotal role in its implementation. The policy gives teachers more autonomy in choosing aspects of pedagogy so that they may plan teaching-learning in the manner they find most effective for the students in their classrooms. However, the meaningful exercise of this autonomy and flexibility depends on the teacher's understanding of the different pedagogical approaches.

The fundamental principles of the NEP-2020 are to identify and foster the unique capabilities of each student by promoting creativity and critical thinking to encourage logical decision-making and innovation. It also facilitates extensive use of technology in teaching and learning, removing language barriers and educational planning and management. It encourages innovation and out-of-the-box ideas through autonomy, good governance, and empowerment. It promotes outstanding research as a requisite for outstanding education and deployment.

NEP-2020 envisions nurturing innovation in all domains of education and recommends the need to innovate in all fields of education. It emphasizes on promoting creativity and critical thinking, which contribute to innovation. The vision of the policy is to improve the quality of education by giving an equal space to creativity and innovation and transform India into a vibrant knowledge society.

Innovative Pedagogy is the process of proactively introducing new teaching strategies and methods into the classroom to improve academic outcomes and address real problems to promote equitable learning. Innovation and diffusion of knowledge are at the heart of the growth process, be it in the area of education or industry. Continuous innovation is, therefore, crucial for all the educational systems. The skill to think and to innovate is a desirable 21st century skill from the students. Innovation in education encourages students and demands teachers to be proactive to research, explore, and use multiple strategies to come out with novel ideas or a strategy to uncover something new. Innovation involves a different way of looking at problems and solving them. It also contributes to improve overall quality of education because it catalyses students to think out of the box, and helps to solve complex problems.

The pedagogy must be aligned towards attainment of optimal outcomes in the domains of physical and motor development, cognitive development, socio-emotional–ethical development, cultural-artistic development and the development of communication, literacy, and numeracy the pedagogical design should allow for a balance between self-paced individual learning to a more social-group based learning. It is the fact that the pedagogy needs to connect with the concept and content, along with the real-life situations so that it could promote lifelong learning and ensure development of 21st century skills.

There is a need of shift in pedagogy is required in present times several steps to bring innovation in the classroom, challenging your beliefs and values, defining the current teaching and learning practices, enabling a deeper enquiry, empowering students with the capability to take their own decisions etc. Pedagogical practices determine the learning experiences arranged for the learners, thus directly influencing their learning outcomes. Therefore, the use of relevant pedagogy is necessary to achieve the objectives of the curricula successfully. There is the need for innovative pedagogy because teachers should have zeal to do something new and creative. This zeal will give them the energy to engage in creative tasks and that energy will lead them to excellence

Innovative Pedagogies: Multiple approaches to teaching-learning allow the teaching-learning process to keep pace with current and future developments. Use of experiential learning, inquiry-based learning, case-based instruction, problem-based learning, individual/group project-based learning, discovery learning, practical work, enhanced technology use and integration-including the use of digital and e-learning technologies and resources, online platforms and methods improve teaching-learning-assessment processes. Field-based learning and visits to industrial or other research facilities etc., help in deduction based learning. The following pedagogies emphasize constructive learning and active involvement of the learners in their learning journey, fulfilling the need of 21st Century learning environment.

1. Flipped Classroom Pedagogy: It is an innovative pedagogical approach based on the constructivist school of thought. It is based on the blended form of learning with an emphasis on the 21st Century skills such as creating, evaluating and analyzing in the form of activity-based learning in the classroom wherein the interaction between student and teacher takes place in a flexible learning environment and culture. A flipped classroom is an instructional strategy and a type of [blended learning](#). It aims to increase student engagement and learning by having pupils complete readings at home, and work on live problem-solving during class time. This pedagogical style moves activities, including those that may have traditionally been considered homework, into the classroom. In flipped classroom, students watch [online lectures](#), collaborate in online discussions, or carry out research at home, while actively engaging concepts in the classroom with a mentor's guidance.

2. Art Integrated Learning Pedagogy: It is a joyful and experiential learning pedagogy. It is about identifying the needs and potential of the learners and nourishing them to provide holistic

growth. The students actively participate in the process of learning wherein they explore, develop and express their understanding and creative output using various arts forms and makes connections across curricula. Art Integrated Learning is an innovative and constructive pedagogy based on learning 'through the arts' and 'with the arts'. It is a framework of experiential learning where students discover their interests, abilities and learn through their own experiences. The process of art integration naturally engage adolescent learners in active imagination and experimentation to find multiple solutions to the difficulties faced in learning concepts, and experience the joy of creating art works in the learning process. Such art based experiences not only help learners in forging connections of 'known' with the 'unknown', but also address their diverse learning needs to observe, imagine, explore, create, analyze, recreate, verify and express at their own pace.

3. Project-based Learning Pedagogy: It is pedagogy of reflective practice and collaboration wherein students connect the concepts with real-life situations so that it could promote lifelong learning and 21st-Century skills using an online platform for engagement of learners. Project based learning gives a thorough practical exposure to a problem upon which the project is based. Projects are developed generally in groups where students can learn various things such as working together, problem solving, decision making, and investigating activities. Project based learning involves the steps such as analyzing the problem, formulating the problem into small modules, applying the mechanism or method to solve each module and then integrating the solution of all the modules to arrive at the complete solution of the problem.

4. Cutting Edge Pedagogy: It is pedagogy of learning with innovation and problem solving skills, wherein students are engaged using Technology. The diverse needs of the learners are catered to using digital and technological platforms such as pear deck for interactive online/digital learning. In the rapidly evolving digital age, cutting-edge technologies are playing a vital role in transforming the landscape of higher education. The report explores various cutting-edge technologies that are currently being used, including Learning Management Systems (LMS), Virtual Reality (VR) and Augmented Reality (AR), Artificial Intelligence (AI), Gamification, Online Collaboration Tools, Mobile Apps, Data Analytics, Open Educational Resources (OER), Internet of Things (IoT), and Adaptive Learning Systems. These technologies revolutionize the teaching and learning experience by enhancing engagement, personalizing learning, providing access to rich resources, promoting collaboration and communication, facilitating real-world applications, ensuring accessibility and inclusivity, and enabling continuous feedback and assessment.

5. Critical Pedagogical Approach: This approach emphasizes enhancing the learners 'critical thinking skills by raising questions such as what they are learning and why they are learning, problem posing, and letting the students discover the answers. Learners acquire knowledge by investigation .Critical pedagogy is about teaching students to think critically and question the information they are given. Critical pedagogy is important because it promotes positive change in society. Above all, critical pedagogy promotes social justice, democracy, and the empowerment of students. According to the theory of critical pedagogy, teaching is a political act, and so, the practice should involve students learning how to be active citizens who work toward change.

Conclusion

The NEP-2020 envisions creating a conducting and enabling environment for innovation and not merely sticking to the traditional method of teaching and testing is the need of the hour. Combining various disciplines, moving beyond the basics, reaching out of the classroom and achieving altogether a new and different outcome will help in developing a streak of innovation in students right from the start

The pedagogical practices determine the learning experiences arranged for the learners, thus directly influencing their learning outcomes. Therefore, the use of relevant pedagogy is necessary to achieve the objectives of the curricula successfully. Such pedagogy has to have an increased emphasis on an inclusive approach to communication, discussion, debate, research, and cross-disciplinary and interdisciplinary thinking opportunities. Teachers should be provided with requisite training on pedagogical approaches for capacity building to achieve the desired learning outcomes for students

The challenges posed by 21st century are quite varied and complex as compared to the challenges encountered in previous centuries. The educational institutions therefore have to strive towards creating congenial learning atmosphere which in the longer run fosters lifelong learning in modern day learners, who can in turn meaningfully contribute in the society. The effective implementation of any ground breaking intervention is determined by the sincere will and commitment of all the relevant stake holders. The policy recommends several measures at different levels to promote critical thinking, flexibility, adaptability and real world problem solving capabilities. It truly focuses on providing opportunities to both the teachers and students to be creative, thinkers enhance entrepreneurial attitude and thus become future ready. The policy also highlights importance of innovative pedagogy which is crucial to prepare youth to be life-long learners. The objective of NEP-2020 is not only make schools and colleges as vibrant learning centers but also to become hubs of innovation.

References

- 1 National Education Policy 2020, Ministry of Human Resource Development, Government of India. Available: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf.
- 2 Rusen Kumar and Dr Rana Singh India's National Education Policy 2020: An Overview Published by Notion Press First edition 2020, 216 pages ISBN 10-1636060897
- 3 Singh Md Hurima: New Trends in pedagogy of NEP-2020 Prospects and Challenges AG Publishing House Bhopal M.P India ISBN 978-81974017-3-2
- 4 <http://ncert.nic.in/pdf/Prof.SunitiSynwal>

Practical Application of MIS to the Academic Libraries

Mrs. Lalita Deepak Dongare

Librarian,

M.I.D.S.R. Dental College, LATUR (MAH)

=====

Abstract

Academic Libraries are the service institutions, offering the books, journals, reference service to the information seekers with paper and electronic media. Here the librarian's role is as a manager and so he/she has to take caution for the management of his library in particular and the services offered in general. Librarian is planning, controlling and decision making on behalf of the Library Committee. Application of MIS to the Academic Libraries is very much useful to develop the library physically and offering the rich services to the user of the library. In this paper the concept of MIS is mentioned in detail. Librarian has to create the information database useful for MIS from the beginning, the reports extracted from this database with the help of computer and modern techniques of management will fulfill the purpose and will be more accurate for making the library development decisions perfectly.

Key Words: Computer, Hard & Software, Files, Data, Database, Processing, Scanning, Projection, Accuracy, Management Techniques, Brain Storming, Technology, Methodology, Evaluation, MIS Life Cycle, Control, Strategy, Feedback, Diversification, Deviation.

0. MANAGEMENT PROCESSES

Management Processes include the planning, controlling, organizing and leading. A particular librarian may be more concerned with say, controlling and organizing, while another may be more concerned with planning. The degree of involvement with each of these processes may vary from librarian to librarian, but essentially all librarians have to be concerned with these processes.

1. PLANNING

Planning is the most basic and pervasive process involved in managing. It means deciding in advance what actions to take when and how to take them.

Planning is needed, firstly for committing and allocate organization's limited resources towards achieving the objectives in the best possible manner and, secondly for anticipating the future opportunities and problems.

To achieve the goal of an institution the librarian has to adopt a strategy. As per the time period, there are Long term (10-23 years), Medium term (3-5 years) and Annual programmes. Using the required and appropriate sources from which the services to attain through these, the time bound developments and the achievement of target the planning plays very important role. Within less time and expenditure planning use the resources available fully and getting the maximum output by using the available material the institution can reach its goal.

Here the nature of planning, confirmation of aims and targets, strategy, policies, decision process, budget of work are included in the planning. Various techniques of management are used in planning.

Each librarian is involved in planning though the scope and character may vary with the level of the library management. At the top, the library committee is involved in planning of the

company's diversification over the next five years. The Middle & important level librarian undertakes planning to increase the utility of services offered through the library. At the book issuing counter and at the circulation section librarian plans the day's activities of his assistant team. In the digital library section the services planned for online and offline data provided through the technical assistants.

Planning implies:

- 1) **Making Choices – which books, what's the quantity, sitting arrangements, journals selection, references available, etc.**
- 2) **Committing resources – The books, reference books, journals, other material, the library space, furniture, infrastructure including computers, Xerox facility, digital lab, etc.**
- 3) **A time horizon – just in time provision of required personnel, staff, the library stuff, etc.**

2. CONTROLLING

Planning and controlling go hand in hand. There can be no control without a plan and plans cannot be successfully implemented in the absence of controls. Controls provide a means of checking the progress of the plans and correcting any deviations that may occur along the way.

Control Devices :

- 1) **Information figures – The available database from the beginning of the library is useful to control the proper progress of the library. Decide the potential of the institution, norms for this potential, how many and what will be the quantity in figures are required, etc.**
- 2) **Collecting information with personal contacts – Collecting the information about the books, journals through various published quotations, online listings, visiting the other libraries and local book stores, etc.**
- 3) **The Opinions of Experts. – Arranging the book exhibitions, selecting the books as per the experts' opinion, etc.**

All the information is collected and after analyzing, the conclusion is declared. Various standards are compared with and then decision can be implemented. For this purpose the computer can be used for processing and analyzing the data collected for the same. Budgeting control uses many more techniques like Gantt Bar Chart, Critical Path Method, Program Evaluation and Review Technique, etc. Controlling may be adopted for daily and at regular intervals.

There are three basic steps in designing a control process:

- 1) **Establishment of Standards – As per the norms of academic affiliating councils Dental Council of India, the standards are to be decided, as per the policy of the parent institution the standards are maintained and followed.**
- 2) **Measurement of Performance – As the years passing the performances can be measured and as per the criteria changing performances may noted down for the controlling purpose.**
- 3) **Correcting Deviations. – When an institution decides the goals and aims to be achieved, in the mean time of progress session, there may be deviations and the direction of the progress may be diverted toward wrong mode. This should controlled by correcting the deviations from time to time.**

3. DECISION MAKING

Underlying the processes of planning, controlling, organizing, leading and motivating is the all important process of decision-making. Every librarian makes decisions, no matter what his area of library responsibility.

Decision-making implies making a choice between alternatives. The choice is made rationally after due consideration of all the pros and cons. The rational approach implies that it is a carefully thought out, deliberate and well-weighed choice, guided only by the consideration of the organizational objectives to be achieved.

In making a decision, the librarian first of all defines the issue on which the decision needs to be made. Then he should generate all the possible alternatives available to tackle the issue at hand. The third step involves a careful evaluation of each alternative to choose that which offers the best chance of achieving the objectives.

Making a choice is making a decision. Follow up of the decision to ensure that it is properly carried out is very important. A decision which does not get implemented remains a decision only on paper and not in reality. The final step is to gather feedback on the impact generated by the decision.

Decision making is so important because it implies commitment of resources, the desired outcome of which is never certain. Decisions are made under conditions of uncertainty and risk. Decisions made today have implications reaching into the future. The risk arises out of the fact that the librarian never has complete facts and knowledge about the implications of his decision and there is always the chance that the wrong decision may be taken.

Many mathematical tools and theories have been developed to improve the quality of decisions which a librarian has to make under risky and uncertain conditions. Linear Programming, Queuing Theory, Probability and Game Theory, Risk Analysis and Decision Trees are some of these tools.

4. MANAGEMENT INFORMATION SYSTEM

Definition of MIS – By – Kanter and Davis:

“A Management Information System is an integrated man-machine system that provides information to support the planning and control functions of managers in an organization.”

An MIS deals with information that is systematically and routinely collected in accordance with a well-defined set of rules. This implies that an MIS is a part of the formal information network in an organization.

The information provided by an MIS assists librarians to make planning and control decisions. Every organization in order to function must perform certain operations. Also an organization must control the operations in the light of the plans and targets developed in the planning process. Operations are in line with the targets and if not, make decisions to correct the deviation or revise the plans.

System provides information on productivity, library material utilization or rejection rates, information on users, gain and assistants performance are part of MIS.

An MIS includes all the ingredients that are employed in providing information support to librarians in making planning and control decisions. Librarians often use historical data on a library's activities as well as current status data to make planning and control decisions. Such data comes from a database which is contained in files (paper or electronic) maintained by the library. This database is an essential component of an MIS. Manual procedures that used to collect information are obvious, but equally important are the computer programs used to process information, and operations research models employed to marshal the data to provide highly processed information to support decisions. These also form part of the MIS. In summary, when we say that “an MIS is an integrated man-machine system that provides information to support the planning and control functions of librarians in a library” we mean that it is a system which –



Sub serves managerial functions



Collects information systematically and routinely



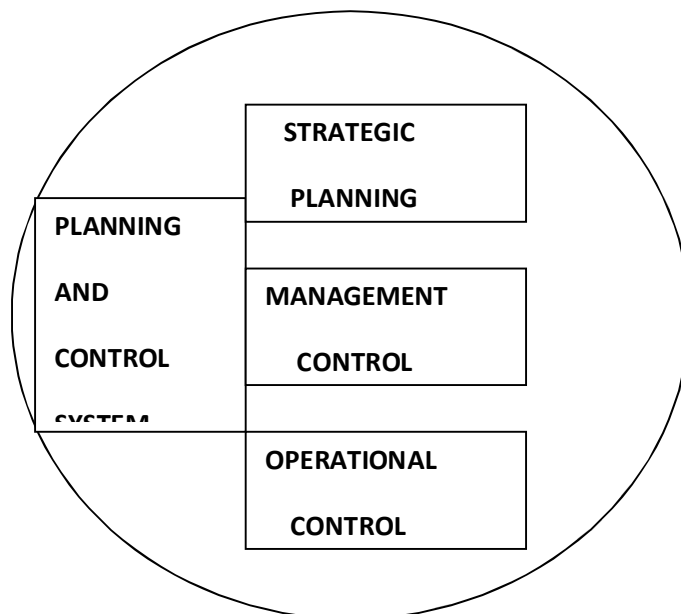
Supports planning and control decisions



Includes files, hardware, software, and operations research models.

Anthony's Framework of Planning and Control :

ORGANIZATION



1) Strategic Planning: Strategic Planning is the process of deciding on objectives of the organization, on changes in these objectives, on the resources used to attain these objectives, and on the policies that are to govern the acquisition, use and disposition of these resources.

2) Management Control: Management Control is the process by which managers assure that these resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives.

3) Operational Control: Operational Control is the process of assuring that specific tasks are carried out effectively and efficiently.

Factors facilitating Implementation of MIS

A few factors which will increase the chances of a successful implementation of MIS are:

1) Involvement of top management in the computerization effort, in defining purpose and goals of computers within the organization.

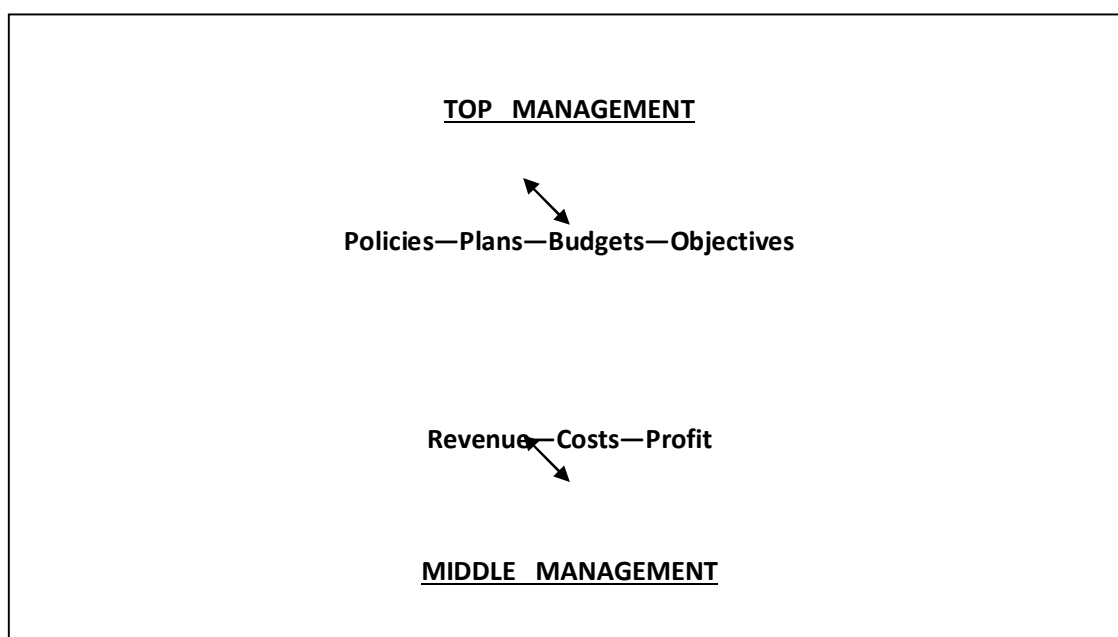
2) Selection of a Technical expert to maintain digital lab and in choosing application areas, identifying information needs and designing reports.

3) A computer staff which has interdisciplinary skills in computers, library management and operation research.

4) A balanced expenditure on hardware and software.

MIS is an organized method of (Triple 'P') providing past, present and projected information relating to internal operations of a library and external intelligence by good environmental scanning techniques. All libraries have some kind of information system even though some systems might be nothing more than filing cabinets and accounts ledger, library registers. An information system should have a systematic, formal assemblage of components that

performs data processing operations to (a) meet the legal and transactional data processing requirements (b) provide information to librarians at all levels for carrying out their functions effectively and (c) provide a variety of useful reports, as required to internal and external constituents. If a report does not have an element of utility, why generate it or ask for it, unless it is as statutory requirement. Since the facts are too many and keeping track of them means getting bogged down in day-to-day routine matters, the librarians do not have sufficient time for creative and innovative work and for decision-making of a strategic nature. It is, therefore, imperative to ask for 'exception' reports. Perhaps it is well to introduce a brain storming session of executives involved at different levels to specify what they are looking for, what is to be done, by whom, by what data and in what form. It would be worth creating confidence and mutual trust about not reporting normal things.



LINKING

5. Desirable Characteristics of MIS :

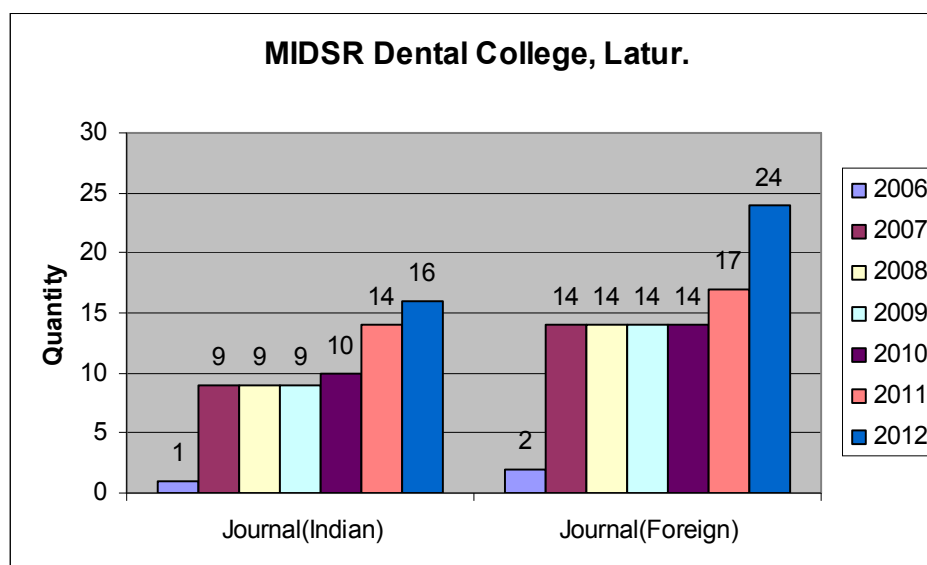
It would be proper if we recall the desired characteristics of information i.e. accuracy, timeliness, objectivity, relevance, conciseness etc. You will discover that some of these characteristics are also the desirable characteristics of a good, effective and efficient MIS. The process of developing and MIS is never ending, as organization strive to take the advantage of new technology and methodology. **The evolutionary process followed in achieving an MIS is called the MIS life –cycle which consists of phases in a sequence of planning, analysis and design, implementation, operation and control.** The librarian is ultimately responsible both for developing and using it. The information specialists ought to serve as valuable technical assistants. No doubt, the information specialists play a vital role in the development of MIS. They often trigger librarian's interest in a new system by informing the librarian of a new technology or method. Though the specialists recommend a particular system design, it is the librarian's responsibility to approve its implementation. Once the librarian makes the decision, it is the information specialists' task to implement the system. The MIS would have preferably catered to the management/leadership styles also. If there could be greater user-involvement at all stages of the MIS life-cycle, then the end results would tend to be superior.

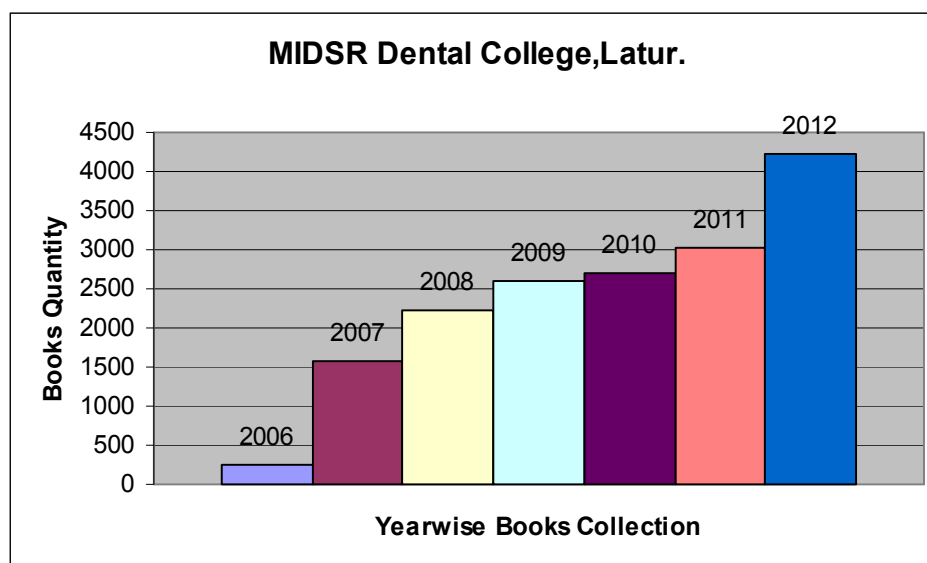
6. Our Dental Library at Latur:-

M.I.D.S.R. Dental College Library at Latur is developed increasingly since year 2006. The progress of this library following the management principals with applying the advance technologies like computer and communication technologies with management practices applicable from time to time. This library is enriched with the following books and journals which suffice the need of the Dental Students/Doctors and Researchers.

Year	Books Quantity	Indian Journals Nos.	Foreign Journals Nos.
2006	241	1	2
2007	1581	9	14
2008	2213	9	14
2009	2591	9	14
2010	2690	10	14
2011	3013	14	17
2012	4221	16	24

At present here the strength of dental students is 400, nine (9) departments of Dental College are providing them the education with practical. Library is providing them with 4221 books and 40 printed journals with Digital Lab having 25 nodes, internet facility, and e-journals. Databases of books, List of journals supplied and directed to all the faculties so they can recommend them.





Here, at every year the dental library is developing onwards with the application of MIS and hence the results are positive. For this the 400 Number of Students, all the 9 (Nine) Faculties and their requirements are considered. For the college library the MIS is very much useful in developing and enriching the library collection with perfection. That is resulted to maximum passing of the B.D.S. Students having the 85% average.

Now the Dental College is advancing towards the Dental Post Graduation studies.

7. Conclusion:-

A librarian is primarily the decision maker and a problem-solver. Information is one of the prime resource inputs to his decision-making. It becomes necessary to provide the right type of information to the right decision-maker at the right time. Thus the need for an effective system to provide information to management at all levels. The whole organization could be thought of as an information network, both formal and informal, connecting various decision centers at various levels. Librarians at different levels perform different managerial functions and hence require different types of information.

Lastly we can say that MIS is a business application that collects, maintains, correlates, and selectively displays information to assist Library Manager in decision-making.

References:

- 1) Chhatwal, A.S. "Information Management and Computers." IGNOU. Reprint. New Delhi, April 2003.
- 2) Kumar, P.S.G. "Fundamentals of Information Science", New Delhi, 1998.
- 3) "Business Management." McGraw-Hill Software. Compact Disc, 2002.

INNOVATIVE PEDAGOGIES: EXPLORING TEACHING AND LEARNING METHODS IN NEP 2020

Dr. Atish Chandrakant Akade

Department of English,
Shivaji Mahavidyalaya, Udgir Dist: Latur

=====

ABSTRACT

The National Education Policy (NEP) 2020 in India introduces transformative changes in the educational landscape, emphasizing innovative pedagogies and modern teaching-learning methods. This study explores key aspects of NEP 2020, focusing on experiential learning, technology integration, collaborative approaches, and continuous assessment. Experiential learning shifts from rote memorization to hands-on, practical applications, fostering critical thinking and deeper understanding. Technology integration enhances digital literacy and enables blended learning, making education more accessible and personalized. Collaborative learning encourages teamwork and social skills, while multidisciplinary education breaks down traditional silos, promoting a holistic educational experience. Continuous assessment reduces examination stress and supports ongoing improvement. Effective teacher training is crucial for successful implementation. NEP 2020 aims to create an engaging, inclusive, and flexible education system, preparing students for the complexities of the modern world and ensuring they possess the skills and knowledge necessary to thrive.

KEYWORDS: *Innovative Pedagogies, NEP 2020, Experiential Learning, Digital Literacy, Blended Learning, Collaborative Learning, Multidisciplinary Education, Continuous Assessment, Teacher Training, Student-Centered Approach*

INTRODUCTION:

The National Education Policy (NEP) 2020 of India marks a significant shift in the educational landscape, aiming to overhaul the existing system to meet the demands of the 21st century. One of the critical aspects of NEP 2020 is its emphasis on innovative pedagogies and teaching-learning methods. This policy envisions an education system that is holistic, flexible, multidisciplinary, aligned with the needs of the learner, and capable of developing critical thinking, creativity, and problem-solving skills. The introduction of innovative pedagogies is a cornerstone of this transformative agenda.

NEP 2020 emphasizes the shift from traditional rote learning methods to more engaging, student-centered approaches. The policy advocates for experiential learning, which includes hands-on activities, practical exercises, and real-world problem-solving. This method aims to make learning more relevant and interesting for students, thereby enhancing their engagement and retention of knowledge. Experiential learning helps in bridging the gap between theoretical knowledge and practical application, fostering a deeper understanding of the subject matter.

Furthermore, NEP 2020 promotes the integration of technology in education to facilitate innovative teaching and learning methods. The policy underscores the importance of digital literacy and the use of digital tools and resources in classrooms. E-learning platforms, online resources, and digital assessments are encouraged to create a more interactive and flexible learning environment. The pandemic has accelerated the adoption of digital tools in education, highlighting the potential of blended learning—a combination of online and offline teaching methods. This hybrid approach can cater to diverse learning styles and paces, making education more inclusive and accessible.

Collaborative learning is another key aspect of the innovative pedagogies endorsed by NEP 2020. The policy encourages group work, peer-to-peer learning, and collaborative projects, which help in developing teamwork, communication, and leadership skills among students. This approach also promotes social learning, where students learn from each other's experiences and perspectives, fostering a more inclusive and dynamic classroom environment.

The policy also places a strong emphasis on multidisciplinary and holistic education. It advocates for the breaking down of traditional silos between different streams of education arts, science, and vocational training allowing students to explore and combine multiple disciplines. This multidisciplinary approach is designed to provide students with a broad-based education that equips them with diverse skills and knowledge, preparing them for the complexities of the modern world.

Assessment and evaluation methods are also undergoing a transformation under NEP 2020. The policy recommends a shift from high-stakes examinations to more continuous and comprehensive evaluation methods. Formative assessments, which focus on regular feedback and improvement, are encouraged to monitor students' progress and identify areas for development. This approach aims to reduce the stress associated with examinations and promote a more balanced and continuous learning process.

Teacher training and professional development are crucial to the successful implementation of these innovative pedagogies. NEP 2020 emphasizes the need for ongoing professional development and training for teachers to equip them with the necessary skills and knowledge to implement these new teaching methods effectively. This includes training in digital literacy, pedagogical strategies, and the use of innovative assessment tools.

In conclusion, NEP 2020's focus on innovative pedagogies represents a significant step towards modernizing the Indian education system. By promoting experiential learning, technology integration, collaborative and multidisciplinary approaches, and continuous assessment, the policy aims to create a more engaging, inclusive, and effective educational environment. The success of these initiatives will depend on the commitment of all stakeholders, including educators, policymakers, and the community, to embrace and implement these changes. The transformation envisaged by NEP 2020 holds the promise of equipping students with the skills and knowledge needed to thrive in a rapidly changing world.

INTEGRATION OF TECHNOLOGY IN EDUCATION

The integration of technology in education is a pivotal element of NEP 2020, reflecting a forward-thinking approach to teaching and learning. The policy underscores the importance of digital literacy as an essential skill for the 21st century, advocating for the incorporation of digital tools and resources into the classroom. This move is designed to create a more interactive and flexible learning environment that can cater to diverse learning styles and needs.

E-learning platforms and online resources have become increasingly vital in contemporary education. NEP 2020 encourages the use of these tools to supplement traditional teaching methods, creating a blended learning model that combines the best of both online and offline education. This hybrid approach not only enhances the accessibility of education but also allows for personalized learning experiences where students can learn at their own pace.

The pandemic has further accelerated the adoption of digital technologies in education, highlighting the importance of having robust digital infrastructure and resources. Virtual classrooms, online assessments, and digital collaboration tools have become commonplace, enabling continuity in education despite disruptions. By integrating technology into education, NEP 2020 aims to prepare students for a digital future, equipping them with the skills and knowledge necessary to thrive in a technology-driven world.

EXPERIENTIAL LEARNING AND PRACTICAL APPLICATION

Experiential learning, emphasized strongly in NEP 2020, represents a shift from traditional rote learning to a more dynamic and engaging approach to education. This method involves hands-on activities, real-world problem-solving and practical exercises that help bridge the gap between theoretical knowledge and practical application. The aim is to make learning more relevant and interesting, thereby enhancing student engagement and retention of knowledge.

This approach encourages students to actively participate in their learning process rather than passively receiving information. By engaging in activities such as experiments, projects, field trips, and internships, students can apply what they have learned in the classroom to real-world situations. This not only deepens their understanding of the subject matter but also helps develop critical thinking, problem-solving, and decision-making skills.

Experiential learning also fosters a sense of curiosity and innovation among students. It allows them to explore and experiment, encouraging a deeper connection with the material. For instance, a science lesson that includes conducting experiments in a lab can significantly enhance a student's grasp of scientific concepts compared to textbook learning alone.

Moreover, this approach can be tailored to different learning styles, making education more inclusive. By providing various forms of learning experiences, educators can cater to the diverse needs of their students, ensuring that everyone has the opportunity to succeed. Overall, experiential learning as advocated by NEP 2020 aims to create a more holistic and effective educational experience.

REVIEW OF LITERATURE:

Experiential learning, as emphasized in NEP 2020, marks a transformative shift from traditional rote memorization to a more active, engaging approach to education. This pedagogy is grounded in the principle that students learn best through direct experience and reflection, rather than passive absorption of information. By incorporating hands-on activities, real-world problem-solving, and practical exercises, experiential learning bridges the gap between theoretical concepts and practical application, making education more meaningful and impactful.

In experiential learning, students engage in activities such as experiments, projects, field trips, simulations, and internships, which allow them to apply classroom knowledge to real-world scenarios. For instance, in a science curriculum, students might conduct lab experiments to observe chemical reactions firsthand, rather than solely reading about them in a textbook. This direct engagement helps solidify their understanding of complex concepts, fostering a deeper and more lasting comprehension.

Moreover, experiential learning encourages critical thinking and problem-solving. When students are faced with real-world challenges, they must analyze situations, consider various solutions, and make informed decisions. This process develops their ability to think critically and creatively, skills that are essential in today's rapidly changing world. By tackling actual problems, students also learn to navigate uncertainties and develop resilience, preparing them for the complexities of the professional environment.

This approach also promotes a higher level of student engagement. Traditional lectures can often lead to passive learning, where students may struggle to stay attentive and retain information. In contrast, experiential learning activities are inherently interactive and dynamic, capturing students' interest and motivating them to participate actively. This increased engagement leads to better retention of knowledge and a more enjoyable learning experience.

Furthermore, experiential learning supports the development of soft skills such as teamwork, communication, and leadership. Group projects and collaborative activities require

students to work together, share ideas, and support each other's learning. These experiences teach valuable interpersonal skills and promote a sense of community and cooperation in the classroom.

Inclusivity is another significant advantage of experiential learning. By offering a variety of learning activities, educators can cater to different learning styles and preferences, ensuring that all students have the opportunity to succeed. Visual learners might benefit from interactive demonstrations, while kinesthetic learners may excel in hands-on experiments. This diversity in teaching methods helps create a more equitable learning environment.

NEP 2020's emphasis on experiential learning is also designed to prepare students for the demands of the modern workforce. Employers increasingly value candidates who possess practical experience and the ability to apply knowledge in real-world contexts. By integrating experiential learning into the curriculum, NEP 2020 aims to produce graduates who are not only academically proficient but also equipped with the practical skills and competencies needed to thrive in their careers.

In conclusion, experiential learning, as advocated by NEP 2020, represents a holistic and dynamic approach to education. It enhances student engagement, promotes critical thinking, and develops practical skills, all while catering to diverse learning styles. By making learning more interactive and relevant, experiential learning prepares students for both academic success and the challenges of the modern world, embodying the transformative vision of NEP 2020

CONCLUSION:

The integration of innovative pedagogies as outlined in NEP 2020 marks a transformative approach to education in India, aiming to create a more engaging, inclusive, and effective learning environment. Experiential learning stands out as a key element, fostering hands-on, real-world problem-solving experiences that bridge the gap between theoretical knowledge and practical application. By promoting critical thinking, creativity, and active participation, this method enhances student engagement and retention of knowledge.

The policy also emphasizes the role of technology in education, advocating for digital literacy and the use of e-learning platforms to complement traditional teaching methods. This hybrid approach not only increases accessibility but also caters to diverse learning styles, making education more flexible and personalized. Collaborative learning and multidisciplinary education further enrich the learning experience, preparing students for the complexities of the modern world.

Additionally, continuous assessment and comprehensive evaluation methods proposed by NEP 2020 aim to reduce the stress of high-stakes examinations and promote ongoing learning and improvement. The success of these innovative pedagogies depends on effective teacher training and professional development, ensuring educators are well-equipped to implement these new methods.

In essence, NEP 2020 envisions an education system that nurtures well-rounded individuals, equipped with the skills and knowledge necessary to thrive in a rapidly changing world. Through these innovative teaching and learning methods, the policy seeks to transform the educational landscape and unlock the full potential of every learner.

REFERENCES:

1. Altbach PG, Reisberg L, Rumbley LE. Trends in global higher education: Tracking an academic revolution. Brill Sense; c2019.
2. Bachmann MC, Rasmussen C. Experiential learning in higher education: Transforming employability and engagement through active learning. Routledge; c2019.
3. Bowes R, King L, White S. Employers' perceptions of the value of work-integrated learning and experiential learning. Higher Education Research & Development. 2020;39 (1):145-160.

4. Bransford JD, Brown AL, Cocking RR. (Eds.). How people learn: Brain, mind, experience, and school. National Academies Press; c2000.
5. Clark DM, White JA. Learning by doing: An exploration of experiential learning in business education. Journal of Management Education. 2010;34(6):777-800. DOI:10.1177/1052562910366037
6. DeCorte E, Greer B, Verschaffel L. Mathematics learning and teaching. Handbook of educational psychology. 1996;7:491-549.
7. Deshpande P, Maurya A. Advancing Indian higher education: Pathways to reform. In N. Rao and Jain(Eds.), Reimagining Education in India: From Access to Quality). Springer; c2021. p. 105-124.
8. Eyler J. High-Impact Educational Practices: What TheyAre, Who Has Access to Them, and Why They Matter. Indian Ministry of Human Resource Development. National education policy 2020. Government of India;c2020.
9. Jacoby B. Service-Learning Essentials: Questions,Answers, and Lessons Learned. John Wiley & Sons; c2015.
10. Kezar AJ, Rhoads RA. The Dynamic Classroom: Engaging Students in Higher Education. Jossey-Bass;c2001.
11. Pathan H, Niranjana S. Experiential learning: A systematic review of research and future directions. Journal of Education and Learning. 2021;10(1):102-

"शिक्षण घेण्याच्या नवनविन विविध पद्धती"

डॉ. सचिन नारायणराव चोबे

ग्रंथपाल

के. के. एम. महाविद्यालय मानवत. ता. मानवत जिल्हा परभणी. महाराष्ट्र

1) प्रस्तावना:-

आपण सर्वजण अगदी बालवाडी पासून शिक्षण घेत आहोत. आपण आपण आतापर्यंतचे शिक्षण घेतलेले आहे ते पारंपारिक पद्धतीने घेतलेली आहे. आज त्यामध्ये अमुलाग्र बदल झालेला आहे. सुरुवातीला आपण जेव्हा प्राथमिक शिक्षण घेतले तर तेथे शिक्षण घेत असताना आपण वर्गामध्ये जाऊन पाटी, पेन्सिल, पेन वापरून शिक्षण घेतले. आपण वाचन करून पण शिक्षण घेतले. आपण शालेय शिक्षण आपण त्याच पद्धतीने घेतलेले आहे तसेच शालेय शिक्षण घेत असताना आपण काही पद्धतीचा त्यावेळेस देखील वापर केलेला आहे. जसं की आलेख. जसं की नकाशा, जसे टेबल याचा वापर करून आपण शिक्षण घेतले. आज शिक्षणाचे विस्तारीकरण मोठ्या प्रमाणात झालेले असून, आज सर्व दृष्टीने शिक्षणाचा विकास झालेला आहे. माहिती तंत्रज्ञान या घटकामुळे तर प्रत्येक विषयाचा विकास आज मोठ्या प्रमाणात आपणास झालेला दिसतो. आणि नवनवीन टेक्निक आलेले आहेत. त्यामुळे आपल्याला शिक्षण घेणे सहज आणि सोपे होऊन आपल्याला ते आता लवकर कळू लागलेले आहे. यामध्ये कुठल्या कुठल्या गोष्टीचा समावेश होतो या लेखात आपण या संदर्भात माहिती माहिती घेणार आहोत.

2) सार:-

"शिक्षण घेण्याच्या नवनविन विविध पद्धती": या संशोधन पर लेखात आपण कुठल्या मार्गाने कशा पद्धतीने शिक्षण घेऊ शकतो याची सविस्तरपणे विवेचन केलेली आहे. पारंपारिक पद्धतीने आपण क्रमिक ग्रंथ वाचून, संदर्भ ग्रंथ वाचून, नियतकालिके वाचून, तर आपण शिक्षण घेऊ शकतो. परंतु वेगवेगळ्या शिक्षण घेण्यासाठीचे वेगळे घटक आहेत त्याचा वापर करून पण आपण शिक्षण घेऊ शकतो. यामध्ये युट्युब असेल, वेबसाईट, वेबसाईटवरून ची माहिती असेल समूह चर्चा असेल व्हाटसअप व टेलीग्राम ग्रुप असेल चर्चा असतील आणि गेस्ट लेक्चर याद्वारे पण आपण विद्यार्थ्यांना शिक्षण देऊ शकतो. या संदर्भात सविस्तर विवेचन केलेले आहे.

1) संदर्भ ग्रंथ:-

अगदी प्राथमिक शिक्षणापासून आपण क्रमिक ग्रंथातून शिक्षण घेत आहोत. पण जसे आपण महाविद्यालयीन शिक्षण घेण्यास सुरुवात केली, तर तसे आपल्याला संदर्भ ग्रंथाचे महत्त्व पटू लागले आहे. संदर्भ ग्रंथांमध्ये आपल्याला आपल्या संबंधित विषयांमध्ये सखोल ज्ञान प्राप्त होते. तसेच नवनवीन संकल्पना यात मांडलेल्या असतात. त्यात विस्तार विस्तृतपणे मांडलेले असतात. कुठल्याही विद्यार्थ्यांना शिकविण्यासाठी आपण संदर्भ ग्रंथाचा वापर जरूर करावा. यामध्ये संबंधित विद्यार्थ्याला सखोल ज्ञान प्राप्त होते. तसेच आपल्याला पण सखोल ज्ञान मिळते. नवनवीन संकल्पना कळतात. आपल्या मनात जे काही प्रश्न निर्माण असतात ते दूर होतात. त्यामुळे आपण विद्यार्थ्यांना शिकवत असताना संदर्भ ग्रंथ या घटकाचा वापर जरूर करावा.

2) नियतकालिके:-

विद्यार्थ्यांना शिकवत असताना आपण नियतकालिकांचा वापर करावा. नियतकालिकामध्ये संबंधित विषयाचे सखोल ज्ञान मिळते. ज्या काही नवीन संकल्पना असतात. त्याची माहिती यात दिलेली असते. तसेच यात वेगळे विषय घेऊन लेख लिहिलेले असतात. हे विषय तज्ञ लोकांनी लिहिलेले असल्यामुळे आपल्याला त्या विषयाविषयी सखोल आणि अचूक अशी माहिती कळते. आपण शिकवत असताना नियतकालिकांचा जर वापर केला तर निश्चितच विद्यार्थ्यांना समजण्यास सोपे जाईल. व विद्यार्थ्यांना संबंधित विषयातज्ञान प्राप्त होईल. व जो नवीन संशोधन झाले आहे ते पण विद्यार्थ्यांना या नियतकालिकांच्या माध्यमातून कळेल त्यामुळे नियतकालिकांचा वापर शिकवताना करावा.

3) टेबल व आकृती:-

महाविद्यालय विद्यार्थ्यांना शिकवत असताना आपण ज्या विविध घटकांचा वापर करून शिकवू शकतो. त्यामध्ये टेबल व आकृती या घटकांचा वापर करावा. टेबलमध्ये वेगवेगळ्या घटकांची माहिती सविस्तरपणे लिहून ती विद्यार्थ्यांना स्पष्ट करून सांगावी. तसेच आकृती म्हणजे चित्र काढून त्याची पण सविस्तर विद्यार्थ्यांना माहिती देऊ शकतो. सायन्स आणि माहिती तंत्रज्ञान या विषयांमध्ये आकृतीचा मोठ्या प्रमाणात उपयोग केला जाऊ शकतो. तसेच सामाजिक शास्त्र विषयात वाणिज्य आणि व्यवस्थापन शाखेमध्ये टेबल या घटकांचा वापर करून विद्यार्थ्यांना आपण माहिती देऊन शिकवू शकतो.

4) पीपीटी:-

पीपीटी चा उपयोग करून विद्यार्थ्यांना शिकवत येते. पीपीटी (ppt) चा उपयोग हा मोठ्या प्रमाणात आजकाल केला जात आहे. संबंधित विषयाच्या प्रस्तावनेपासून तर सारांशापर्यंत वेगळ्या प्रकारच्या स्लाईड तयार करून विद्यार्थ्यांना माहिती सविस्तर देता येऊ शकते. पीपीटी या घटकांमध्ये हे माहिती तंत्रज्ञानाच्या संबंधित हा घटक असल्यामुळे यामध्ये विद्यार्थ्यांना आकृत्या, टेबल, नकाशा, व्याख्या संदर्भ, याची माहिती सविस्तरपणे दिल्या जाऊ शकते. पीपीटी चा उपयोग संशोधन क्षेत्रात मोठ्या प्रमाणात केला जात आहे. तसेच आजकाल शिकवत असताना देखील पीपीटी चा वापर आपण करून शिकाऊ शकतो. विद्यार्थ्यांना ते समजण्यास पण सोपे जाते. कारण हे एक प्रकारे प्रात्यक्षिकासारखे असते. त्यामुळे पीपीटी चा वापर करून पण विद्यार्थ्यांना शिकवता येतो. हा देखील एक हा देखील एक नवीन घटक आहे.

5) youtube:-

youtube चा वापर सर्वच मोबाईल साक्षार लोक मोठ्या प्रमाणात करताना दिसत आहेत. youtube चा वापर हा पिकचर आणि गाणे ऐकण्यापेक्षाही शिक्षणासाठी मोठ्या प्रमाणात केला जाऊ शकतो. आज अनेको तज्ञ लोक युट्युब वर आपले चॅनल फ्री मध्ये निर्माण करून माहिती प्रसारित करत आहे. याचा वापर सर्वांनी करून घ्यावा. आपल्या विषयात ज्ञान प्राप्त करावे. विद्यार्थ्यांना शिकवत असताना विविध संकल्पना, विविध व्याख्या, विविध आकृत्या, विविध संदर्भ देत असताना याचा वापर मोठ्या प्रमाणात केला जाऊ शकतो. युट्युब वर youtube वर सखोल आणि चांगले असे ज्ञान आपल्याला चांगले मिळू शकते. Youtube आज फ्री स्वरूपात उपलब्ध असल्यामुळे आणि त्या माहितीचा स्रोत एकापेक्षा जास्त असल्यामुळे आपल्याला माहिती ही मोठ्या प्रमाणात एकत्र मिळू शकते youtube वर अनेक तज्ञ मंडळी आपल्या विषयातील उपलब्ध असते. त्याचा योग्य पद्धतीने सर्च करून त्याचा फायदा प्रत्येक वाचक वर्गने करावा. याचा फायदा प्रत्येक शिक्षक वर्ग घेऊन शकतो. त्यामुळे youtube या घटकाचा देखील विद्यार्थ्यांसाठी वापर करावा.

6) वेबसाईट:-

वेबसाईट हा देखील एक माहितीचा खूप मोठा स्रोत आहे. वेगवेगळ्या वेबसाईटवर संबंधित संस्थेचे संबंधित, संघटनेची सविस्तर माहिती असते. त्याचा देखील उपयोग करून वेगवेगळ्या संकल्पना आपण समजून घेऊ शकतो. वेगवेगळ्या अभ्यासपूर्ण वेबसाईटवर वेगवेगळ्या विषयाची सखोल अशी माहिती असते. त्यामुळे त्या विषयात झालेला विकास त्या विषयाच्या मोठ्या विषयाची संरचना त्या विषयाची सखोल माहिती त्यामध्ये दिलेली असते. वेबसाईटचा वापर करून देखील चांगल्या पद्धतीने विद्यार्थ्यांना शिकवता येते.

7) व्हाट्सअप ग्रुप:-

आज सर्वच जण whatsapp चा वापर करत आहेत. whatsapp चा वापर हा फक्त माहिती देवाणघेवाण साठी न करता किंवा मनोरंजनासाठी न करता ज्ञानासाठी याचा वापर केला जाऊ शकतो. एक एका विशिष्ट हेतूने एकत्र आलेले लोकांनी एक व्हाट्सअप ग्रुप तयार करून आपणास असणारी माहिती आपल्या whatsapp ग्रुप वर पाठवावी. तसे शिक्षकांनी पण आपल्या आपल्या जवळची माहिती आहे तर ती whatsapp ग्रुप द्वारे विद्यार्थ्यांना. पाठवावी जेणेकरून तंत्रज्ञानाचा उपयोग करून थोड्या वेळातच विद्यार्थ्यांकडे माहिती पोहोचू शकेल. केवळ इंटरनेटची जी फीस आहे तीच लागेल. बाकीची कुठलीही फीस न लागता आपले आपला उद्देश साध्य करता येईल. तसेच विद्यार्थ्यांनी पण आपापसात आपला व्हाट्सअप ग्रुप तयार करून माहिती चे देवाणघेवाण करून आपले जीवनातील ध्येय उद्दिष्ट पूर्ण करू शकतात तसेच आपल्या विषयात माहिती एकमेकांना पुरवून शिक्षणाचा हेतू पूर्ण

करून घेऊ शकतात. संबंधित व्हाट्सअप ग्रुप वर होमवर्क प्रश्नपत्रिका विविध प्रकारची माहिती देऊन याचा वापर करता येतो .

8) टेलिग्राम ग्रुप-

टेलिग्राम ग्रुप वर पण आपण व्हाट्सअप ग्रुप सारखीच माहितीची देवाण-घेवाण करू शकतो . टेलिग्राम ग्रुप हा व्हाट्सअप पेक्षा वेगळा असल्याने केवळ याचा इथे उल्लेख केलेला आहे. बाकी टेलिग्राम ग्रुप आणि व्हाट्सअप ग्रुप ची माहिती व माहितीची देवाण-घेवाण करण्याची पद्धत जवळजवळ सारखीच असते.

9)समूह चर्चा-

समूह चर्चेद्वारे देखील माहितीची देवाण-घेवाण होऊ शकते. प्राध्यापकांनी विद्यार्थ्यांनी एका विशिष्ट विषयावर चर्चा करावी. आप आपले मत मांडावे. वेगवेगळ्या संकल्पना वर चर्चा करावी .यामुळे पण एक प्रात्यक्षिक ज्ञान विद्यार्थ्यांना मिळून तात्काळ विविध संकल्पना समजण्यास सोपे जाते. विविध विषय समजण्यास देखील सोपे जाते .हा देखील एक महत्वाचा शिकण्याचा आणि शिकवण्याचा मार्ग होऊ शकतो.

10)ग्रेस्ट लेक्चर:-

तज्ञांची व्याख्याने आपल्या विषयासंदर्भात आपल्याला आणखीन सखोल ज्ञान प्राप्त करायचे असेल व विद्यार्थ्यांना द्यायचे असेल तर आपल्या विषयातले जे तज्ञ व्यक्ती असतात त्यांचे व्याख्यान एक महिन्यात एकदा किंवा दोन महिन्यात एकदा ठेवावे त्यांना नवनवीन विषय घेऊन आपले मत मांडण्यात सांगावे. त्या विद्यार्थ्यांना त्या विषयासंदर्भात काही प्रश्न असतील तर ते सोडवावे. हा पण एक ज्ञान संपादनाचा एक महत्वाचा मार्ग होऊ शकतो तज्ञांची व्याख्याने तज्ञ लोकांना बोलवून त्यांनी व्याख्यान द्यावे यामधून देखील आपल्याला माहिती प्राप्त होऊ शकते.

11)सारांश:-

शिक्षण घेण्याच्या नवनविन विविध पद्धती या लेखांमध्ये आपण प्राथमिक शिक्षणापासून आजपर्यंत कुठल्या मार्गाने शिक्षण घेऊ शकतो. याचे सविस्तर विवेचन केलेले आहे. वाचन करून आणि संदर्भ ग्रंथ पाहून ही तर शिक्षण मिळवता येते. पण अनेक पद्धतीचा वापर करून शिकवताना वेगवेगळ्या घटकाचा वापर करून शिकवत येते .जसे टेबल आकृत्या. वेगवेगळ्या तंत्रज्ञानाचा वापर करून जसे youtube, वेबसाईट वेगवेगळे ग्रुप, याचा देखील आपण शिक्षणात कशा रीतीने वापर करू शकतो या संदर्भात सविस्तरपणे मांडणी केलेली आहे.

संदर्भ सुची:-

1)निकोसे सत्य प्रकाश, (2008) "ग्रंथालय व्यवस्थापन", प्रकाशक- साईनाथ व्यवस्थापन नागपुर.

2)कुंभार राजेंद्र, (2010), "महाविद्यालयीन व विद्यापीठ ग्रंथालय" प्रकाशक- य.च. म. मु. वि. नाशीक.

KNOWLEDGE TRANSFER IN THE DIGITAL ERA AND LIBRARIES

Dr. Vijay M. Deshmukh

Librarian

St. Vincent Pallotti College of Engg. & Tech, Nagpur

=====

Abstract

Knowledge has special importance in human life. In today's competitive era, knowledge and its utility are well known to everyone. Knowledge is necessary to achieve a high position in one's field. Every person needs knowledge for various reasons. Human life develops due to the transfer and sharing of knowledge. In this technological era, the field of knowledge is increasing day by day due to new research and expansion of knowledge.

Knowledge is necessary to make effective use of the ever-increasing information. This research paper covers what are knowledge transformation, what is the concept of knowledge transformation, their objectives, tools of knowledge transformation, knowledge transformation and library users. Every librarian should be involved in knowledge transformation, dissemination of knowledge, knowledge literacy courses.

With the help of knowledge transformation libraries can create an interesting environment for users to study the latest trends and motivate them for self-study and also it will help to improve the quality of libraries. This paper mainly focuses on the impact of knowledge transformation on libraries and users, the role of librarians and library in knowledge transformation is discussed.

Keywords : *Knowledge, Knowledge transfer, Libraries, Digital knowledge, knowledge management*

Introduction

In order to provide knowledge transformation service in minimum time to meet the needs of users in the library, proper planning is required for knowledge sources. Knowledge should be considered as an important source of any institution. Knowledge of information is a constant requirement for the development and planning of scientists, researchers, students and teachers. Also, planning of transfer of knowledge has to be done to increase the productivity of libraries. The planning of the institution has to rely on knowledge for planning and formulation of policies.

Even in the modern library, with the help of new technology, proper planning has to be done to distribute knowledge in the library to provide maximum service to the users in a better way. The role of distributing knowledge is important while planning at all such levels. In modern management, any library has to make a strategy of knowledge management to run the library for continuous progress. This requires proper transformation of knowledge to increase the operational capabilities of the library.

There has been an increase in the amount of information generated and used in the subject at all levels. Every knowledge center has to plan to distribute knowledge at all levels. Every knowledge center has to plan to provide knowledge by studying the vast amount of information generated and the needs of the users. If planning is not done, knowledge will get distorted.

In this research paper, an attempt has been made to explain what is the transfer of knowledge? Its various tools and sources, process, elements and importance have been briefly explained. An attempt has been made to explain how the conversion of knowledge is useful for all users.

In the modern library too, there should be proper planning to impart knowledge. This includes planning, organization, Service management, leadership and control. It has also been considered how the transfer of knowledge is managed with the help of planning techniques

In the modern era, the generation of knowledge and the need for information has also increased. Constant efforts are being made to coordinate these two so that knowledge can be transferred to the readers and the needy in the shortest possible time. Today, while doing this work, it is necessary to increase the availability of platforms using new technologies. In this, modern libraries need to provide important services using words, technology, knowledge management methods in library science as well as other knowledge areas.

Meaning of knowledge transfer

- Information transfer from one to another
- Transfer of best practices
- Transfer of experience
- Sharing of knowledge
- Sharing of Information
- Sharing of learning
- Sharing New developed ideas
- Create Awareness

Definition of knowledge transfer

- Knowledge transfer (or KT meaning in software) refers to a process in which employees or employers share their skills, information, experience, or ideas with other departments or other individuals in a business.

- A knowledge transfer system is a powerful tool that enables the knowledge transition to occur without a hitch.

Objectives of knowledge transfer

- To Create Awareness
- To literate
- Promote Self learning
- Self-direction for education, research etc
- Produce independent learners
- Self-sufficient lifelong learners
- Strong Decision making
- Improve the quality
- SDI
- CAS

Knowledge Transformation Tools

For the effective knowledge transformation tools play an important role in the library. These tools improve the quality of knowledge. Library is an important place where knowledge can be developed well. Libraries that are equipped with tools of knowledge transfer provide balanced knowledge of information from the resources. These tools effectively running library involves excellent services, users satisfaction, enhance productivity. Through the following tools library is able to transfer the knowledge.

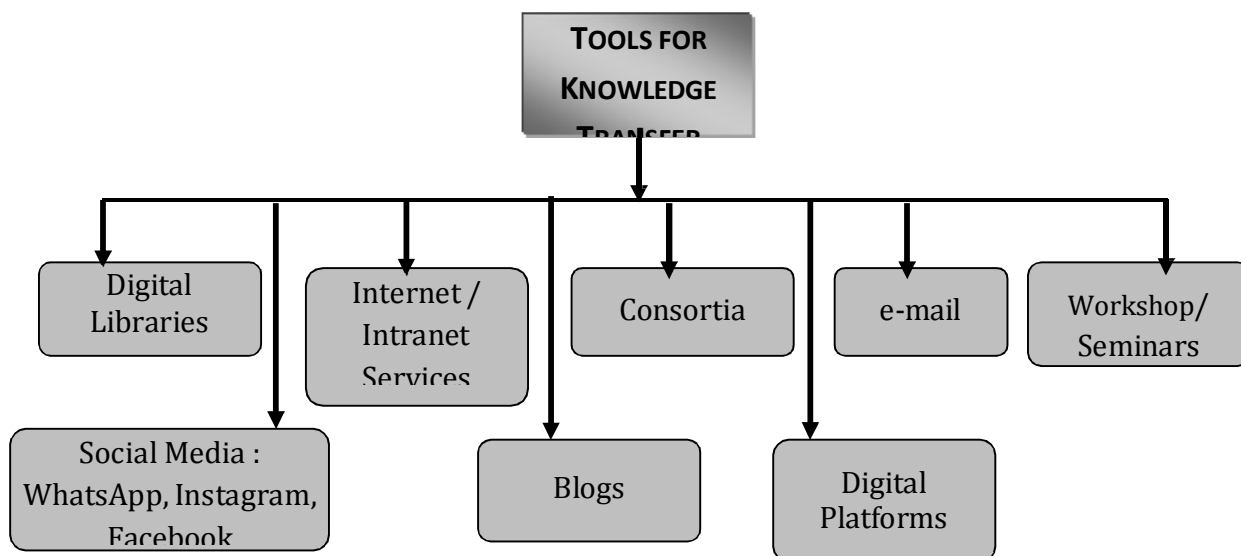


Figure 1 : Tools for knowledge Transfer

Knowledge Transfer Process

Knowledge transfer process is very important in the library. The library should transfer data based on knowledge and factual basis to the users. The librarian should pass the data on experience based knowledge. If the knowledge is not transferred on time then the transferred knowledge will not work and will result in mistakes, loss of valuable information. Therefore, the process should be followed while transferring knowledge.

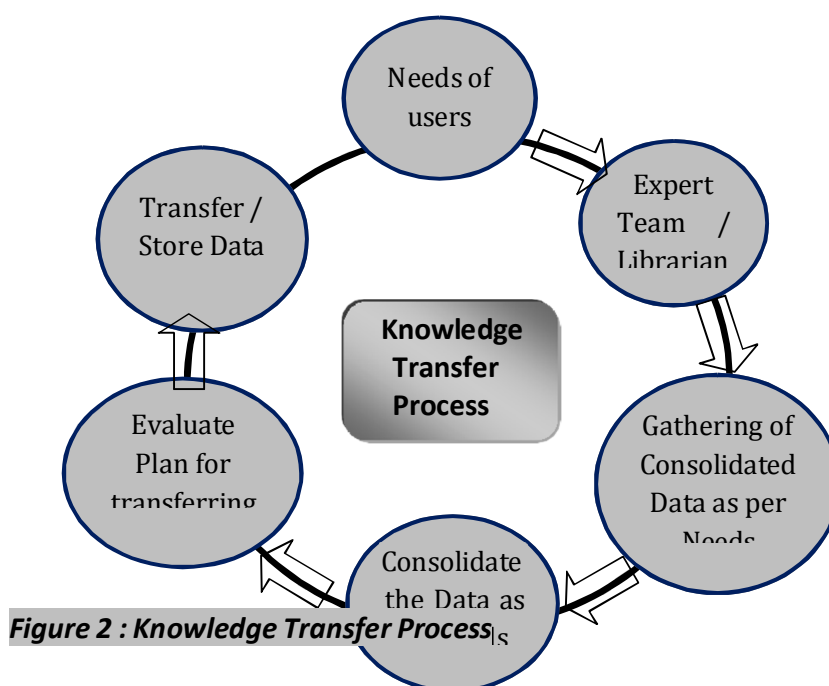
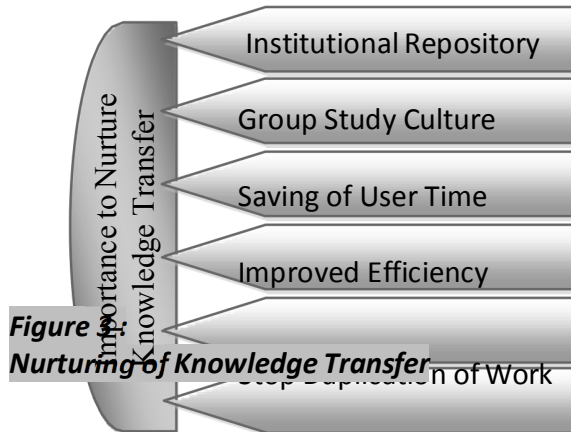


Figure 2 : Knowledge Transfer Process

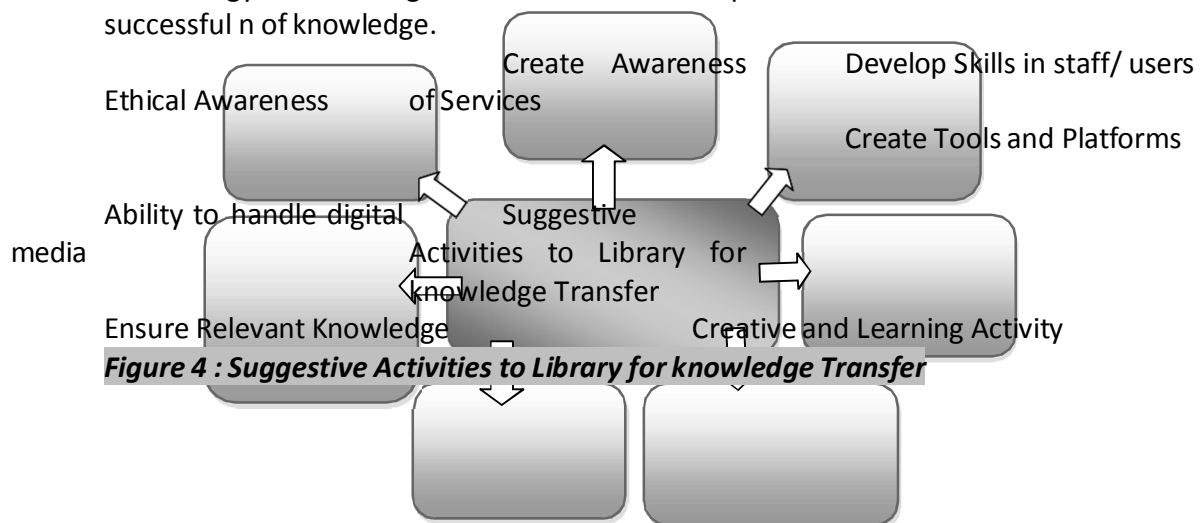
Importance to Nurture Knowledge Transfer

Nurturing knowledge transfer in the library is very important as it helps the library to increase its work efficiency. This will attract more users to the library. New users will get the benefit of this, they can gain knowledge quickly and the library can save the user's time as well as prevent repetitive work for the same.



Suggestive Activities to Library for knowledge Transfer

Knowledge transfer is a regular activity of libraries but while passing it one has to take care of relevant based knowledge. It is important to provide necessary and relevant knowledge on time. Libraries need to develop the right knowledge system and encourage knowledge based culture for their better performance. The transfer of knowledge should be necessary, relevant and timely. If the knowledge is not given to the right users with the right knowledge at the right time then it will be a failed strategy of knowledge transfer. Libraries can perform some activities for successful n of knowledge.



Importance of Knowledge Transfer in the Library

Knowledge transfer is very important for the development of users. It builds the innovation capabilities of the user. Knowledge transfer helps to identify the sources of knowledge in the library. It focuses on the importance of innovative library culture, where innovation, creativity and learning are possible and the processes of creating, sharing and transferring knowledge to users.

- Full fill the demand of users
- On time availability
- For the development and increase the knowledge of users
- For proper use of knowledge
- To provide latest information in the filed
- Collection and storage of knowledge is possible
- It enhanced skill and capabilities
- Direct involvement with user
- Encourage knowledge based culture

Conclusion

With the help of proper process and use of tools, effective assistance can be provided in the transfer of knowledge. The library should work on proper management to develop a proper knowledge transfer system. The librarian is the best person in this system. The library is playing the main important role in the transfer of knowledge to its users.

Knowledge transfer is a process through which the users of the library are affected if the person providing this service is not able to do so. If proper knowledge is not transferred to the users then the quality of the transferred knowledge will be affected. Therefore, the knowledge transfer in the library is not an easy task.

Before transferring knowledge it should be evaluated, analyzed and then actively prepared to be shared with the user communities which should be easily accessible. The process of knowledge transfer can be effectively adopted with the help of the librarian and the subordinate staff of the library. Proper processes of knowledge transfer enhance the quality of data. This will help in improving the quality and functioning of the library.

The skill of knowledge transfer is not just the transfer of data but also the carrying forward of the best knowledge for learning and innovation. Therefore the library needs to develop the right system for knowledge transfer that enables the library to improve the quality of its services. However, the process of implementing this program in the library has many challenges that must be analyzed for its successful implementation.

References

- 1 Gallemard, Jeremy. *The Basics of Knowledge Transfer: A Beginner's Guide*. March 2, 2023. <https://blog.smart-tribune.com/en/knowledge-transfer#one> (accessed August 9, 2024).
- 2 Borade, N. (2012). Knowledge Management in Libraries. . (pp. 288-290). Nanded: Degloor College.

3 Chawla, R. (2013). Knowledge Management and Academic Libraries in Digital era : Challeges for the library professionals. National Conference on Knowledge organisation in Academic Libraries (pp.133-143). New Delhi : Library Professional Association.

4 Kumar, P.S.G (2003). Managament of Library and information Centres, Delhi : BPRC.

5 Riswadkar, M.R.(2000). Information as a commodity : Gyangangotri, Y.C.M.O.U. (pp. (9-12).

6 Nagalingam, U. (2015). A New Generation of Digital Library for Sharing Resources in Puducherry Using Knowledge Networks : A Prototype Model., (pp. 5-13). *Journal of Indian Library Association , LI* (3)

Intellectual Property Rights and Copyright in Agriculture

Priyanka Binzlekar,

Librarian,

CMF,'s college of Physiotherapy, Chinchwad, Pune

Dr. Sambhaji G Patil,

Librarian, Central Library,

MET's Institute of Engineering, Bhujbal Knowledge City, Adgaon, Nashik.

=====

Abstract: Intellectual property rights and copyright hold importance in almost all talks of life, be it the field of agriculture, biotechnology, library and information science. Intellectual property rights are now tradable as any other property. Some briefed matters are Intellectual Property Rights, Recent Amendments-Purpose & purport, Copy rights and Library Service, Copyright in the digital environment, Violation of Copyrights, World Intellectual Property Right Organization Network (WIPONET), Intellectual Property Rights in Agriculture and also discusses the UPOV System.

Keywords: Intellectual, property, rights, copyrights and agriculture.

Keywords: Intellectual Property Right, Copyright, digital environment, library services, World Intellectual Property Right Organization Network, GATT Agreement.

Introduction: Intellectual Property Rights so far identified for the purpose of legal protection are ten in number. They are:

1. Rights of artists, painters, musicians, sculptors, photographers and authors for copyright in their works.
2. Rights of computer programmers whether in source or object code for a copyright in their programmes and compilation data.
3. Right of performers, producers of phonogram's and broadcasting organizations in respect of fixation of their programmes for a copyright in their work.
4. Right of traders in their trade mark.
5. Right of the inventor for patent in his invention.
6. Right of computer technologists for their layout designs of integrated circuits for patent in the work developed by them.
7. Right of breeders in bio-technology for a patent in the new plant variety grown by them.
8. Right of designers for their distinctive industrial design striking to the eye.
9. Right of manufactures and producers on geographical indication in relation to such products and produce.
10. Rights of creator in integrated circuits.

Definition of Intellectual property as given in WIPO: Literary, artistic and scientific works, performances of performing artists, phonograms and broadcasts, inventions in all fields of human Endeavour, scientific discoveries, industrial designs, trademarks, service marks and commercial names and designations; protection against unfair competition and all other rights resulting from intellectual activity in the industrial, scientific, literary and artistic fields.

Every author has a copyright in the work he creates. This is inherent in him by reason of he being an author. It creates in the author an exclusive right to produce, reproduce, publish and perform his work in all ways known and possible. Whether he gets his copyright registered or not this right subsists in him. If that be the case, one may ask where is the necessity for the author to get his work registered under the Copyright Act? It is not as though there are no advantages at all of the registration of copyright is obtained. In the first place, if the copyright is registered, the certified extract thereof furnishes evidence of the authorship of the work and then his title to copyright. If the author intends to assign or license his work on royalty, production of the registration extract will assure the prospective assignee or the licensee of the author's right to assign or license his copyright. Since the extract contains several particulars including commencement of the right and its subsistence and also the prior transactions over that right if any, the registration extract is like a non-encumbrance certificate issued by the registrar of assurances relating to immovable property which provides similarly all the particulars of the title and encumbrances over the property.

Recent Amendments-Purpose and purport: The following amendments among others were made in the Copyright Act in the year 1994. They cover some of the important amendments of general relevance. The other amendments were in relation to the addition of computer software and copyright societies.

1. Adaption may be in different forms such as adapting a dramatic work with non-dramatic work and vice-versa, or conversion of literary work into musical work, abridgement with or without illustrations etc. In order to include "arrangement or re-arrangement" also in adaption, the amendment added a clause to the effect that the use of the work involving its arrangement and alteration will amount to adaption.

2. When cable operators were claiming that their service to a group of houses in a colony will not amount to communication to public, the courts have negative their contention. In order to make it clear that the communication to more than one household amounts to communication to the public the act was suitably amended.

3. Recently, a new word has come into the vocabulary. It is reprography. A need arose to give an appropriate definition for purposes of this Act. Hence, the following definition is added defining the word 'reprography' reprography means, making copies of the work by photocopying or by similar means.

4. It is often contended that a sale of a single copy will not lead to any assumption that the work has already been in circulation. To clear this doubt the Act was amended to say that when a copy of any work is sold once or let on hire it means that the work has already been in circulation.

5. Where the author assigns registration of the assignment of Copyright, it is felt that the terms of assignment shall be clearly spelt out in the registration. Such terms may relate to the term about the years, the area and also the royalty agreed to be paid and received and the manner of payment and the persons to receive the royalty after the demise of the order. The

amendments provide that all these matters shall be stated in the application for registering the assignment.

Copyright and library services: We are all aware of the nature of copyrights. We are aware about three international conventions and the Copyright Acts passed by individual countries within the framework of the provisions of these conventions. To be familiar with this it is necessary for librarians to know which rights are protected and how to operate under this provision. The rights that are affecting the traditional library services, directly or indirectly are:

- The rights to copy a work
- To issue copies to the public
- To rent or lend the work

Other rights viz. to perform, show or play the work, to broadcast the work and to adapt the work are not directly related to library service, except in special case the right to perform, show or play may be related to the extension activities of library.

Protection against lending the books does affect the library service, as lending of books is a core function of the library. As far as the lending in the parental libraries is concerned the protection is not affecting the lending service because in such libraries, - school, college, universities and the libraries attached to parent organization- the lending is restricted to the members and not public at large. As long as selling the books to libraries is not restricted the right of the library to lend the books to the members – does not affect the protection. In theoretical terms, the moral rights of the authors do get protected.

Copyright in the digital environment: New communication technologies bring unprecedented opportunities for improving access to information and technology has the potential to improve communication and access for those disadvantaged by distance or economic circumstances. However, we now know that technology also has the potential to further stratify society into the information-haves and the information-have-nots. If reasonable access to copyright works is not maintained in the digital environment, a further barrier will be erected which will deny access to those who cannot afford to pay.

WIPO

In 1996, the members of the World Intellectual Property Organization adopted two treaties to update copyright law for the digital environment. In confirming that existing exceptions and limitations can be carried forward and extended in the digital environment, WIPO countries rejected the claim that “digital is different”.

IFLA. IFLA is an international non-government organization (NGO) which exists to undertake, support and co-ordinate research and studies and disseminate information about all aspects of library and information work wide and to organize meetings and training in this field.

Traditionally, libraries have been able to provide reasonable access to the purchased copies of copyright works held in their collections. However, if in future all access and use of information in digital format becomes subject to payment, a library’s ability to provide access to its users will be severely restricted.

Violation of Copyrights: Violation of copyrights means in other language infringement of Copyright Act. Copyright act provides protection to the intellectual property, the true principle is that a person is not at liberty to use or avail of labor and skill of another for the purpose of producing his work. It has been said that “What is worth copying is worth protecting”.

Essential ingredients of infringement depending upon the kind of copyright work, infringement involves one or more of the following acts:

- ❖ Reproduction of the work in a material form
- ❖ Publication of the work.
- ❖ Communication of the work to the public.
- ❖ Performance of the work in public.
- ❖ Making of adaptations and translations of the work and doing any of the above

acts in relation to a substantial part of the work.

Exceptions in Copyright Act: The Copyright Act provides certain exceptions to infringement. The objects of these exceptions are to enable the reproduction of the work for certain public purposes for encouragement of private study and research and promotion of education. Section 52 gives a long list of acts which do not constitute infringement of copyright. Some of them are as follows:

- Reading or citation in public or extracts i.e. literary or dramatic work.
- Publication in collection for the use of educational institution in certain circumstances.
- Reproduction by teacher or pupil in the course of instructions or in question papers.
- Performance in the course of the activities of educational institutions in certain circumstances.
- The making of sound recording under certain conditions.
- Publication in newspaper or magazines a report of a lecture delivered in public.
- Making a maximum of 3 copies for the use of the public library.
- Reproduction of unpublished work kept in a museum or library for the purpose of study or research.
- Production or publication of a translation of acts of legislature or rules.

World Intellectual Property Right Organization Network (WIPONET): The WIPONET is a global information network. It is the first step in enhancing communication between WIPO and the Intellectual property community. It will interconnect 332 intellectual property offices in 171 countries. The basic services which WIPONET provides are email, list services, web hosting, file transfer services, discussion groups on Intellectual Property related topics, virus scanning and the provision of updated signatures and use administration. It also provides portal like Intellectual property digital libraries and online filing under the patent cooperation treaty.

Protection of new plant varieties and farmers rights: The legislation enacted by India called Protection of New Plant Varieties and Farmer's Rights has three objectives: (1) to protect and benefit the breeders of new plant varieties, (2) to protect and benefit the farmers as cultivators and conservers of traditional local plant varieties which may be used in the development of new varieties and (3) to encourage the growth of seed industry through domestic and foreign investments so as to ensure supply of high quality seeds and planting material to the farmers.

Procedure for Registration: Before making an application for registration of a new plant variety, the breeder must ascertain whether the plant variety for which application is to be made is included in the genera or species notified by the Government as entitled for registration and shall also see the variety for which the application made is not the one prohibited by the Central Government under a notification, as not entitled for registration.

Thereafter, the breeder must ascertain and assign a denomination number to his variety, in accordance with the international classifications. The applicant shall supply to the Registrar such quality of seeds and planting material as may be required for purposes of conducting tests and shall deposit also the fees as may be prescribed to meet the costs of tests. The applicant shall also file a declaration that the variety proposed for registration does not contain any gene or gene sequence involving terminator technology.

Registration of Essentially Derived Variety: An essentially derived variety is a variety derived from initial variety. It is a variety which retains the essential characteristics which result from the genotype or combination of genotypes of the initial variety. The registering authority in the case of the essentially derived variety is the Authority for the protection of plant varieties and Farmer's Rights and not the Registrar. On the orders so made accepting registration of the essentially derived variety by the Authority, the Registrar shall enter the same in the Register and issue the Certificate of Registration to the applicant.

Registration of extant variety: There is one more variety called extant variety under protection by the cultivator about which there exists a common knowledge and which was notified as such under Seeds Act. The application for the registration of an extant variety may be made by the cultivator or cultivators or by the breeder and the procedure for registration of this variety is same as the one followed for purpose of registering new plant variety.

Thus the plants which can be registered under the Act are: (1) New plant varieties like hybrids; (2) Essentially derived varieties like the principal plant remaining the same, additional attributes are added; (3) Initial variety like the first variety invented after breeding technology; and (4) Extant variety.

Registration by foreigners: Registration of new plant varieties is available to the citizens of convention countries where the Indian citizens are given protection equal to that granted to their own citizens in the matter of registration of new plant varieties. Foreign citizen who applied for registration in respect of a new plant variety as a breeder in his own country can seek registration of his new plant variety with Registrar in Indian in accordance with procedure prescribed in this country.

Benefit sharing: Benefit sharing means, such proportion out of the benefit accruing to the breeder by virtue of monopoly granted to him as may be determined by the Protection of Plant Varieties and Farmer's Rights Authority in favour of and for payment to the beneficiary. The amount of benefit payable to the beneficiary is determined in consideration of the extent and the nature of the use of genetic material of the claimant, in the development of new variety by the breeder and the commercial utility and the demand in the market of the new plant variety.

Compensation to communities: The breeder of registered variety is required to pay some amount as compensation to the people of village or locality for their contribution in the evolution of the new variety. Here also, it is the Protection of Plant Varieties and Farmer's Rights Authority which fixes the compensation. Before a claim is raised by any person or group of persons or any governmental or non-governmental organization, the application claiming compensation shall be filled at the office called the centre which is authorized by the Government to receive claims. The Centre shall examine the claim attributable to the contribution of the people of the village or of the local community in the evolution of the new variety and make appropriate recommendations to the Authority under a report. The Authority thereafter shall make further enquiry taking into consideration the report of the Centre and

after due notice and hearing to the breeder fixes such sum as compensation which the authority thinks reasonable. The amount so determined shall be deposited by the breeder in the Gene Fund from which it is drawn by the Authority and paid to the claimant.

Appeals: All decisions made by the Registrar or by the Authority are appealable to the High Court. There is no appeal against the orders of Registrar to the Authority.

Compulsory License: If at any time after the grant of certificate of registration, Protection of Plant Varieties and Farmer's Rights Authority, on an application preferred by any interested party for grant of compulsory license, may grant such license in favour of the applicant. Such compulsory license can be granted only if the Authority is satisfied that the registered breeder is not making adequate supplies of seeds and planting material to the reasonable requirements of the community or where they are made available, they are not available to the public at reasonable prices.

The authority if it decides to grant compulsory license may fix the terms of compulsory license, the quantum of royalty payable to the breeder and the duration of the compulsory license. The Authority may if necessary, may authorize the licensee to draw the reproductive material from the National Gene Bank or any other Centre where such material is available. The royalty payable to the breeder may be determined taking into consideration the nature of the variety, the expenditure incurred by the breeder in breeding the variety or for developing it. The compulsory license may be authorized to import the variety, the seed and other propagating material from abroad, even if such import would otherwise constitute an infringement.

Period of validity of registration: The Certificate of Registration shall be valid for three years and may be renewed from time to time up to 18 years in the case of trees and vines and 15 years in other cases from the date of registration.

Recognized centers: The Central Government recognizes certain centres in different parts of the country which are authorized to investigate locally and report on the claims for contribution raised by beneficiaries and on the compensation claimed by village communities and tribals. Such centres are normally chosen at places where bio-diversity is localized. The provisions of the Act shall be binding on the Government as much as the people. It means that if the Government as a breeder registers a new plant variety it shall deposit contributions under the benefit sharing and the compensation payable to village communities into the gene fund.

GATT Agreement: Protection of New Plant Varieties and Farmers Rights Act deals with three subjects. First is, the Protection of Bio-diversity in Plants against their disappearance and waste. The second is, Protection of Farmers Right as Cultivators and Conservers & Breeders of Biodiversity in plants. The third is, Protection of Breeders Right who breeds through assiduous efforts new varieties in plants by applying the techniques of gene transfer and gene implant in addition to several other traditional methods.

Conclusion: IPR is something that affects us every day. We should be conscious of its effects on our economy. It is not enough to have strong laws but strong mechanisms to enforce, like the judiciary, police and the customs.

The knowledge intensity of agricultural research is likely to grow in the future. The intellectual property rights are likely to play an important role. The awareness in IPR and their management by the R & D institutions and scientists is essential pre-requisite in exploiting these capabilities for commercial and societal gains.

ICRISAT of Hyderabad, an international Organization has recently opened up its doors for all those who desire to conduct research on their premise, using their own equipment or verify and test their research achievements. Similar openings may be created in thousand of research institutions manned be the Indian Council of Agricultural Research, Indian Council of Scientific Research, and several other similar organizations which have huge and surplus equipments.

References

- 1) Acharya NK, (2019) "Text book on Intellectual property rights", Asia Law house, Hyderabad. P.25-29.
- 2) Erbis FH and Maredia KM Ed.,(2018), "Intellectual Property Rights in Agricultural Biotechnology", University Press Limited, Hyderabad.
- 3) Jayashree Watal, (2018),"Intellectual Property Rights: In the WTO and developing countries", Oxford university press, New Delhi, 2018.
- 4) <http://commons.wikimedia.org/wiki/copyright>, accessed on dated 01/10/2023
- 5) <http://en.wikipedia.org/wiki/wikiquote>, accessed on dated 01/10/2023
- 6) <http://www.wipo.int/about-ip/en/>, accessed on dated 01/10/2023
- 7) Prabuddha Ganguli,(2019),"Intellectual Property Rights: Unleashing the knowledge Economy", Tata McGraw-Hill Company Limited, New Delhi, 2019.
- 8) Satarkar SP,(2020),"Intellectual Property Rights and Copyright", Ess Ess Publication, New Delhi, 2020.
- 9) Shiv Sahai Singh Ed.,(2021),"The Law of Intellectual Property Rights", Deep & Deep Publications Pvt. Ltd., New Delhi, 2021.

Impact of AI on Higher Education in India

Anuja Chandrakant Kokate

Research student

=====

Abstract

This study looks into how Artificial Intelligence (AI) has changed higher education in India in a big way. The study looks at both possibilities and problems by looking at how AI can be used in teaching, learning, administration, and research. The paper talks about how AI could be used to make learning more personalised, make administrative jobs easier to do automatically, and make research better. But it also talks about important things like the digital divide, training for teachers, data privacy, and the moral problems that come up. Case studies of AI applications that went well in Indian institutions are looked at to learn useful lessons. At the end of the study, it is emphasised that a planned approach is needed to get the most out of AI while minimising its risks. This will help shape the future of higher education in India.

Keywords: AI, higher education, India, impact, technology, learning, teaching, research

Introduction

Artificial intelligence (AI) used to only be found in science fiction, but it has quickly grown into a force that is changing businesses and societies all over the world. Its ability to act like a human brain, learn from data, and make choices on its own has made a huge range of areas possible. AI is being used for more and more things, from self-driving cars to medical diagnosis. The way higher education works is also being changed a lot by this shift in technology.

India is at a very important juncture, with a growing number of young people and a greater focus on technology progress. There are big changes happening in the country's higher education sector, which includes a huge network of universities, colleges, and professional schools. More people can now go to college, which is a good thing, but there are still problems with quality, fairness, and employment. When AI is added to this already complicated situation, it brings both possibilities and problems.

The goal of this study is to look into the many ways that AI has changed higher education in India. It tries to figure out how AI can be used to improve learning and teaching, make administrative tasks easier, and encourage great study. The study will also look into the problems that might make it hard to use AI, such as the digital divide, the lack of preparedness among teachers, and ethical concerns. This study tries to add to the conversation about the future of education in India by looking at how AI and higher education work together.

AI in Higher Education: Opportunities and Challenges

Adding AI to higher education has the potential to completely change the way people learn and teach.

AI-powered platforms are making personalised learning a fact, which was once just a dream. Smart teaching systems can teach each student in a way that fits their needs and pace, making the lessons more effective. Adaptive learning platforms can change the content and amount of difficulty based on how well students are doing, which makes learning more fun and effective.

AI is also changing the way government work is done outside of schools. Routine chores like scheduling, registering students, and grading can be made much more efficient by automating them. This frees up time for faculty and staff to work on more important projects. AI-powered student information management systems can give parents and teachers useful information about how their kids are doing in school, so they can help them right away and give them individualised help. Predictive analytics can improve the admissions process by finding high-potential applicants and guessing how many students will stay in school. AI also has a huge amount of potential for study and new ideas. Research methods that are powered by AI can speed up the discovery process by looking at huge datasets and finding trends that would have been missed otherwise. AI can also help researchers clean, preprocess, and analyse data, which frees up time for more complex cognitive tasks. Using AI in research, on the other hand, brings up difficult issues linked to intellectual property rights and moral concerns.

Even though the outlook is good, there are some problems that need to be fixed before AI can be successfully used in higher education. The digital gap, which means that not everyone has the same access to technology and the internet, is a big problem. It is very important to make sure that kids from all walks of life can benefit from AI. Also, teachers need to get the right training and development to use AI tools successfully and incorporate them into their lessons.

Concerns about data protection and security are very important. Schools need to take strong steps to keep private information about students and teachers safe. Also, the moral effects of AI, like the possibility of job loss and biased algorithms, need to be carefully thought through. For a fair and responsible move to an AI-powered higher education environment, it is important to find a balance between using AI's benefits and reducing its risks.

Case Studies of AI Implementation in Indian Higher Education

It is important to look at individual case studies in order to understand how AI can be used and what its potential is in Indian higher education. A number of Indian universities have started AI projects, with different levels of success. For example, IIT Madras has created an AI-powered chatbot to help students with their schoolwork. This makes things easier for administrators and makes students happier. Jawaharlal Nehru University has also tried using AI-powered early warning tools to find students who might be having trouble in school so that they can get help right away.

These case studies are very helpful for understanding the difficulties and chances that come with using AI. Some of the lessons learnt are how important it is to have good data, train teachers, and handle change. A collaborative approach is often what makes a project work. IT departments, faculty, and students all work together to set goals and evaluate results. These case studies also show how important it is to have a phased implementation plan, starting with low-risk, high-impact projects to boost confidence and get things moving. AI has the potential to improve many parts of higher education, but there are problems like limited infrastructure, resistance to change, and moral issues. Some organisations have had trouble gathering and organising the huge amounts of data needed for AI apps. To get past these problems, we need strong models for data governance and investments in IT infrastructure. For AI to be successfully adopted, it is also important to handle faculty concerns about job security and changes to the way they teach. Schools can learn from each other and

speed up the process of integrating AI in Indian higher education by sharing their experiences and best practices.

Impact on Students, Faculty, and Institutions

Using AI in higher education has huge effects on students, teachers, and schools all at the same time. At the heart of these changes is the chance to help students learn more and get better jobs. AI-powered personalised learning paths can meet the needs of all kinds of students, helping them understand things better and think critically. A lot of students will be more interested and motivated to learn if AI gives them quick feedback and adapts their learning experiences. AI-driven skill testing can also help students figure out their strengths and flaws, which will help them learn the skills employers will need in the future. Another important factor is access to schooling. Tools that are driven by AI can get around geographical problems, giving students in faraway places good chances to learn. But fair access to technology is still a problem that needs to be fixed so that AI can help all kids.

Members of the faculty are having their jobs and responsibilities changed. AI can automate boring jobs, but it also needs new skills, like being able to analyse data and combine different technologies. Faculty will need to change from mainly giving out information to helping students learn and being guides. It can be too much to handle all the extra work that comes with using new tools and keeping up with AI developments. Because of this, schools need to fund staff development programs to give them the skills and help they need. At the governmental level, AI can help cut costs and make the best use of resources. By automating administrative tasks, schools can put money back into teaching programs and services that help students. AI-powered analytics can help make the best use of class plans, resources, and student enrolment trends. However, the original investment in AI infrastructure and training can be quite large. Also, an institution's image can be greatly affected by how much it uses AI. Early adopters who use AI well can get ahead of the competition and attract the best students and teachers.

Ethical Considerations and Policy Implications

Higher education needs a strong ethical framework because AI is developing so quickly. One big worry is that AI programs might be biased. If the data used for training shows flaws in society, AI systems may keep producing unfair results. For fairness and equality to be maintained, data must be carefully curated, algorithms must be checked, and there must be constant monitoring. Both privacy and data security are very important. Colleges and universities handle a lot of private information about their students and teachers. It is very important to keep this info safe from breaches and misuse. It's hard to find a good balance between the need for data-driven ideas and people's right to privacy.

For responsible creation and use of AI in higher education, there needs to be a comprehensive policy framework. Overarching rules and concepts can be found in government programs and rules. But institutions must also make their own rules to deal with specific problems and make sure they are in line with their goal and values. These rules should include things like how to manage data, make algorithms clear, how to do ethics reviews, and how to hold people accountable.

Conclusion

AI can improve the way we teach and learn, make government work easier, and spur new study. But for it to work, it needs to be carefully planned, ethical issues need to be thought through, and the faculty needs to be committed to their own growth. Some of the most

important results show how important personalised learning, data protection, and a balanced approach to AI adoption are. To get the most out of AI, schools should put training for faculty at the top of their list of priorities, invest in strong IT infrastructure, and encourage a mindset of trying new things and coming up with new ideas. Future studies should look more closely at how AI affects student results over time, what the ethical implications of AI are in various fields, and how humans and AI can work together in research. Taking care of these issues will help higher education use AI to make the learning setting more open, efficient, and useful for everyone.

References

1. UNESCO. (2020). Artificial intelligence in education: Promises and implications for teaching and learning. UNESCO Institute for Information Technologies in Education.
2. Heffernan, N., & Heffernan, C. (2020). AI in higher education: A review of the literature. *International Journal of Artificial Intelligence in Education*, 30(1), 1-25.
3. Smith, A. (2022, February 15). The future of higher education: How AI and machine learning will change the way we learn. *Forbes*. (link unavailable)
4. Kumar, A., & Kumar, P. (2022). AI in Indian higher education: Opportunities and challenges. *Journal of Educational Technology*, 48(2), 1-12.
5. Bostrom, N., & Yudkowsky, E. (2020). Ethical considerations in AI adoption in higher education. *Journal of Information Ethics*, 29(1), 1-15.
6. Baker, R. S., & Smith, L. (2022). AI-driven research methodologies in higher education. *Journal of Educational Data Mining*, 14(1), 1-20.

The Role of Academic Libraries in the Implementation of the National Education Policy 2020

Dr. Manisha Nimraj Jadhav

Librarian

Subhash Baburao Kul Arts, Commerce and Science College Kedgaon,
Tal-Daund, Dist.-Pune

Abstract-

The National Education Policy (NEP) 2020 is a comprehensive policy document that aims to renovate the Indian Education system by providing a framework for education reform. The role of libraries in the NEP 2020 is crucial as they play a significant role in the holistic and multidisciplinary education that the policy seeks to promote. Libraries are essential in providing students with access to a diverse range of reading materials both prints and digital that can support their learning and enhance their critical thinking and problem solving skills. The NEP 2020 recognizes the importance of libraries in education and recommends the establishment of well-equipped and resourced libraries in school and higher education institutions. The policy also emphasizes the need for libraries to adopt technology –enabled learning and to develop partnership with community libraries and other institutions. The successful implementation of the NEP 2020's recommendations for libraries will required investment in infrastructure, resources and staff training, but the potential benefits for students and the education system are significant.

Keywords- National Education Policy, Libraries, Academic library Role

Introduction –

The new National Education Policy was launched by the Union Cabinet on July 29, 2020, paving the way for transformative reforms in the school and higher education system. He renamed MHRD as Ministry of Education. This is the first education policy of the 21st century after the old education policy launched in 1986 which replaced the 34 year old education policies. The new National Education Policy is based on the pillars of Access Equity Quality and Accountability. The new policy will replace the old 10+2 structure with a 5+3+3+4 structure comprising 12 years of school and 3 years of Anganwadi, pre-school. The basic objective of the new National Education Policy is to provide universal access to quality education. Economic development is social justice. Also quality and scientific progress is for India's progress and leadership at the global level. Moral value and humanity is religion.

This new National Education Policy is going to help develop societies and countries everywhere with a positive impact on all. The educational policy seeks to provide high quality educational opportunities for holistic development

Objectives of New National Education Policy

- Creating a new system aligned with growing aspirations in the 21st century.
- To develop fair and just social work.
- To improve all aspects of education system.
- Professional bias and skill development

- Use of technology.
- Holistic development
- Learning to develop qualities like memory, reasoning, hard knowledge, physical ability, communication skills.

- Focusing on learning to reduce dependence on textbooks.

New National Education Policy and Libraries:-

• In the new national education policy, libraries are not just libraries, but educational and resources focused libraries as "Learning and Resources Hub". Availability of reading materials, resources, physical facilities, readers in the library is essential. The role of college libraries is not limited to providing services and facilities but now the nature of work has become wider.

• New National Education Policy 2020 needs more emphasis on library services and facilities.

• Libraries should take into account the development of the library and the needs of the readers, identify and develop the suggestions of the readers in the use of digital systems and distribute the information to them accordingly.

• Collecting information for research and educational development, managing information, handling information and preparing, developing and implementing comprehensive program for digital learning with the help of teachers/professors for implementation and evaluation. It is expected in the National Education Policy.

Academic libraries are mainly an integral part of the university, they are working to provide supplementary information to the students and professors, they can get the necessary materials in the library and they are working to provide the materials needed for research.

New National Education Policy 2020 Responsibilities of Libraries will be as follows –

• Developing attractive literature content – The new National Education Policy 2020 calls for developing books with standard content in all local and Indian languages for students at all levels.

• Ensuring availability and accessibility and accessibility of books in libraries- To ensure availability and accessibility of books for all, emphasis will be placed on making books widely available in libraries and accessibility for the physically challenged as well.

• Emphasis on inculcating reading habits- Libraries have to modernize and strengthen libraries and use modern technology in libraries to develop interest in reading among readers. To inculcate reading habit / habit and encourage reading by establishing book clubs.

• Development of Infrastructure for Libraries- While encouraging the reader to read, it is very important to increase the infrastructure of the library and it needs to be considered in the new National Education Policy.

Conclusion -

Libraries are an educational system that provides services. Therefore, whenever any educational policy is considered, the efficiency of the librarian, their objective, and goal strategies should be taken into account. Libraries are an important element in the educational policy. The influence of the library is felt at all levels in the education sector. Libraries are important in the development of education policy of the country. The National Education Policy 2020 outlines the current state of the education system with changes and planning to ensure

quality education. It also guides to strengthen the foundation of a self-reliant India to make education universal.

References-

- K Kumar A Prakash K Singh How National Education Policy 2020 can be a lodestar to transform future generation in India Public Affairs.
- https://www.mhrd.gov.in/sites/upload_files/mhrd/files/NEP_Final_English.pdf, dated: 23/03/2021.
- Lamani, Manjunath. New Education Policy-2020: Role of Libraries: International Jour. Of Research in Library Science 2021; Vol-7, issue -3:166-171.

Medical Subject Headings (MeSH): An Essential Tool for Biomedical Literature Searches

Manishkumar G. Khatri¹

Research Scholar,
Dept. of Lib. and Info.Sci., Dr. BAM
University, Chhatrapati Sambhajinagar.

Prof. Dr. Kalyan N. Kumbhar²

Librarian & Professor,
Badrinarayan Barwale Mahavidyalaya
, Jalna, Maharashtra.

Abstract : The US National Library of Medicine (NLM) maintains Medical Subject Headings (MeSH), a comprehensive regulated vocabulary used to index articles in PubMed. This article discusses the evolution, structure, and implementation of MeSH in biomedical literature searches, drawing on a variety of academic sources. MeSH, which was established in the early 1960s, addresses the requirement for a standardized vocabulary in biomedical writing and has grown to include over 28,000 hierarchically organized descriptions. This structure facilitates broad and specialized searches, hence improving information retrieval. MeSH terms, which include synonyms and terminology variations, are widely used in PubMed and other NLM databases to improve search accuracy and relevance. Despite issues such as the slow incorporation of new medical concepts and the intricacy of its structure, MeSH remains an important tool for academics and healthcare workers. Natural language processing requires continuous upgrades and breakthroughs in order to evolve and be useful.

Keywords: Medical Subject Headings (MeSH), biomedical literature, PubMed, U.S. National Library of Medicine (NLM), Natural language.

Introduction:

MeSH, which was created and is kept up to date by the National Library of Medicine (NLM) of the United States, is a comprehensive regulated vocabulary for indexing articles in PubMed. It offers a consistent way to retrieve information that may use different names for the same concepts. (National Library of Medicine (NLM), n.d.) This article includes the development, structure, and use of MeSH in biomedical literature searches, drawing on a variety of scientific sources.

Table 1: Overview of MeSH, highlighting its structure, functionality, and significance in medical research.

Feature	Description
Controlled Vocabulary	Standard for indexing publications in the medical field.
Hierarchical Structure	Terms are arranged in a tree structure, with more specialized terms at the bottom and wider terms at the top.
Thesaurus Functionality	Offers antonyms, similar phrases, and synonyms to help with thorough searches.
Subheadings	Particulars of a topic (such as "diagnosis," "therapy") that help narrow down searches.
Yearly Updates	Updated yearly to take into account new scientific discoveries and medical jargon.

Use in Indexing	Utilized to retrieve information consistently and effectively from articles in PubMed and other databases.
Example Term	"Heart Attack" maps to "Myocardial Infarction" in MeSH for comprehensive search results.
Importance in Research	Improving the efficiency and accuracy of literature searches is essential for conducting biomedical research.

(Medical Subject Headings, n.d.)(National Center for Biotechnology Information (NCBI), n.d.)

Development and Structure of MeSH:

The early 1960s saw the development of MeSH in response to the growing need for a uniform vocabulary in the quickly expanding field of biological writing.(FB, 1963). It has since grown to include over 28,000 descriptors arranged in a hierarchical order. This hierarchy enables both broad and particular searches, making MeSH an adaptable tool for information retrieval(Lipscomb, 2000).

MeSH's hierarchical structure comprises descriptors organized in tree topologies, allowing users to conduct searches at different levels of specificity (Baumann, 2016). For example, under the broad heading "Diseases," there are more precise subheadings like "Bacterial Infections" and subcategories like "Streptococcal Infections." This arrangement makes precise searching easier by allowing users to filter or broaden their search queries (Lowe & Barnett, 1994).

Table 2 : Overview of the development and structure of MeSH.

Development of MeSH	
Aspect	Description
Origins	The National Library of Medicine (NLM) developed MeSH in 1954 to replace earlier NLM indexing systems, such as the "Subject Heading Authority List" (SHAL).
Purpose	provide a comprehensive and uniform method for indexing and categorizing biomedical literature, with the ultimate goal of increasing search efficiency and accuracy in databases like PubMed.
Evolution	New terminology and updates are introduced to MeSH every year to reflect developments in medical science, technology, and emerging issues. MeSH has developed to meet these advancements.
First Edition	About 4,400 subject headings were included in the first official edition of MeSH, which was released in 1960.
Annual Updates	MeSH is revised to reflect the fast changing medical sector. New terminology are added, old ones are removed, and existing headings are refined.
Structure of MeSH	
Component	Description
Hierarchical Structure	MeSH terms are organized in a hierarchical "tree" structure, with broader terms (parent terms) at the top and more specific terms (child terms) branching out beneath them.
MeSH	Main concepts or terms used to index articles. These headings

Headings	represent major topics in the biomedical field.
Subheadings	Also known as qualifiers, subheadings refine the main MeSH headings by specifying aspects such as "diagnosis," "therapy," "etiology," etc.
Entry Terms	Synonyms, alternate terms, or related phrases that direct users to the official MeSH heading, ensuring comprehensive search coverage.
Tree Numbers	Unique identifiers assigned to each MeSH heading that indicate its position in the hierarchical structure. These numbers help in navigating the MeSH database.
Scope Notes	Descriptions or definitions provided for each MeSH term to clarify its meaning and appropriate usage in indexing.
Supplementary Concept Records	These are additional records in MeSH that include specific chemicals, diseases, or protocols that do not have their own heading but are important for indexing.

(Medical Subject Headings, n.d.)(National Center for Biotechnology Information (NCBI), n.d.)

Application of MeSH in Literature Searches:

MeSH terms are frequently used in PubMed and other NLM databases to index and search biological literature. When conducting a literature search, users can filter their findings by using Boolean operators (AND, OR, NOT)(Coletti & Bleich, 2001).A search for "Diabetes Mellitus" AND "Therapy" will provide articles discussing diabetes treatment alternatives.

The usage of MeSH words improves search results' accuracy and relevancy by accounting for synonyms and terminological variants. For example, a search for "Heart Attack" will return publications indexed under the MeSH term "Myocardial Infarction," guaranteeing that the issue is thoroughly covered(Baumann, 2016).

Benefits of Using MeSH:

Standardization:MeSH helps to unify the diverse terminology used in biomedical research by providing a consistent language for indexing studies.(Lipscomb, 2000).

Improved Search Precision: Researchers can use MeSH keywords to execute more specific searches and retrieve relevant articles more efficiently (Lowe & Barnett, 1994).

Enhanced Discoverability: Articles indexed using MeSH keywords are easier to find since the regulated vocabulary aids in overcoming challenges with synonyms and changing terminology(Coletti & Bleich, 2001).

Table 3: Benefits and Drawbacks of MeSH

Aspect	Benefit	Drawback
Consistency	Ensures standardized vocabulary for consistent indexing and retrieval of articles.	The complexity of the hierarchical structure can be challenging for new users.
Search Precision	Enhances search precision by allowing the use of specific and hierarchical terms.	May not include the latest terminology or concepts, limiting search results for emerging topics.
Related Concepts	Facilitates the discovery of related articles through linked concepts and broader/narrower terms.	Language translation issues can affect the accuracy and effectiveness of searches in non-

English contexts.

Challenges and Future Directions:

MeSH offers benefits, but it also has limitations. One area of concern is the delay in adding new medical concepts to the MeSH lexicon. This happens after they are first introduced. In addition, the hierarchical structure could be daunting to inexperienced users.(Dhammi & Kumar, 2014).

To overcome these concerns, the MeSH vocabulary should be updated and altered on a regular basis. Baumann proposes that MeSH may be made more comprehensive and usable by utilizing developments in natural language processing and user input.(Baumann, 2016).

Conclusion:Medical Subject Headings (MeSH) is an important tool for biomedical literature searches since it provides a consistent and efficient way to index and retrieve articles. Its hierarchical structure and extensive coverage improve the precision and relevancy of search results, making it essential for researchers and healthcare professionals. As MeSH evolves, it will remain at the forefront of biomedical information retrieval by adapting to new difficulties and incorporating technological advances.

References:

Baumann, N. (2016). How to use the medical subject headings (MeSH). *International journal of clinical practice*, 70(2), 171-174.

Coletti, M. H., & Bleich, H. L. (2001). Medical subject headings used to search the biomedical literature. *Journal of the American Medical Informatics Association*, 8(4), 317-323.

Dhammi, I. K., & Kumar, S. (2014). Medical subject headings (MeSH) terms. *Indian journal of orthopaedics*, 48(5), 443.

FB, R. (1963). Medical subject headings. *Bulletin of the Medical Library Association*, 51, 114-116., 51, 114-116.

Lipscomb, C. E. (2000). Medical subject headings (MeSH). *Bulletin of the Medical Library Association*, 88(3), 265.

Lowe, H. J., & Barnett, G. O. (1994). Understanding and using the medical subject headings (MeSH) vocabulary to perform literature searches. *Jama*, 271(14), 1103-1108.

Medical Subject Headings. (n.d.). Retrieved from WikipediaThe Free Encyclopedia: https://en.wikipedia.org/wiki/Medical_Subject_Headings

National Center for Biotechnology Information (NCBI). (n.d.). Retrieved from MeSH: <https://www.ncbi.nlm.nih.gov/mesh/>

National Library of Medicine (NLM). (n.d.). Retrieved from MeSH Home: <https://www.nlm.nih.gov/mesh/meshhome.html>

INNOVATIVE AUTOMATED SOFTWARE-eduplus campus(ERP)

Shubhangini P. Awchar

Research Scholar

SGBAU Amravati University

=====

Abstract: Today age is the information age. ICT has made libraries more efficient, accessible, and user-friendly, allowing them to serve their communities better in the digital age. Automation in libraries enhances efficiency, improves user experience, and streamlines operations, making it easier for both staff and patrons to manage and access library resources. Digital libraries streamline many processes, making it much quicker and easier to manage and access information. Many libraries are transitioning to digital formats, and a variety of software programs are available to facilitate this shift. Eduplus campus is one of the best software for libraries. Eduplus campus is simple, easy-to-access and software. It is available at a small price and provides full automation facilities. Currently more than 50 colleges using this software for automated their libraries.

Keywords: - Automation, Software, Library, ICT.

INTRODUCTION

Eduplus campus Library Software it used to maintain the whole Record of the library. It is developed by VGES Pvt. Ltd. It established in 2019. **Edupluscampus Software and Learning Systems India is a product development and technology services company that leverages its expertise to provide cutting-edge solutions that keep our clients competitive.** ERP software allows businesses to use a system of integrated applications to manage the business and automate the functions related to finance, technology, services, and human resources. Radhakrishnan Commission highlighted the crucial role of libraries in educational institutions. Library software is crucial for efficiently handling various aspects of library operations. Eduplus campus Library Software is an example of such a system that helps manage and organize library records. Eduplus campus Library Software is very helpful to reduce the manual work of librarian. Maintaining a library database, especially the circulation section, is crucial for effective library management... The issue-return chart is a valuable tool in library management software. It supports Ranganathan's fourth law by saving time for both librarians and users, making library operations more efficient and improving user experience.

DEFINITION OF LIBRARY AUTOMATION

According to the encyclopedic dictionary of library sciences automation is the technology concerned with the design and development of the process and system that minimizes the necessity of human intervention in their operation (Ishvari et.al, 1993).

OVERVIEW: Eduplus campus Library Software

1. The overview of software is explained so much with below image: Visitor's details, Issue return details, Books details all details shown in dashboard in the pie diagrams.

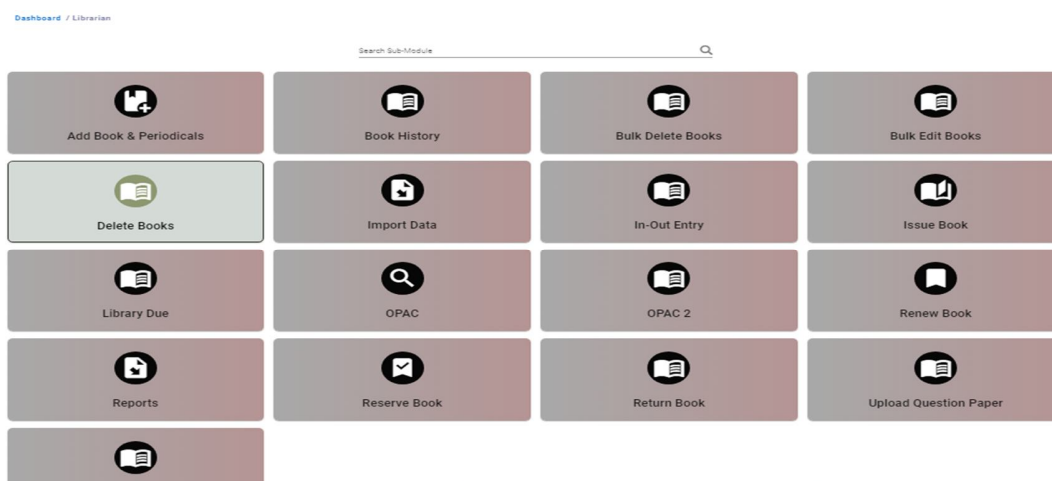


Image 1.1

Issue Book

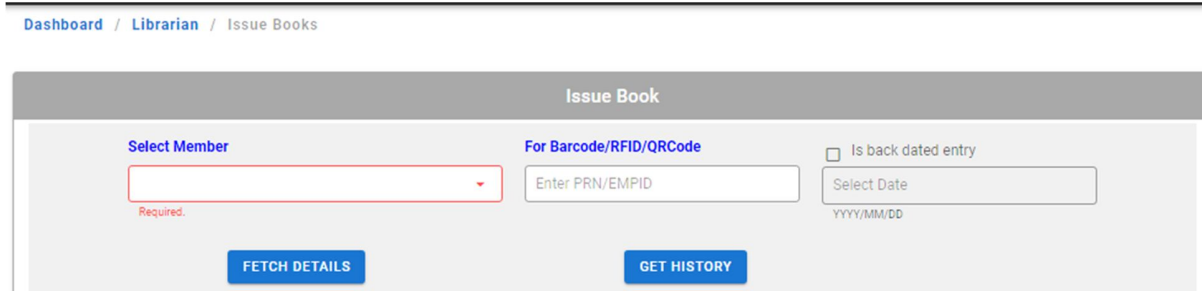


Image 1.2

2. Software Library Modules:-

- **Add Books and Periodicals:-** -It can be easily done automatically accessioning to all books or other materials after entries.
- **Book History:-** details of book history
- **Bulk delete books:-** - Wrong accessioning given to some books then we delete the accession number
- **Bulk Edit:-**When we make entries If we put some information wrong, or if we want change same details so we can easy change detail by change accessioning details. In simple words alteration of details
- **Delete book:-** - Wrong accessioning given to some books then we delete the accession number
- **Import data:-**import all library data easily
- **In- out entry:-** we take users in-out entry in software by scanning students ID card
- **Issue book,** Return Book, Renew book
- **Library due:-**Calculate due automatically
- **OPAC:-**Student and staff members search availability of book.
- **Reports:-** A well-designed system provides a variety of reports like overdue report,all issued book, all returned books,daily issue-return report,
- **Reserve book:-** student can reserved book.

- Upload Question Paper
- **Change book status:** -This feature shows exact location of books and other materials it can be help to library staff and users also for finding of books easily.

3. Issue book module

Dashboard / Librarian / Issue Books

Issue Book

Select Member

For Barcode/Rfid/QRCode

☐ Is back dated entry

Select Date

YYYY/MM/DD

FETCH DETAILS

GET HISTORY

Reg/Emp Code	: 123B10083	Is Active	: Yes ☒
Name	: SHEWATKAR SWASTIK SAHEBRAO ☒	Checked-Out Book	: 2/4 ☒
Contact	: 9922899544 ☒	Email	: shewatkarkiran@gmail.com ☒
User Type	: Member	Program	: B.E. APPLIED SCIENCE AND HUMANITIES ☒
Roll No	: 60 ☒	Division	: Section B2 ☒
Year/STD	: FE ☒	Date Membership	: ☒
		Policy Type	: Default Policy ☒

☒ Search By Accession No
 ☐ Search By Title

Select Book

For Barcode/Rfid/QRCode

Enter Accession NO

FETCH DETAILS

Image 1.3

3. REPORTS: A well-designed system provides a variety of reports required for day-to-day, as well as occasional work/decision making process. The system should provide both statistical as well as management report.

- ❖ Accession Register
- ❖ Over-due member Report :It calculates the fine due for non-return or lost and damaged books as well as late fine (due fine)
- ❖ Total fine user wise
- ❖ Daily check in-out register
- ❖ Member wise Library Utilization
- ❖ Title Report
- ❖ Series wise Report
- ❖ New arrival Report
- ❖ OPAC Hit report
- ❖ Book Usage Statistics
- ❖ Periodical Report
- ❖ Barcode Report :-It helps to the library staff can identify the membership status of a user. For that barcode is to be printed on the library membership card, the card will be scanned by the barcode scanner and the data will be transformed through library. It also used to spine label books, magazines, journal and CD-DVD and other documents.
- ❖ QR Code Report
- ❖ Spine Label Report
- ❖ Medium wise Report

❖ IN-Out Time Report: - Its facilities manage huge number of visitors. It helps to ensure proper safety and security of the library visitors. Who comes in and out the library along with checking availability of active members details.

❖ Missing book Report

❖ Donated Book Report

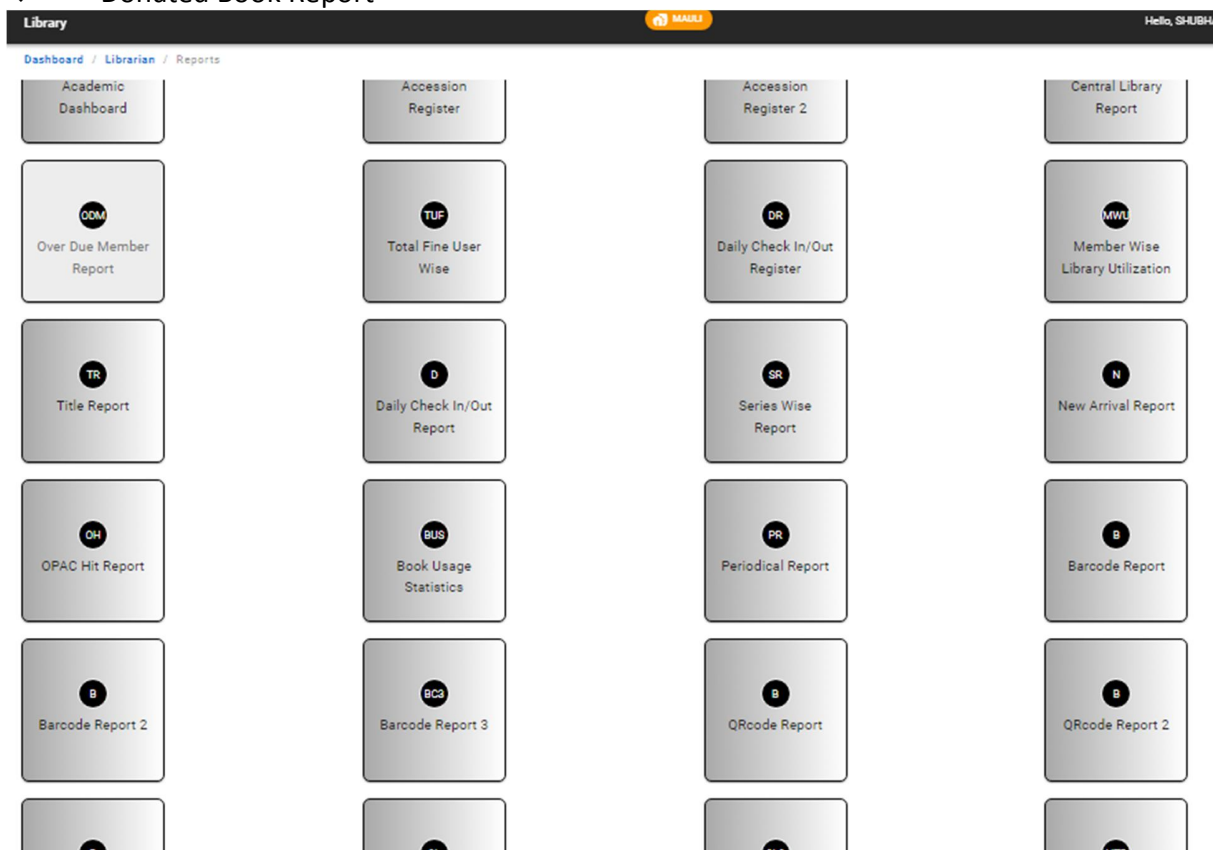


Image 1.4

Many report as given from Eduplus campus Library Software in simple format in a fraction of seconds. all report shown in image number 4 described as follows:

4. Accession Register:-Transitioning from a manual accession register to a digital system like Eduplus Campus Library Software can indeed offer significant advantages for both librarians and students. Digital systems automate many tasks, such as cataloging and tracking books, which speeds up processes and reduces the time spent on manual data entry. Automated systems reduce human errors in data entry and tracking, ensuring more accurate records of library materials. Features like automated check-ins and check-outs, real-time inventory updates, and easy report generation streamline library management. Advanced search functions allow librarians to quickly find specific materials, track their locations, and manage inventory more effectively.

1	0	MCE	MCE13197	25-03-2022	MCE13197	1686	MANKALLOL-1 मनकल्लोल	अच्युत गोडबोले ACHYUT GODBOLE	11
2	0	MCE	MCE753	23-05-2010	MCE753	9780074636435	MECHATRONICS	HMT LIMITED	17
3	0	MCE	MCE754	23-05-2010	MCE754	9780074636435	MECHATRONICS	HMT LIMITED	17
4	0	MCE	MCE755	23-05-2010	MCE755	9780074636435	MECHATRONICS	HMT LIMITED	17
5	0	MCE	MCE756	23-05-2010	MCE756	9780074636435	MECHATRONICS	HMT LIMITED	17
6	0	MCE	MCE757	23-05-2010	MCE757	9780074636435	MECHATRONICS	HMT LIMITED	17
7	0	MCE	MCE758	23-05-2010	MCE758	9780074636435	MECHATRONICS	HMT LIMITED	17
8	0	MCE	MCE759	23-05-2010	MCE759	9780074636435	MECHATRONICS	HMT LIMITED	17
9	0	MCE	MCE760	23-05-2010	MCE760	9780074636435	MECHATRONICS	HMT LIMITED	17
10	0	MCE	MCE761	23-05-2010	MCE761	9780074636435	MECHATRONICS	HMT LIMITED	17

Rows per page: 10 1-10 of 14094

Image 1.5 Accession Register

Sr. No.	Library Department	Book Count
1	APPLIED SCIENCE AND HUMANITIES	1760
2	CIVIL ENGINEERING	1188
3	MECHANICAL ENGINEERING	2388
4	COMPUTER SCIENCE AND ENGINEERING	2970
5	ELECTRONICS AND TELECOMMUNICATIONS ENGINEERING	2770
6	ELECTRICAL ENGINEERING	1798
7	GENERAL	1145
8	INFORMATION TECHNOLOGY ENGINEERING	25

Rows per page: 10 1-8 of 8

Image 1.6 Department wise books

[Dashboard](#) / [Management](#) / Management Dashboard

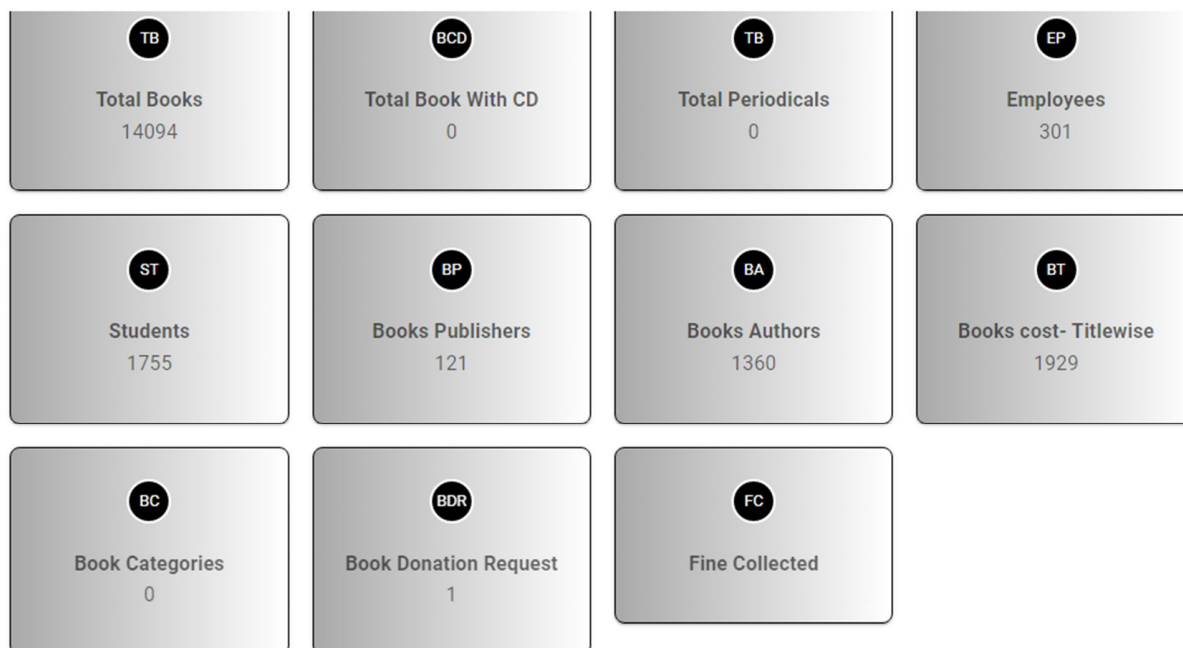


Image 107 Library Dashboard

OBJECTIVE:

1. Time Efficiency for Librarians and Readers

- **Challenge:** Library administration faces the challenge of managing the time demands of both librarians and users.

- **Policy Formulation:** Libraries need to develop policies that address the needs of busy users, ensuring that services are efficient and accessible.

2. Implications of Digital Systems

- **Open Access:** With digital systems, readers can locate and retrieve books more efficiently. Open access allows users to independently search for books, reducing the need for staff intervention and saving time.

- **Classification and Cataloguing:**

- **Classification:** Proper classification systems (e.g., Dewey Decimal or Library of Congress) are crucial for organizing books effectively.

- **Cataloguing:** Digital catalogues should offer various search methods and include analytical entries for complex materials. This helps users find what they need more easily.

3. Gaining Valuable Experience

- **Handling Materials:** Digital systems provide librarians with experience in managing digital resources and learning how to handle various types of materials efficiently.

4. Preservation and Efficiency

- **Electronic Preservation:** Storing information electronically ensures that it is preserved and can be easily accessed later. This also allows for the reduction of manual record-keeping and the transition from manual to automated systems.

- **Operational Efficiency:** Digital systems help in shortening the time required to operate both manual and automated systems, leading to smoother transitions and better resource management.

5. Impact of IT on Library Software

- **IT Integration:** Understanding how information technology impacts library software helps in leveraging tools that enhance library operations, improve user experience, and streamline processes.

6. User Challenges

- **Access and Usability:** Identifying problems users face while accessing and using library resources helps in addressing these issues to improve overall user satisfaction.

7. Software Management

- **Management Study:** Studying how to effectively manage library software involves understanding system functionalities, troubleshooting, and ensuring that the software meets the library's needs.

8. Reducing Library Burden

- **Workload Reduction:** Digital systems can reduce the workload for librarians by automating routine tasks, allowing staff to focus on more strategic activities and enhancing user support.

9. Efficient Searching

- **Library Stacks:** Digital catalogues and search tools improve how users search for books within library stacks, making it faster and more accurate to locate materials.

10. Remote Accessibility

- **Access Facilities:** Providing remote access allows users to search, reserve, and check out books from anywhere, increasing the convenience and reach of library services.

Overall, implementing a digital library system addresses these areas effectively, enhancing the library's efficiency, improving user experience, and facilitating better management and preservation of resources.

METHODOLOGY

The Investigator combined survey method to collect primary data and secondary data.

Advantages of a Library Automation System

1. **Saves Manpower:**
 - **Automation of Routine Tasks:** Reduces the need for manual data entry and management tasks by automating processes like check-ins, check-outs, and cataloging.
 - **Streamlined Operations:** Allows librarians to focus on more strategic and value-added activities rather than repetitive tasks.
2. **Saves Time for Readers and Librarians:**
 - **Efficient Processes:** Automation speeds up processes such as searching for books, checking out materials, and updating records, benefiting both readers and librarians.
 - **Quick Transactions:** Readers can quickly locate and borrow books, while librarians can manage and track inventory more efficiently.
3. **User-Friendly and Easy to Handle:**
 - **Intuitive Interfaces:** Modern library automation systems often come with user-friendly interfaces that are easy for both librarians and patrons to navigate.
 - **Ease of Maintenance:** Digital systems simplify record-keeping and data management, reducing the complexity of maintaining physical records.
4. **Ease of Use for Students:**
 - **Simplified Searching:** Students can easily search for books and other materials using digital catalogues, which often include advanced search options and filters.

- **Access to Information:** Provides instant access to information about library materials, including availability, location, and detailed descriptions.
- 5. **Reduces the Burden on Librarians:**
 - **Reduced Administrative Load:** Automation handles many administrative tasks, such as updating inventory and processing check-outs, allowing librarians to spend more time assisting patrons and managing library programs.
 - **Improved Efficiency:** Helps in managing large volumes of data and transactions with greater efficiency and accuracy.
- 6. **Reduces Manual Work and Ensures Accuracy:**
 - **Automated Record-Keeping:** Minimizes manual data entry, reducing errors and ensuring that records are accurate and up-to-date.
 - **Consistent Data:** Provides consistent and reliable information about library materials through automated tracking and reporting.
- 7. **Remote Accessibility Facilities:**
 - **Access Anywhere:** Allows users to access library resources remotely, including searching the catalogue, reserving books, and accessing digital materials from any location.
 - **Convenience:** Enhances convenience for users who may not be able to visit the library in person, making it easier to access library services and resources.

Disadvantages of Library Automation Systems

1. **High Initial Cost:**
 - **Implementation Expenses:** The cost of purchasing and implementing automation software, hardware, and infrastructure can be significant.
 - **Training Costs:** Additional expenses may arise from training staff to use the new system effectively.
2. **Technical Issues:**
 - **System Downtime:** Automation systems can experience technical failures or downtime, which may disrupt library services.
 - **Maintenance Needs:** Regular maintenance and updates are required to keep the system running smoothly and securely.
3. **Complexity and Learning Curve:**
 - **Training Requirements:** Staff and users may need extensive training to become proficient with the new system, which can be time-consuming and challenging.
 - **System Complexity:** Some systems can be complex, requiring ongoing support and technical expertise to manage effectively.
4. **Data Security and Privacy Concerns:**
 - **Vulnerability to Cyber Threats:** Automated systems can be vulnerable to cyberattacks, data breaches, and unauthorized access if not properly secured.
 - **Privacy Issues:** Handling sensitive user data, such as borrowing history, requires stringent privacy measures to protect user information.
5. **Dependency on Technology:**
 - **System Reliability:** Heavy reliance on technology means that any system failure or malfunction can significantly impact library operations.
 - **Reduced Manual Skills:** Over-reliance on automated systems may lead to a decline in manual skills among staff, which can be problematic if technology fails.
6. **Integration Challenges:**

- **Compatibility Issues:** Integrating new automation systems with existing systems or databases may pose compatibility challenges.
- **Data Migration:** Transferring data from manual records to a digital system can be complex and prone to errors.
- 7. **Access Inequities:**
 - **Digital Divide:** Not all users may have equal access to digital resources or the skills to navigate automated systems, potentially leading to inequities in access.
 - **Technology Barriers:** Users who are less tech-savvy or lack access to reliable internet may face difficulties using the automated system effectively.
- 8. **Ongoing Costs:**
 - **Licensing and Subscription Fees:** Many automation systems require ongoing licensing fees, subscription costs, or support agreements.
 - **Upgrades and Expansion:** Additional costs may arise from upgrading the system or expanding its capabilities as the library's needs evolve.
- 9. **Loss of Personal Interaction:**
 - **Reduced Human Contact:** Increased reliance on automated systems may reduce face-to-face interactions between library staff and users, potentially impacting the quality of personal assistance and customer service.

CONCLUSION: By leveraging the information and analysis presented in this paper, libraries can make well-informed decisions regarding the adoption of source-integrated library automation software. The goal is to help libraries select a system that best meets their operational needs, budget, and strategic goals, ultimately enhancing their efficiency and service quality.

References:-

- 1] Gupta R.C., & Dass, Shir (1991) computerization of Serials control –a practical approach using a personal computer. IASLIC Bulletin, 36, 17-22.
- 2] Muniraja A (2021) Library Automation – An Introduction (IJRLS)
- 3] <https://www.edupluscampus.com/>

AI-Driven Innovation: Shaping the Future of Higher Education, Research, and Knowledge Transfer

By Dr. Hudage Madhubala Gangadhaer

Librarian

Shivjagruti Senior College, Nalegaon.

=====

Abstract: *In the digital era, artificial intelligence (AI) has profoundly transformed higher education, research, skill enrichment, and knowledge transfer. AI's integration into these fields exemplifies its potential to enhance academic and research environments through optimized information retrieval, personalized learning experiences, and efficient knowledge dissemination. In higher education, AI streamlines administrative tasks, supports adaptive learning platforms, and improves student engagement by tailoring educational content to individual needs, thus preparing students for a rapidly evolving job market. AI also revolutionizes research by managing vast amounts of data, automating repetitive tasks, and facilitating seamless communication among global research communities. In library science, AI enhances knowledge management through intelligent search engines and recommendation systems, offers personalized services via virtual assistants and chatbots, and supports the digitization and preservation of knowledge, contributing to the democratization of information. As institutions adopt AI technologies, they must address ethical considerations and ensure equitable access to these tools. The integration of AI not only enriches educational outcomes and research capabilities but also advances knowledge management processes, fostering a more informed and connected society.*

Introduction:

In the digital era, higher education, research, skill enrichment, and knowledge transfer are undergoing profound transformations driven by advancements in artificial intelligence (AI). The integration of AI into library science exemplifies how technology can enhance academic and research environments by optimizing information retrieval, personalizing learning experiences, and facilitating efficient knowledge dissemination. AI's impact on higher education is evident in its ability to streamline administrative tasks, support adaptive learning platforms, and improve student engagement. Personalized learning systems leverage AI to tailor educational content to individual needs, fostering a more effective and customized learning experience (Luckin et al., 2016). This shift not only enhances the quality of education but also prepares students for a rapidly evolving job market that demands advanced digital literacy and problem-solving skills.

Research is similarly transformed by AI, which aids in managing vast amounts of data and automating repetitive tasks, allowing researchers to focus on innovative and critical thinking. AI-driven tools for literature review, data analysis, and predictive modeling accelerate the research process and increase the accuracy of findings (Jordan & Mitchell, 2015). Moreover, AI enhances collaborative research by facilitating seamless communication and resource sharing among global research communities. In the realm of library science, AI revolutionizes knowledge management and access. Intelligent search engines and recommendation systems enable users to efficiently locate relevant information, while machine learning algorithms

improve the accuracy and relevance of search results (Shiri, 2019). Libraries employing AI can offer more personalized services, such as virtual assistants and chatbots, which provide users with real-time assistance and support (Breeding, 2018).

Furthermore, AI facilitates the digitization and preservation of vast collections of knowledge, making them accessible to a broader audience. This digital transformation ensures the longevity and availability of valuable resources, contributing to the democratization of knowledge (Corrado & Moulaison Sandy, 2017). As a result, libraries are becoming dynamic hubs of information that support continuous learning and professional development. The digital era, augmented by AI, presents unparalleled opportunities for higher education, research, skill enrichment, and knowledge transfer. As institutions embrace these technologies, they must also address ethical considerations and ensure equitable access to AI-driven tools and resources. By doing so, they can harness the full potential of AI to enhance educational outcomes and foster a culture of lifelong learning.

Impact of AI on Higher Education

In the contemporary digital era, higher education, research, skill enrichment, and knowledge transfer have undergone significant transformations driven by rapid technological advancements. Among these, artificial intelligence (AI) has emerged as a pivotal force, reshaping the landscape of library and information science. This introduction explores the multifaceted impacts of AI on these domains, elucidating its role in enhancing educational outcomes, enriching research capabilities, facilitating skill development, and optimizing knowledge transfer processes.

Higher Education: Higher education institutions are increasingly integrating AI to revolutionize teaching and learning methodologies. AI-driven tools, such as adaptive learning systems and intelligent tutoring systems, tailor educational content to individual student needs, fostering personalized learning experiences (Yang & Huang, 2021). These technologies analyze student performance data to provide customized feedback and support, enhancing academic success rates. Furthermore, AI aids in administrative tasks, streamlining enrollment processes, and predicting student retention rates, thus enabling institutions to allocate resources more effectively (Luckin et al., 2016).

Research: AI has transformed research paradigms by providing sophisticated tools for data analysis and interpretation. Machine learning algorithms and natural language processing (NLP) techniques facilitate the analysis of vast datasets, uncovering patterns and insights that were previously unattainable. For instance, AI-powered literature review tools can scan and summarize thousands of academic papers, accelerating the research process (Shukla et al., 2020). Moreover, AI enhances the reproducibility of research findings by automating data collection and analysis, thereby reducing human error and bias (Jiang et al., 2017).

Skill Enrichment: The digital era necessitates continuous skill enrichment to keep pace with evolving technological landscapes. AI plays a crucial role in this by providing personalized learning pathways and predictive analytics to identify skill gaps. Online learning platforms, augmented by AI, offer courses tailored to individual career goals and learning preferences, ensuring relevant and up-to-date skill acquisition (Siemens & Long, 2011). Additionally, AI-driven career advisory systems recommend educational resources and job opportunities based on a comprehensive analysis of market trends and individual competencies (Dede, 2016).

Knowledge Transfer: Efficient knowledge transfer is critical for academic and professional success. AI enhances this process by enabling the creation of intelligent knowledge

management systems. These systems utilize machine learning to categorize and index vast amounts of information, making it easily accessible to users. In the realm of library science, AI-powered chatbots and virtual assistants provide real-time assistance to patrons, answering queries and guiding them to relevant resources (Cox & Pinfield, 2014). Furthermore, AI facilitates the dissemination of open access research, broadening the reach of scholarly work and fostering global collaboration (Bertino & Sandhu, 2005).

Impact of AI in Library Science

The integration of AI into library science has revolutionized the management and dissemination of information. AI algorithms enhance cataloging processes, improving the accuracy and efficiency of metadata creation. This, in turn, enables better resource discovery for library users (Jones & Gregor, 2021). Additionally, AI-driven digital preservation techniques ensure the longevity of digital assets, safeguarding valuable information for future generations (Gomes et al., 2019). The implementation of AI in library science also supports advanced user analytics, providing insights into user behavior and preferences, which can inform the development of more user-centric services (Schmidt et al., 2018).

Conclusion: The digital era, propelled by AI, has brought about profound changes in higher education, research, skill enrichment, and knowledge transfer. These advancements not only enhance educational outcomes and research capabilities but also streamline knowledge management processes, thereby fostering a more connected and informed society. As AI continues to evolve, its integration into library and information science promises to further revolutionize the way information is accessed, managed, and utilized, underscoring its indispensable role in the digital age.

References:

- Bertino, E., & Sandhu, R. (2005). Secure knowledge management: confidentiality, trust, and privacy. *IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans*, 35(5), 484-493.
- Breeding, M. (2018). The role of artificial intelligence in libraries. *Library Technology Reports*, 54(1), 5-9.
- Corrado, E. M., & Moulaison Sandy, H. (2017). *Digital Preservation for Libraries, Archives, and Museums*. Rowman & Littlefield.
- Cox, A. M., & Pinfield, S. (2014). Research data management and libraries: Current activities and future priorities. *Journal of Librarianship and Information Science*, 46(4), 299-316.
- Dede, C. (2016). Big Data Analysis in Higher Education: Promises and Pitfalls. *Educational Technology*, 56(6), 3-9.
- Gomes, D., Miranda, J., Costa, M., & Silva, M. J. (2019). *The Past Web: Exploring Web Archives*. Springer.
- Jiang, F., Jiang, Y., Zhi, H., Dong, Y., Li, H., Ma, S., ... & Wang, Y. (2017). Artificial intelligence in healthcare: past, present and future. *Stroke and Vascular Neurology*, 2(4), 230-243.
- Jones, K., & Gregor, S. (2021). Artificial intelligence: A new reality for information management. *Journal of Information Science*, 47(1), 15-26.
- Jordan, M. I., & Mitchell, T. M. (2015). Machine learning: Trends, perspectives, and prospects. *Science*, 349(6245), 255-260.
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence Unleashed: An argument for AI in Education*. Pearson Education.

- Schmidt, E., Cohen, J., & Feiner, S. (2018). The Future Computed: Artificial Intelligence and its Role in Society. Microsoft.
- Shiri, A. (2019). Artificial intelligence and library and information science: The future is now. Library Hi Tech, 37(1), 1-6.
- Shukla, P., Sharma, A., & Agarwal, S. (2020). AI-powered literature review: Research challenges and directions. Journal of Information Technology, 35(3), 215-238.
- Siemens, G., & Long, P. (2011). Penetrating the Fog: Analytics in Learning and Education. Educause Review, 46(5), 30-32.
- Yang, Q., & Huang, S. (2021). Personalized Learning: An overview. Journal of Educational Technology Development and Exchange, 14(1), 1-19.

भारतातील उच्चशिक्षणावर कृत्रिमबुद्धिमत्तेचा (AI) प्रभाव

प्रा. संजीवकुमार श्रीमंतराव माने,
मराठी विभाग,
कै. बापूसाहेब पाटिल एकंदेकर महाविद्यालय, उदगीर

प्रस्तावना

सध्याचे युग हे माहिती तंत्रज्ञानाचे युग आहे तसेच या विज्ञान आणि तंत्रज्ञानाच्या युगात, कृत्रिम बुद्धिमत्ता (Artificial Intelligence, AI) ही एक अशी संकल्पना आहे जी आपल्या दैनंदिन जीवनात खोलवर रुजली आहे. कृत्रिम बुद्धिमत्ता ही मानवी बुद्धिमत्तेच्या गुणधर्मांचे अनुकरण करणारी आणि स्वतः शिकण्याची क्षमता असलेली एक तंत्रज्ञानाची आहे. या तंत्रज्ञानाचा वापर आज आपण वैद्यकीय क्षेत्रापासून ते वाहतूक व्यवहारापर्यंत अनेक क्षेत्रात पाहतो. शिक्षण क्षेत्रही यापासून अलिप्त नाही. विशेषतः, भारतातील उच्च शिक्षण क्षेत्रात कृत्रिम बुद्धिमत्तेचा प्रभाव दिवसेंदिवस वाढत आहे.

कृत्रिम बुद्धिमत्तेची संकल्पना आणि विकास

कृत्रिम बुद्धिमत्तेची संकल्पना नवीन नाही. 20 व्या शतकात चशास्त्रज्ञांनी या विषयावर संशोधन सुरू केले होते. पण, संगणक तंत्रज्ञानातील प्रचंड प्रगतीमुळे कृत्रिम बुद्धिमत्तेचा विकास गतीमान झाला. मशीन लर्निंग, डीप लर्निंग आणि नॅचरल लॅंग्वेज प्रोसेसिंग ही कृत्रिम बुद्धिमत्तेची काही प्रमुख शाखा आहेत. मशीन लर्निंग मध्ये, संगणकाला डेटाचा अभ्यास करून स्वतः शिकण्याची क्षमता दिली जाते. डीप लर्निंग ही मशीन लर्निंगची एक उन्नत पद्धत आहे ज्यामध्ये कृत्रिम न्यूरल नेटवर्कचा वापर केला जातो. नॅचरल लॅंग्वेज प्रोसेसिंग मध्ये, संगणकाला मानवी भाषेचे विश्लेषण करण्याची आणि त्याचा अर्थ लावण्याची क्षमता दिली जाते.

भारतातील उच्च शिक्षणाची सद्यस्थिती

भारत एक तरुण देश आहे आणि येथे उच्च शिक्षणाची मागणी दिवसेंदिवस वाढत आहे. परंतु, उच्च शिक्षण क्षेत्रात अनेक आव्हाने आहेत. यात शिक्षकांची कमतरता, पायाभूत सुविधांचा अभाव आणि गुणवत्तेची समस्या प्रमुख आहेत. याशिवाय, वाढती लोकसंख्या आणि शहरीकरणामुळे उच्च शिक्षण संस्थांवर प्रचंड ताण येत आहे. या परिस्थितीत, कृत्रिम बुद्धिमत्ता उच्च शिक्षण क्षेत्रात एक क्रांतिकारी बदल घडवून आणण्याचे सामर्थ्य बाळगते.

संशोधनाचे उद्देश्य आणि महत्त्व

या संशोधनाचे मुख्य उद्देश्य भारतातील उच्च शिक्षणावर कृत्रिम बुद्धिमत्तेचा प्रभाव काय आहे हे जाणून घेणे आहे. या संशोधनात, आम्ही कृत्रिम बुद्धिमत्तेचे उच्च शिक्षणात असलेले विविध अनुप्रयोग, त्याचे सकारात्मक आणि नकारात्मक परिणाम, तसेच भारताच्या संदर्भात त्याचे महत्त्व या गोष्टींचा अभ्यास करणार आहोत.

या संशोधनाचे महत्त्व खालील कारणांमुळे आहे:

- **नवीन शैक्षणिक पद्धतींचा विकास:** कृत्रिम बुद्धिमत्ताने नवीन शैक्षणिक पद्धतींचा विकास करून विद्यार्थ्यांना अधिक प्रभावीपणे शिकण्यास मदत करू शकते.
- **शिक्षकांची भूमिका बदलणे:** कृत्रिम बुद्धिमत्ता शिक्षकांच्या भूमिकेत बदल घडवून आणू शकते आणि त्यांना अधिक रचनात्मक कार्यावर लक्ष केंद्रित करण्यास मदत करू शकते.
- **शैक्षणिक प्रशासनातील सुधारणा:** कृत्रिम बुद्धिमत्ता शैक्षणिक प्रशासनातील कार्यक्षमता वाढवून संसाधनांचा अधिक प्रभावीपणे वापर करण्यास मदत करू शकते.
- **विद्यार्थ्यांच्या वैयक्तिक गरजा पूर्ण करणे:** कृत्रिम बुद्धिमत्ता विद्यार्थ्यांच्या वैयक्तिक गरजा पूर्ण करून त्यांना अधिक चांगले शिकण्यास मदत करू शकते.

• भारतातील उच्च शिक्षण क्षेत्रातील आव्हानांना तोंड देणे: कृत्रिम बुद्धिमत्ता भारतातील उच्च शिक्षण क्षेत्रातील अनेक आव्हानांना तोंड देण्यासाठी एक प्रभावी साधन असू शकते.

कृत्रिम बुद्धिमत्तेचे (AI) उच्च शिक्षणात असलेले प्रयोग

कृत्रिम बुद्धिमत्ता

(कृत्रिम बुद्धिमत्ता)

ही आधुनिक युगातील सर्वात वेगाने विकसित होणारी तंत्रज्ञान आहे. ही तंत्रज्ञान आपल्या दैनंदिन जीवनात प्रवेश करत असून, शिक्षण क्षेत्रही यापासून अछूतराहिलेले नाही. उच्च शिक्षणात कृत्रिम बुद्धिमत्तेचा वापर वाढत असून, याचा शैक्षणिक प्रक्रियेवर मोठा प्रभाव पडत आहे. याले खात आपण कृत्रिम बुद्धिमत्तेचे उच्च शिक्षणात असलेले विविध अनुप्रयोग पाहणार आहोत.

ऑनलाइन शिक्षण आणि व्यक्तिगत शिकण्याचे अनुभव

• व्यक्तिगत शिकण्याचे मार्ग: कृत्रिम बुद्धिमत्ता प्रत्येक विद्यार्थ्याच्या शिकण्याच्या पद्धती आणि गतीनुसार शिकण्याचे मार्ग तयार करू शकते. यामुळे विद्यार्थी स्वतःच्या गतीने शिकू शकतात आणि त्यांना कठीण वाटणाऱ्या विषयांवर अधिक लक्ष केंद्रित करू शकतात.

• अंतर्क्रियात्मक शिकणे: कृत्रिम बुद्धिमत्ता आधारित शिकण्याच्या पद्धतींमध्ये विद्यार्थी आणि संगणकांच्यातील संवाद वाढतो. यामुळे विद्यार्थी अधिक सक्रियपणे शिकू शकतात आणि त्यांना त्यांच्या शंकांची निराकरण करण्यासाठी तात्काळ मदत मिळते.

• अनुकूलित अभ्यासक्रम: कृत्रिम बुद्धिमत्ता विद्यार्थ्यांच्या पूर्वज्ञानाच्या आधारे त्यांच्यासाठी अनुकूलित अभ्यासक्रम तयार करू शकते. यामुळे विद्यार्थ्यांना नवीन संकल्पना सहज समजून घेता येते.

शैक्षणिक प्रशासन आणि व्यवस्थापन

• विद्यार्थी प्रवेश: कृत्रिम बुद्धिमत्ता चावापर करून विद्यार्थी प्रवेश प्रक्रिया अधिक पारदर्शक आणि कार्यक्षम बनवता येते.

• वेळापत्रक तयार करणे: कृत्रिम बुद्धिमत्ता विद्यार्थ्यांच्या पसंती आणि शैक्षणिक गरजा लक्षात घेऊन वेळापत्रक तयार करू शकते.

• वर्ग व्यवस्थापन: कृत्रिम बुद्धिमत्ता वर्ग व्यवस्थापन प्रक्रिया सुलभ करून शिक्षकांना अधिक वेळ विद्यार्थ्यांवर लक्ष केंद्रित करण्यासाठी सक्षम करते.

विद्यार्थ्यांचे मूल्यांकन आणि मार्गदर्शन

• स्वयंचलित मूल्यांकन: कृत्रिम बुद्धिमत्ता विद्यार्थ्यांची उत्तरपत्रिके स्वयंचलितपणे तपासू शकते आणि त्यांचे मूल्यांकन करू शकते.

• व्यक्तिगत मार्गदर्शन: कृत्रिम बुद्धिमत्ता विद्यार्थ्यांच्या शैक्षणिक प्रगतीचे विश्लेषण करून त्यांना व्यक्तिगत मार्गदर्शन देऊ शकते.

• कौशल्य विकास: कृत्रिम बुद्धिमत्ता विद्यार्थ्यांच्या कमकुवत कौशल्यांची ओळख करून त्यांच्या विकासासाठी उपाय योजना सुचवू शकते.

संशोधन आणि नवोन्मेषण

• डेटा विश्लेषण: कृत्रिम बुद्धिमत्ता मोठ्या प्रमाणात डेटाचे विश्लेषण करून संशोधनासाठी उपयुक्त माहिती प्रदान करू शकते.

• नवीन ज्ञान निर्माण: कृत्रिम बुद्धिमत्ता नवीन ज्ञान निर्माण करण्यासाठी आणि संशोधनाच्या नवीन क्षेत्रांचा शोध लावण्यासाठी वापरली जाऊ शकते.

• नवीन शैक्षणिक पद्धतींचा विकास: कृत्रिम बुद्धिमत्ता नवीन शैक्षणिक पद्धतींचा विकास करण्यासाठी वापरली जाऊ शकते.

कृत्रिम बुद्धिमत्ता उच्च शिक्षणात क्रांती घडवून आणण्याची क्षमता बाळगते. या तंत्रज्ञानाचा वापर करून आपण अधिक प्रभावी आणि व्यक्तिगत शैक्षणिक अनुभव प्रदान करू शकतो. तथापि,

कृत्रिमबुद्धिमत्तेच्यावापराचेकाहीआव्हानहीआहेत. उदाहरणार्थ, डेटागोपनीयता, नोकरीगमावण्याचीभीतीआणितंत्रज्ञानावरचीअवलंबित्वयांसारखेमुद्देविचारातघेणेआवश्यकआहे.

कृत्रिमबुद्धिमत्तेचेसकारात्मकप्रभाव: उच्चशिक्षणातीलनवीनयुग

कृत्रिमबुद्धिमत्ता

(कृत्रिमबुद्धिमत्ता)

हीआजच्यायुगातीलसर्वातवेगानेविकसितहोणारीतंत्रज्ञानांपैकीएकआहे. तीशिक्षण, आरोग्य, वित्तआणिइतरअनेकक्षेत्रांमध्येक्रांतीघडवूनआणतआहे. उच्चशिक्षणक्षेत्रातहीकृत्रिमबुद्धिमत्तेचाप्रभावदिसूनयेतआहे. यानिबंधातआपणकृत्रिमबुद्धिमत्तेमुळेउच्चशिक्षणातहोणाऱ्यासकारात्मकबदलांचाखोलअभ्यासकरणारआहोत. विशेषतः, आपणशैक्षणिकगुणवत्तेतीलसुधारणा, विद्यार्थ्यांच्याशिकण्याच्याअनुभवातवाढ, शिक्षकांच्याभूमिकेतबदलआणिशैक्षणिकसंस्थांच्याकार्यक्षमतेतवाढयावरलक्षकेंद्रितकरणारआहोत.

शैक्षणिकगुणवत्तेतीलसुधारणा

कृत्रिमबुद्धिमत्ताशैक्षणिकगुणवत्तेतीलसुधारणेसाठीअनेकमार्गप्रदानकरते. उदाहरणार्थ, कृत्रिमबुद्धिमत्तेवरआधारितशिकवण्याच्यापद्धतीविद्यार्थ्यांनात्यांच्यास्वतःच्यागतीनेशिकण्याचीसंधीदेतात. प्रत्येकविद्यार्थीवेगळाअसतोआणित्याच्याशिकण्याचीपद्धतहीवेगळीअसते. कृत्रिमबुद्धिमत्तायावैयक्तिकगरजाओळखून त्यानुसारशिकवण्याचेकार्यक्रमतयारकरूशकते. यामुळेविद्यार्थीअधिकप्रभावीपणेशिकूशकतातआणित्यांचेशैक्षणिक परिणामसुधारूशकतात.

विद्यार्थ्यांच्याशिकण्याच्याअनुभवातवाढ

कृत्रिमबुद्धिमत्ताविद्यार्थ्यांनाअधिकमनोरंजकआणिप्रभावीशिकण्याचाअनुभवप्रदानकरते. उदाहरणार्थ, कृत्रिमबुद्धिमत्ताआधारितसिमुलेशनआणिगेम्सविद्यार्थ्यांनाजटिलसंकल्पनाअधिकसहजसमजण्यासमदतकरतात. याशिवाय, कृत्रिमबुद्धिमत्ताआधारितचॅटबॉट्सविद्यार्थ्यांच्याशंकांचेनिराकरणकरण्यातआणित्यांनाअतिरिक्तमाहितीप्रदानकरण्यातमदतकरतात. यामुळेविद्यार्थीअधिकस्वतंत्रपणेशिकूशकतातआणित्यांचीशिकण्याचीउत्सुकतावाढूशकते.

शिक्षकांच्याभूमिकेतबदलआणिव्यावसायिकविकास

कृत्रिमबुद्धिमत्ताशिक्षकांच्याभूमिकेतबदलघडवूनआणतआहे. आताशिक्षकहेज्ञानाचेवाहकनराहता, विद्यार्थ्यांच्याशिकण्याचेमार्गदर्शनकरणारेम्हणूनकामकरूलागलेआहेत. कृत्रिमबुद्धिमत्तारुटीनकामगिरीस्वयंचलित करूनशिक्षकांनाअधिकवेळविद्यार्थ्यांवरलक्षकेंद्रितकरण्याचीसंधीदेते. यामुळेशिक्षकविद्यार्थ्यांच्यावैयक्तिकगरजाअधिकचांगल्याप्रकारेसमजूशकतातआणित्यांनाअधिकप्रभावीमार्गदर्शनदेऊशकतात.

शैक्षणिकसंस्थांचीकार्यक्षमतावाढ

कृत्रिमबुद्धिमत्ताशैक्षणिकसंस्थांचीकार्यक्षमतावाढवण्यातमहत्त्वपूर्णभूमिकाबजावते. उदाहरणार्थ, कृत्रिमबुद्धिमत्ताआधारितडेटाविक्षेपणशैक्षणिकसंस्थांनाविद्यार्थ्यांचेप्रदर्शनआणिशिकण्याच्यापद्धतींचेविक्षेपणकरण्यासमदतकरते. यामाहितीच्याआधारेशैक्षणिकसंस्थाआपल्याशिकवण्याच्यापद्धतींमध्येआवश्यकसुधारणाकरूशकतात. याशिवाय, कृत्रिमबुद्धिमत्ताप्रशासकीयकार्येस्वयंचलितकरूनशैक्षणिकसंस्थांचेकार्यभारकमीकरूशकते.

कृत्रिमबुद्धिमत्ताउच्चशिक्षणातअनेकसकारात्मकबदलघडवूनआणतआहे. शैक्षणिकगुणवत्तासुधारलीआहे, विद्यार्थ्यांचेशिकण्याचेअनुभवअधिकमनोरंजकझालेआहेत, शिक्षकांचीभूमिकाबदललीआहेआणिशैक्षणिकसंस्थांचीकार्यक्षमतावाढलीआहे. तथापि, कृत्रिमबुद्धिमत्तेच्यावापराबाबतकाहीआव्हानहीआहेत. उदाहरणार्थ, डेटागोपनीयता, नोकरीगमावण्याचीभीतीआणिडिजिटलविभक्तीहीकाहीप्रमुखआव्हानांआहेत. याआव्हानांवरमातकरण्यासाठीसरकार, शैक्षणिकसंस्थाआणितंत्रज्ञानकंपन्यांनीएकत्रयेऊनकामकरणेआवश्यकआहे.

कृत्रिमबुद्धिमत्तेचेनकारात्मकप्रभाव

कृत्रिमबुद्धिमत्ता

(कृत्रिमबुद्धिमत्ता)

हीआजच्यायुगातसर्वातवेगानेविकसितहोणारीतंत्रज्ञानक्रांतीआहे. कृत्रिमबुद्धिमत्ताआपल्यादैनंदिनजीवनातअनेक क्षेत्रांमध्येशिरकतकरतआहे. याचाउच्चशिक्षण, आरोग्यसेवा,

वित्त आणि उत्पादन यासारख्या विविध क्षेत्रांवर मोठा प्रभाव पडत आहे. परंतु, कृत्रिम बुद्धिमत्तेच्या वाढत्या प्रभावाबरोबरच काही गंभीर प्रश्नही उपस्थित होत आहेत. यालेखात आपण कृत्रिम बुद्धिमत्तेच्या काही प्रमुख नकारात्मक प्रभावांवर चर्चा करणार आहोत.

नोकरी गमावण्याची भीती आणि बेरोजगारी

कृत्रिम बुद्धिमत्ता मानवी बुद्धिमत्तेच्या काही कामांमध्ये अधिक कार्यक्षम ठरत आहे. यामुळे अनेक क्षेत्रांमध्ये नोकऱ्या जाण्याची भीती व्यक्त होत आहे. विशेषतः, पुनरावृत्तीयुक्त आणि नियमित कामे करणाऱ्या उद्योगांमध्ये कृत्रिम बुद्धिमत्ता मानवांना बदलू शकते. यामुळे मोठ्या प्रमाणात बेरोजगारी वाढण्याची शक्यता आहे.

डेटा गोपनीयता आणि सुरक्षा समस्या

कृत्रिम बुद्धिमत्ता प्रणालींना मोठ्या प्रमाणात डेटाची आवश्यकता असते. या डेटामध्ये वैयक्तिक माहिती, वित्तीय माहिती आणि इतर संवेदनशील माहितीचा समावेश असू शकतो. हा डेटा हॅकर्सच्या हाती पडल्यास गंभीर परिणाम होऊ शकतात. याशिवाय, कृत्रिम बुद्धिमत्तेचा वापर करून खोटे द्याबातम्या पसरवणे, निवडणुकांमध्ये हस्तक्षेप करणे आणि इतर गैरव्यवहार करणे शक्य आहे.

डिजिटल विभक्ती आणि असमानता

कृत्रिम बुद्धिमत्ता तंत्रज्ञानाचा वापर करण्यासाठी उच्च पातळीवरील डिजिटल साक्षरता आवश्यक असते. अनेक लोकांना, विशेषतः ग्रामीण भागात राहणाऱ्या लोकांना, ही साक्षरता उपलब्ध नाही. यामुळे डिजिटल विभक्ती वाढण्याची शक्यता आहे. यामुळे समाजात आर्थिक आणि सामाजिक असमानता वाढू शकते.

नैतिक प्रश्न आणि सामाजिक प्रभाव

कृत्रिम बुद्धिमत्तेचा विकास आणि वापर यामुळे अनेक नैतिक प्रश्न उपस्थित होतात. उदाहरणार्थ, कृत्रिम बुद्धिमत्तेचा वापर करून स्वायत्त शस्त्रे तयार करणे, मानवी जीवनाच्या निर्णयांची जबाबदारी कृत्रिम बुद्धिमत्तेवर सोपवणे यासारखे प्रश्न. याशिवाय, कृत्रिम बुद्धिमत्ता मुळे समाजातील मानवी संबंधांवरही परिणाम होऊ शकतो. उदाहरणार्थ, कृत्रिम बुद्धिमत्ता आधारित सोशल मीडिया प्लॅटफॉर्म मुळे एकाकीपणा वाढण्याची शक्यता आहे. कृत्रिम बुद्धिमत्ता हा एक शक्तिशाली तंत्रज्ञान आहे. याचा वापर मानव जातीच्या भल्यासाठी केला जाऊ शकतो. परंतु, त्याच्या नकारात्मक प्रभावांकडे दुर्लक्ष करणे ही योग्य नाही. कृत्रिम बुद्धिमत्तेच्या विकास आणि वापरावर नियंत्रण ठेवण्यासाठी प्रभावी धोरणांची आवश्यकता आहे. याशिवाय, कृत्रिम बुद्धिमत्तेच्या नैतिक परिणामांवर देखील विचार करणे आवश्यक आहे.

भारतातील उच्च शिक्षणासाठी कृत्रिम बुद्धिमत्तेची संधी आणि आव्हान: एक व्यापक विश्लेषण

कृत्रिम बुद्धिमत्ता

(कृत्रिम बुद्धिमत्ता)

ही आजच्या युगात सर्वात वेगाने विकसित होणारी तंत्रज्ञानाची शाखा आहे. या तंत्रज्ञानाचा प्रभाव आपल्या जीवनाच्या प्रत्येक पैलूवर पडत आहे. शिक्षण क्षेत्रही यापासून अलिप्त नाही. भारतात, उच्च शिक्षण क्षेत्रात कृत्रिम बुद्धिमत्तेचा वापर वाढत आहे. यालेखात, आपण कृत्रिम बुद्धिमत्तेमुळे उच्च शिक्षण क्षेत्रात उद्भवणाऱ्या संधी आणि आव्हानांचा सखोल अभ्यास करणार आहोत.

कृत्रिम बुद्धिमत्तेच्या वापरासाठी धोरणात्मक चर्चासत्र

कृत्रिम बुद्धिमत्तेचा उच्च शिक्षणात प्रभावीपणे वापर करण्यासाठी, धोरणात्मक पातळीवर काही महत्वाचे निर्णय घेणे आवश्यक आहे.

- **शैक्षणिक संस्थांसाठी मार्गदर्शन:** कृत्रिम बुद्धिमत्तेच्या वापरासाठी शैक्षणिक संस्थांना मार्गदर्शन करणे आवश्यक आहे. यासाठी, सरकारने स्पष्ट धोरणात्मक चौकट तयार करावी.

• **डेटा गोपनीयता आणि सुरक्षा:** कृत्रिम बुद्धिमत्तेच्या वापरातून डेटा गोपनीयता आणि सुरक्षेचे प्रश्न उद्भवतात. या प्रश्नांना सोडवण्यासाठी, सरकारने कठोर नियम तयार करावेत.

• **डिजिटलविभक्ती:** कृत्रिमबुद्धिमत्तेच्यावापरासुळेडिजिटलविभक्तीवाढण्याचीशक्यताआहे.याला रोखण्यासाठी, सरकारनेसर्वस्तरांवरीललोकांनाडिजिटलसाक्षरताप्रदानकरण्यावरभरद्यावा.

शिक्षकआणिकर्मचाऱ्यांचेकौशल्यविकास

कृत्रिमबुद्धिमत्ताशिक्षकांच्याभूमिकेतबदलघडवूनआणतआहे.शिक्षकांनाकृत्रिमबुद्धिमत्तेच्यासाधनांचाप्रभावीपणेवापरकरण्यासाठीप्रशिक्षणदेणेआवश्यकआहे.

• **नवेकौशल्यविकास:** शिक्षकांनाडेटाविक्षेपण,

कृत्रिमबुद्धिमत्तासाधनेआणिऑनलाइनशिकवण्याचीपद्धतीयांचेप्रशिक्षणदेणेआवश्यकआहे.

• **जीवनपर्यंतशिकणे:** शिक्षकांनानवीनतंत्रज्ञानाबद्दलसततशिकतराहणेआवश्यकआहे.

पायाभूतसुविधाआणितंत्रज्ञानाचाविकास

कृत्रिमबुद्धिमत्तेचाप्रभावीपणेवापरकरण्यासाठी, शैक्षणिकसंस्थांनाआधुनिकपायाभूतसुविधाआणितंत्रज्ञानउपलब्धकरूनदेणेआवश्यकआहे.

• **उच्चवेगइंटरनेटकनेक्टिव्हिटी:** सर्वशैक्षणिकसंस्थांनाउच्चवेगइंटरनेटकनेक्टिव्हिटीउपलब्धकरूनदेणेआवश्यकआहे.

• **कंप्युटरलॅप्स:** शैक्षणिकसंस्थांमध्येआधुनिककंप्युटरलॅप्सउभारणेआवश्यकआहे.

• **सॉफ्टवेअरलायसन्स:** शैक्षणिकसंस्थांनाकृत्रिमबुद्धिमत्तासाधनेवापरण्यासाठीआवश्यकसॉफ्टवेअरलायसन्सउपलब्धकरूनदेणेआवश्यकआहे.

नैतिकतेचेप्रश्नआणिनियमन

कृत्रिमबुद्धिमत्तेच्यावापरातूनअनेकनैतिकप्रश्नउद्भवतात.

• **गोपनीयता:** विद्यार्थ्यांच्याडेटाचीगोपनीयताराखणेहीएकमोठीचुनौतीआहे.

• **पक्षपातीपणा:** कृत्रिमबुद्धिमत्तेच्याअल्गोरिदममध्येपक्षपातीपणाअसूशकतो.

• **नोकरीगमावण्याचीभीती:** कृत्रिमबुद्धिमत्तेमुळेकाहीनोकऱ्यागमावण्याचीभीतीआहे.

याप्रश्नांनासोडवण्यासाठी, सरकारनेकठोरनियमतयारकरावेत.

कृत्रिमबुद्धिमत्ताभारतातीलउच्चशिक्षणक्षेत्रातक्रांतीघडवूनआणण्याचीक्षमताबाळगते.परंतु, यातंत्रज्ञानाचाप्रभावीपणेवापरकरण्यासाठी, धोरणात्मकचर्चासत्र, शिक्षकआणिकर्मचाऱ्यांचेकौशल्यविकास, पायाभूतसुविधाआणितंत्रज्ञानाचाविकासआणिनैतिकतेचेप्रश्नांच्यावरलक्षकेंद्रितकरणेआवश्यकआहे.

निष्कर्ष

कृत्रिमबुद्धिमत्तेचाउदयआणित्याचावेगवानविकासयामुळेआपल्याजीवनाच्याप्रत्येकक्षेत्रावरप्रभावपडत आहे.उच्चशिक्षणहेत्यापैकीएकमहत्वाचेक्षेत्रआहे.भारतातीलउच्चशिक्षणक्षेत्रातकृत्रिमबुद्धिमत्तेच्यासंभाव्यताआणि आव्हानांचाअभ्यासकरण्याचाहाप्रयत्नहोता.

संशोधनातूनस्पष्टजालेकीकृत्रिमबुद्धिमत्ताउच्चशिक्षणातक्रांतीघडवूनआणण्याचीक्षमताबाळगते.ऑनलाइन शिक्षण, व्यक्तिगतशिकणे, प्रशासकीयकार्ये, विद्यार्थीमूल्यांकनआणिसंशोधनयाक्षेत्रांमध्येकृत्रिमबुद्धिमत्तेचेप्रभावीउपयोगहोऊशकतात.यामुळेशैक्षणिकगुणवत्तावाढणे, विद्यार्थ्यांच्याशिकण्याच्याअनुभवातसुधारणाहोणे, शिक्षकांनाअधिकप्रभावीवनविणेआणिसंस्थांचीकार्यक्षमतावाढणेशक्यआहे.

तथापि, यासकारात्मकसंधीसहकाहीआव्हानेहीआहेत.नोकरीगमावण्याचीभीती, डेटागोपनीयता, डिजिटलविभक्तीआणिनैतिकप्रश्नहीप्रमुखआव्हानेआहेत.याआव्हानांनासामोरेजाण्यासाठीधोरणात्मकबदल, शिक्षकांचेकौशल्यविकास, पायाभूतसुविधाआणिनैतिकतेवरआधारितनियमनआवश्यकआहे.

अखेरच्याशब्दात, कृत्रिमबुद्धिमत्ताभारतातीलउच्चशिक्षणक्षेत्रातएकपरिवर्तनकारीशक्तीठरूशकते.परंतु, यातंत्रज्ञानाचालाभघेण्यासाठीसंतुलितदृष्टिकोनआणियोग्यनियोजनआवश्यकआहे.उच्चशिक्षणसंस्थांनी, सरकारनेआणिइतरसंबंधितपक्षांनीएकत्रितपणेकामकरूनकृत्रिमबुद्धिमत्तेच्यासंधींचालाभघेतलापाहिजेआणित्याच्यानकारात्मकपरिणामांनामातकरावी.

संदर्भ

1. देशमुख, सुनील. कृत्रिमबुद्धिमत्ता: तंत्रज्ञान आणि वापर. 2021, ज्ञानगंगा प्रकाशन.
2. जाधव, अनिल. उच्च शिक्षणातील तंत्रज्ञानाचा वापर. 2020, साक्षरता प्रकाशन.
3. पाटील, मीना. शिक्षणातील नवोन्मेष आणि कृत्रिमबुद्धिमत्ता. 2019, विद्या प्रकाशन.
4. शिंदे, राजेंद्र. शिक्षण व्यवस्थापन आणि तंत्रज्ञान. 2022, यशवंतराव चव्हाण प्रतिष्ठान.
5. भावे, शंतनू. कृत्रिमबुद्धिमत्तेचे सामाजिक आणि नैतिक पैलू. 2023, मंगेश प्रकाशन.

Impact of Artificial Intelligence on Higher Education**Mr. Ravi Kishanrao Chavan**

Librarian

SaraswatiSangeet Kala Mahavidyalaya, Latur

Abstract

Present article reveals how Artificial Intelligence (AI) adoption in higher education is crafting customized academic journeys, delivering administrative agility and equipping students for future professional landscapes, all through the lens of innovation and ethics. In today's digital age AI has evolved from a mere science fiction fantasy to a tangible reality that is revolutionizing various aspect of our lives. Now a day's in higher education AI is playing a very important role in transforming the way students learn and prepare for the future. Today AI is transforming higher education by providing personalized learning pathways and enhancing student support through intelligent.

Keywords

What is Artificial Intelligence, Advantages and Disadvantages of Artificial Intelligence.

Introduction

One of the most important advantage of AI in education is its ability to personalize the learning experience for students. Artificial intelligence in higher education is used for providing quick feedback on assignments and exams, supporting students with special needs and enabling rapid data analysis and plagiarism prevention. For personalized learning, access to advanced educational resources and instant feedback AI is playing very important role.

Artificial Intelligence (AI) is one of the emerging trends and applications of computing in libraries. It involves programming computers to do things, which if done by humans, would be said to require intelligence. Artificial intelligence will greatly improve library operations and services and will upgrade the heighten the relevance of libraries in an ever-changing digital society. With the help of the artificial intelligence we can save time, money and efforts. In this way artificial intelligence is very important technology for academic libraries in this digital era.

What is Artificial Intelligence

In short artificial intelligence is the field of computer science that aims to make computers and machines capable of making decisions and predictions that usually require human intelligence.

Artificial intelligence refers to the ability of machine and computer system to perform tasks that would normally require human intelligence. This includes voice recognition, decision making, machine learning and natural language processing.

Advantages of Artificial Intelligence

There are many advantages of AI. Today AI is very famous and used in many sectors. AI can solve problems, learn and give us helpful information within a time. Some of the advantages are given below.

1. Innovative and Creative

AI can bring innovation by adding to human creativity. It can generate new ideas help in the designing processes and help artists, writers and many other.

2. Access to Advanced Educational Resources

One of the greatest advantage of AI in education is access to advanced educational resources. AI facilitates access to high quality, up to date and modern education resources. Virtual assistants and chatbots can provide instant and accurate information on any topic, enabling students to access updated knowledge in real time.

3. Available 24 X 7

AI is available 24X7. An average human will work for 6-8 hours in a day excluding the breaks. Humans are built in such a way to get some time out or refreshing themselves and get ready for new day of work and they even have weekly offed to stay intact with their work-life and personal life. But using AI we can make machines work 27 X 7 without any break.

4. Performing Risky Works

This is very important advantage of AI. AI based robots can perform very risky works like mining, defusing a bomb, explore the deepest part of oceans, going to mars. It can save many human lives and perform nearly impossible tasks for humans.

5. Faster Decisions

Using AI along side other technologies we can make machines take decisions faster than a human and carry out actions quicker. While taking a decision human will analyze many factors both emotionally and practically but AI powered machine works on what it is programmed and delivers the result in a faster way. AI can make accurate decisions in less time than human beings. AI not only make fast decisions, but it also makes them accurately.

So in this way there are many advantages of AI to improve healthcare, digital assistant, new inventions, daily applications, helping in repetitive work AI is very very important.

Disadvantages of Artificial Intelligence

There also are some negative aspects to the usage of AI in higher education. Let's see some of them.

1. Very Costly

The implementation of AI in higher education is accompanied by significant costs. These expenses encompass the procurement of AI software, hardware and necessary infrastructure as well as on going maintenance, updates and repairs. developing AI models and robots require a huge amount of money.

2. Unemployment

As AI is replacing the majority of the repetitive tasks and other works with robots, human interference is becoming less which will cause a major problem in the employment standards. Every organization is looking to replace the minimum qualified individuals with AI robots which can do similar work with more efficiency.

3. Making Human Lazy

Humans are becoming dependent on AI, and this makes them lazier in their work. It can make our future generations completely reliant on machines and make them in operable independently. So this is the major drawback of AI.

4. Privacy

AI structures acquire numerous records about college students. these records can be used to monitor students development, however it may also be used to track their non-public habits and preferences. It is critical to guard students privacy while the usage of AI structures. So in this way there are many disadvantages of AI.

Conclusion

So in this way these are some advantages and disadvantages of artificial intelligence in higher education system. every new invention will have both, but we as humans need to take care of that and use the positive sides of the inventions to create a better world. AI have massive potential benefits. AI has the ability to revolutionize in higher education. one of the most significant benefits of AI in higher education is its ability to personalize the learning experience for students. By leveraging algorithms and data analytics, AI system can analyze individual learning patterns and preferences to deliver tailored content and recommendations. So in this way AI is very important for today's higher education system. to improve higher education system AI is very very necessary.

References

- 1.http://en.wikipedia.org/wiki/Artificial_intelligence.
- 2.Chowdhary, G.G.andfoo,s (Eds) (2018) Digital libraries:Social media and community networks, facet publishing:New Delhi.
- 3.Borgman,C.L.(2015) Big data, little data, no data: Scholarship in the networked world, MIT press:New Delhi.

Artificial Intelligence and Academic Research: A Comprehensive Study on Literature Review Tools and Techniques

Mr. Sumedh S. Gajbe

Librarian

Shikshan Prasarak Mandal's
Sahebrao Shankarrao Dhamdhare Arts
& Commerce College
Dhamdhare Tla. Shirur Dist Pune

Dr. Madansing D. Golwal

Librarian

Shri Swami Vivekanand Shikshan
Sanstha, Kholapur's
Ramkrishna Paramhansa
Mahavidhyalaya, Dharashiv

Dr. Sangharsh S. Gajbe

Librarian

South Indian Children's Education
Society's
Degree College of Arts, Science &
Commerce
Jambhul Phata Chiklili Ambarnath (W),
Dist. Thane, Maharashtra

Dr. Ravikant N. Mahindkar

Librarian

Shri Shivaji Shikshan Society Amravati
Arts & Commerce College, Jarud,
Dist. Amravati, Maharashtra

Dr. Hemraj Chopkar

Librarian

Arts Science & Commerce College Badnapur,
Dis- Jalna, Maharashtra

Abstract:

Academic research has been evolving, with Artificial Intelligence (AI) gaining more importance. This study presents a systematic overview of the state-of-the-art research in an academic context to apply AI and machine learning for literature reviews, especially tools used as well as evaluation techniques. With the advent of Artificial Intelligence (AI) in past few years, academic research methods particularly literature reviews had undergone a massive transformation. Results: In this review paper we explore AI-driven tools and techniques aiming to speed up literature reviews by increasing both efficiency, effectiveness in return for improving accuracy of the process. The paper begins by speaking of conventional literature review resources and difficulties connected with it, for example the problem time-intensive tasks and obligatory human error. It goes on to examine the rise of AI in research, focusing particularly on tools such those from Iris. ai and Semantic Scholar, utilizing data processing (e.g. Pattern recognition) as well as natural language processing. Drawing insights from case studies and practical examples, it shows how these AI tools can develop a deep understanding of potential fraud risks due to its capacity to process enormous datasets. In AI, risks arise for ethical concerns, such as bias and transparency with biases when it comes to the decision-making processes of an algorithm that may come from unethical factors in data or a human

creator; they all be considered. The paper ends with speculations on future directions that ought to be taken by AI technology and its long-term impact on academia. This paper provides a valuable source for scientists, suggesting guidelines with regards to usage of AI tools and motivating more research in this brand-new area.

Keywords: *Artificial Intelligence (AI), Academic Research, Literature Review, AI-Powered Tools, AI in Academia.*

Introduction

Literature reviews are a vital hallmark of the landscape of academic research and have been pivotal in its transformation over time; however, how literature review emerged as this critical feature is what we delve into here. Literature reviews were designed to pull together different schools of research as a way of filling in the space between an individual study, so that new studies would have a solid backdrop or theoretical ground on which it could then generate new questions and hypotheses. These have albeit matured from a manual scouring of paper-based archives to the digital databases and reference management software, but still traditional literature review is an arduous process requiring meticulous effort on part of researchers in order to mine through heaps of data.

Literature review is important for formulating research questions and hypotheses, as well as gaining a broad sense of what has been studied (results)– useful to identify the existing gaps. This step is the foundation of better, more relevant research to advance science. Artificial Intelligence (AI) has revolutionized academic research, particularly the process of literature review which is made quicker and more accurate. AI technologies, like machine learning and natural language processing can assist in automating routine tasks whilst also being able to analyse the huge data sets for potential patterns which might get overlooked by human researchers. Tools like Iris. ai and other text mining tools, in particular Semantic Scholar, which automatically processes the data (, significantly reduces this process time) to support search of patterns necessary for a more accurate implementation of literature review. It also discusses possible future trends and consequences for research practices in the context of AI-powered literature review tools.

Definitional Analysis:

Academic Research: “Academic research must be grounded in a thorough review of the relevant literature, which helps identify the research gap or problem that needs to be addressed” (Abdulai & Owusu-Ansah, 2014).

Literature Review: “A literature review is a comprehensive and critical examination of the existing body of scholarly work on a particular topic or research question. It is a process of searching, describing, and analyzing secondary data that are relevant to a specific subject, field, discipline, or area of study”.

Artificial Intelligence: “Artificial Intelligence is a multifaceted and rapidly evolving field that encompasses the development of computer systems and algorithms capable of performing tasks that typically require human intelligence, such as learning, problem-solving, decision-making, and perception” (Goni et al., 2020).

Literature Review:

Artificial intelligence (AI) technology is one of the fastest growing fields, and AI has also made memorable contributions on research area too. The purpose of this review paper is to collate the current state-of-research on how AI impacts scholarly research landscape by

discussing its advantages as well issues that one would face when using it and integrating with Organizations pushed towards achieving literature.

AI and automated citation-generation tools: A principal way AI has transformed research is with the use of incredibly powerful referencing tools that can help automate searching for appropriate literature, classifying sources or making citations (França 2023). In addition, AI-enhanced systems can help researchers understand highly complex problems by recognizing patterns, making data-driven hypotheses generation and research design decisions (França, 2023).

AI has Now Train in the Collection and Curation of Scientific Literature By using AI algorithms, researchers are able to obtain access to a more comprehensive and homogeneous literature not just within their own field but also in other fields. This use of AI has the potential to make literature collection and review more robust, improving on our ability to reproduce research findings.

The advantages of AI in research are huge but its incorporation is not straightforward, and challenges should be thoroughly analyzed. Rumors of AI bias, data-privacy infringement and security threats triggered when folding a very own certain percentage on top are not true to the dignity of your search outcomes (Pachegowda, 2024).

Historical background:

Artificial intelligence is transforming the way we do research across various fields, changing how scientific inquiry and data analysis takes place today. AI now serves a mechanical hand in the physical sciences, natural sciences, life years and social years but also arts & humanities (Hajkowicz et al., 2023).

Up to this point AI have been incrementally advancing different aspects of society and economy, however current wave of adoption and effect is one more likely unseen in scale or scope becoming transformational (Hajkowicz et al., 2023). This push to develop AI-guided tools has led to a growing sophistication of the available options, allowing researchers to tackle complicated issues throughout research questions and experimental design optimization in order that vast datasets are analyzed as efficiently because it had never been done before. (França, 2023).

Traditional Tools and Techniques of Literature Review:

The literature review is an essential part of academic research which provides the background that allows subsequent analysis to fit into context. Provides familiarity with current thinking and research in a systematic search, identification, selection, and synthesis of relevant literature (Abdulai & Owusu-Ansah (2014),(Chigbu et al.,2023),(Bolderston,2008)

The literature review is a core part of any research project. It enables researchers to familiarize themselves with the existing ideas and research on a subject, which may in turn influence so as to design their own study. A good literature review can also pinpoint any contradiction or controversy areas, thereby framing a grounded inquiry.

Literature review process includes four major stages: searching, identifying, selecting and finally synthesizing the relevant body of work (Chigbu et al. Among them, researchers must find and select the most useful sources that can vary from published reviews compared to primary research studies or any other genuine scholarly materials (Chigbu et al., 2023) (Bolderston, 2008). After literature is gathered, a researcher should strategically select quality and relevant sources that will become the review based on their contribution to answering this research question (Chigbu et al., 2023).

The final step is to synthesize the selected literature, evaluating and critically analyzing the key findings, theories, and methodologies presented across the body of work (Bolderston, 2008) (Chigbu et al., 2023). This synthesis can serve to demonstrate the author's depth of knowledge in the field, as well as identify potential gaps or areas for future research (Ali & Pandya, 2021).

Challenges with Traditional Methods

1. **Method of Literature review:** Manual search, reading and summarizing information in literature are the time-consuming process so that traditional methods need to be faster than machine learning method.
2. **Human Error**– the use of human judgment leads to such errors which may be undoubtedly inconvenient, more so as than missing some relevant studies or interpreting outcomes in inappropriate means just that could exchangeability influence on quality and integrity concerning review.
3. **Curation of Large Datasets:** with the vast and ever-growing amount of academic literature that is published every year researchers frequently have a difficult time managing this influx information which results in incomplete, mismanaged studies.
4. **Poor Search Capability:** Searching through traditional methods are often limited to specific keywords, which limits the number of studies that may be relevant and considered.
5. **Conflicting Reviews:** Different reviewers might use different standards and techniques of reviewing literature, causing disagreement in results due to inconsistent and unstandardization findings.
6. **Subjectivity in synthesis:** The way results are synthesized may reflect the perspective and biases of individuals writing the literature review, which can impact its objectivity.
7. **Resource Intensive:** Thorough literature reviews usually takes a lot of resources - access to many databases, journals and research materials that may not be easy do have on disposal.
8. **Problems of Updating Reviews:** Maintaining updated literature reviews is an ongoing task as new research comes to light and needs to be incorporated into previous reviews, which can be complicated.

AI Based Literature Review tools:

The field of academe is changing rapidly, and this new landscape has brought with it a suite of AI-powered tools that have transformed the way scholars go about conducting literature reviews. Built on top of these AI technologies are tools that make certain tasks around the literature review a lot easier from aiding information retrieval to text summarisation and synthesis.

List of AI Based literature review tools

Some AI-powered literature review tools that are available now include Irisai . It helps the researcher to read a scientific literature in short time and understands context AI can be able to reduce human work by collecting and synthesizing massive amount of knowledge (Carobene et al., 2023).

- Elicit
- Researchrabbit
- Semantic Scholar
- Scite

- Consensus
- Connected papers
- SciSpace
- ChatGPT
- ChatPDF
- Iris.ai
- AI bibliography generator
- GitHub Copilot
- Inciteful
- Jenni AI
- Litmaps
- Rayyan
- Whisper ai

Enhancing Literature Review Efficiency and Accuracy

Additionally, the application of Artificial Intelligence (AI), in literature reviews has increased efficiency to a whole new paradigm making it easier and error proof as compared with conventional methods. Automated data processing, pattern recognition insights extraction and NLP are just some of the ways AI has made review a more efficient process with less human touchpoints.

1. **Automated Data Processing:** AI, enabled tools takes over labor-intensive task of data collection filtration and organization. By sifting through thousands of published papers quickly, these tools save researchers time that would otherwise be occupied by manual searches and trenches. Automated systems can identify eligible studies according to pre-defined criteria more efficiently, meaning that researchers have the time and resources (as well as expertise) on analysing and pooling data instead of manually collecting it. This automation serves to expedite the time taken in performing a literature review and at the same time lowers any risks of human error leading study misses.

2. **Pattern Recognition and Insights Extraction:** In this category, AI help to dig inside patterns lying within large datasets that might not easily be apprehended by humans because they use traditional reviews which usually leave some stones unturn. By assessing connections between studies, machine learning methods can help show emerging themes and areas where the literature needs updating. AI tools can identify hidden insights in data researchers might have missed, offering a robust view of the research landscape. This ability results in more comprehensive literature reviews and, by extension with proper interpretive efforts on the part of researchers at not totally mechanical application level literacy, aids in helping to develop better research questions/hypotheses.

3. **Natural Language Processing (NLP):** This is the most important part of an AI system that allows machines to read and understand human language. Within a literature review specifically, NLP can be used to process and distill masses of textual material into skinny meta-tags that essentially allow researchers to absorb highly nuanced information more easily. For example, NLP algorithms can pull out important concepts but also help with categorizing documents by topic or even producing abstracts for each separate piece. Finally, this makes literature reviews far more accurate because the most prominent information will always emerge and researchers can obtain an immediate sense of large wrappings of work.

Ethical Considerations and Challenges

When integrating AI into literature reviews, several ethical considerations and challenges must be addressed to ensure responsible use.

1. **Bias and Fairness:** AI algorithms can unintentionally continue biases that make up the data they are working with, which causes results to be biased. Algorithm auditing and bias detection techniques are needed as mitigation strategies to ensure fairness in AI-driven detection of the Literature.

2. **Transparency and Reproducibility:** The transparency of AI algorithms is paramount to maintain trust in research findings. The AI tools need empirical studies to document how and why they are working, as reproducibility is a key currency of science.

3. **Data Privacy and Security:** Using AI to manage big datasets is a touchy subject because of data privacy & security issues. Responsible use of AI necessitates stringent measures ancillary to data security protocols and must be compliant with relevant regulations in a responsible, ethical manner.

Integrating these ethical aspects are essential for the competent deployment of AI in literature reviews to leverage the advantages of AI without sacrificing ethical norms.

Future of AI in Research

AI has been and will continue to be transformative is the creation, modeling, evolution of research questions. Artificial intelligence algorithms can be used to analyze this growing literature in order to identify gaps, generate novel hypotheses and also suggest exciting directions for future research. This can result in more pinpointed research with greater information under the belt, which as a consequence advances knowledge across different disciplines. (Balta, 2023)

1. **Emerging AI Technologies:** The deeper on the horizon of emerging technologies we delve – with continued advancements in tools and methodologies for academic research powered by AI, along with improved data processing/analysis capabilities yielded through these advances.

2. **Advancements in Research Tools:** Novel AI based tools will be developed which would provide researchers better predictive capabilities, automated literature synthesis and superior visualisation.

3. **Research Role and Practices Change:** Researchers will move away from manual data processing into higher-level tasks in the context of AI, what not only changes research practices but also classic roles.

4. **Impact in the Long Term:** The large use of AI will change what scientific research looks like, where scientific discovery is greatly accelerated due to more efficient research.

5. **Collaboration:** More importantly, human researchers will collaborate with AI systems of the future for data processing and still hold their seat to make sense out of it all.

6. **Ethical and Responsible AI :** I have no doubt that, just like other disciplines in academia use tools of mathematics or physics, the same will happen with biology scientists and big dates (AI). Scientists using real experiments to specifically fabricate data.

7. **Skill Development and Training:** There will be a growing need for researchers to acquire literacy in AI — including familiarity with the types of algorithms and tools involved –in order to effectively incorporate or use these technologies.

Conclusion

The review paper aims to understand the disruption AI has brought upon conducting literature reviews in academic research — with many of its potentials and challenges stated above. Although traditional literature review methods are fundamental, they have proven to be a time and effort demanding process that is prone to human error in management with the ever-increasing output of academic publications. For this reason, AI/ML tools utilizing automatic data analysis and pattern detecting (such as NLP) have been innovative solutions to tackle these tasks and improvements in the efficiency of literature reviews by increasing accuracy & completeness.

References

- Abdulai, R. T., & Owusu-Ansah, A. (2014). Essential Ingredients of a Good Research Proposal for Undergraduate and Postgraduate Students in the Social Sciences. *SAGE Open*, 4(3), 1–15. <https://doi.org/10.1177/2158244014548178>
- Ali, A., & Pandya, S. (2021). A Four Stage Framework for the Development of a Research Problem Statement in Doctoral Dissertations. *International Journal of Doctoral Studies*, 16(1), 469–485. <https://doi.org/10.28945/4839>
- Allal, M. (2020). How Artificial Intelligence Can Augment the Collection of Scientific Literature. *European Journal of Formal Sciences and Engineering*, 3(2), 77. <https://doi.org/10.26417/772udo89i>
- Balta, N. (2023). Embracing the Future: AI's Transformative Potential in Educational Research. *The European Educational Researcher*, 6(2), 1–2. <https://doi.org/10.31757/euer.624>
- Bolderston, A. (2008). Writing an Effective Literature Review. *Journal of Medical Imaging and Radiation Sciences*, 39(2), 86–92. <https://doi.org/10.1016/j.jmir.2008.04.009>
- Carobene, A., Padoan, A., Cabitza, F., Banfi, G., & Plebani, M. (2023). Rising adoption of artificial intelligence in scientific publishing: evaluating the role, risks, and ethical implications in paper drafting and review process. *Clinical Chemistry and Laboratory Medicine*, 0(0). <https://doi.org/10.1515/cclm-2023-1136>
- Chandregowda, P. (2024). *The Global impact of AI- Artificial Intelligence: Recent Advances and Future Directions, A Review*. <https://arxiv.org/Pdf/2401.12223>; [arxiv.org. https://arxiv.org/pdf/2401.12223](https://arxiv.org/pdf/2401.12223)
- Chigbu, U. E., Atiku, S. O., & Du Plessis, C. C. (2023). The Science of Literature Reviews: Searching, Identifying, Selecting, and Synthesising. *Publications*, 11(1), 2. <https://doi.org/10.3390/publications11010002>
- Faryadi, Q. (2018). PhD Thesis Writing Process: A Systematic Approach—How to Write Your Literature Review. *Creative Education*, 09(16), 2912–2919. <https://doi.org/10.4236/ce.2018.916219>
- Franca, C. (2023). *AI empowering research 10 ways how science can benefit from AI*. ArXiv; Whitepaper. <https://arxiv.org/pdf/2307.10265>
- Hajkowicz, S., Sanderson, C., Karimi, S., Bratanova, A., & Naughtin, C. (2023). Artificial intelligence adoption in the physical sciences, natural sciences, life sciences, social sciences and the arts and humanities: A bibliometric analysis of research publications from 1960-2021. *Technology in Society*, 74, 102260. <https://doi.org/10.1016/j.techsoc.2023.102260>
- Koons, G. L., Schenke-Layland, K., & Mikos, A. G. (2019). Why, When, Who, What, How, and Where for Trainees Writing Literature Review Articles. *Annals of Biomedical Engineering*, 47(11), 2334–2340. <https://doi.org/10.1007/s10439-019-02290-5>

Teng, M. F. (2023). Scientific Writing, Reviewing, and Editing for Open-access TESOL Journals: The Role of ChatGPT. *International Journal of TESOL Studies*, 5(1)(1). <https://doi.org/10.58304/ijts.20230107>

Use of ICT for library Personnel Management

Dr. Kashinath Rama Rathod

Librarian and Research supervisor,
Shri.Renukadevi Arts, Commerce and Science Mahavidyalaya,
Mahur, Tah. Mahur Dist. Nanded

MahendraShantaram Sable

(M.S.W.,M.Lib.&Info.Sci.,SET,NET)
Librarian, Vidarbha College of Arts,Commerce and Science, Jiwati
Tah.JiwatiDist.Chandrapur (Maharashtra)

=====

Abstract :

Information technology, which consists of the combination and the combination of connecting a range of schematics and supercomputers, computers, cables, and useful wires. The system for the creation and collection of information by the company and the organization. Information has emerged as the prime in the 21st century. ICT has exerted a profound influence on traditional academic libraries. The prime objectives of the library is pooling information resources and information related infrastructure and sharing them. In this process, many library have reexamined their traditional methods and services to overcome inadequacies through automation and computerization. The use of computers for library operation avoids respectively jobs and saves considerable amount of time, resources and labor. It also speeds up technical processing and information services.

Library personal management involves a variety of activities to ensure that the library has competent and motivated staff to meet the organization's goals and provide high-quality service to its users. Key functions include hiring, training, evaluating, managing library staff, and creating a supportive and inclusive work environment. Effective staff management in libraries also requires adherence to organizational policies and compliance with relevant labor laws and standards. It is characterized by strategies to promote teamwork, enhance communication and support professional development. Personnel management is critical to the overall efficiency and sustainability of library services, with a focus on employee well-being and professional growth.

Personnel management is an administrative function within an organization that oversees the hiring, organization and support of employee positions. A branch of human resources, personnel management focuses on recruiting the right individuals to fit a position and supporting those already working for the organization. This area also functions as a tool for evaluating the hiring process and gaining insight into employee satisfaction.

Personnel management professionals work to provide the resources and tools staff members need to thrive in their work environment every day. Library management involves functions such as planning, organizing, leading, and controlling. Planning is about systematically making decisions about the library goals. Organizing is about assembling and coordinating human, financial, physical, informational, and other resources needed to achieve library goals. Leading is about functions that involve efforts on the part of the librarian to stimulate high

performance by employees, and controlling about monitoring various library operations and services.

Personnel management can be defined as obtaining, using and maintaining a satisfied workforce. It is a significant part of management concerned with employees at work and with their relationship within the organization.

According to Flipppo, "Personnel management is the planning, organizing, compensation, integration and maintenance of people for the purpose of contributing to organizational, individual and societal goals."

According to Brech, "Personnel Management is that part which is primarily concerned with human resource of organization."¹

The rapid development in utility of hardware, software and connectivity along with the reduced costs paved the path for integrated library automation systems. Current library automation software (also known as Library Management Software (LMSs)) are integrated systems of a set of related modules responsible for the management of different operational subsystems. These LMSs are based on relational database architecture. In such systems files are interlinked so that deletion, addition and other changes in one file automatically activate changes in related files.

Library management software supports two broad groups of library works – housekeeping operations and information retrieval. These are accessible through Local Area Network (LAN) or Wide Area Network (WAN) and also over Internet. Modern library automation systems are WWW compatible and accessible through Internet, Intranet and Extranet for information retrieval as well as data entry activities. The LMSs presently follow a modular approach for the housekeeping operations. Generally, the whole package is divided into modules for each operational subsystem. Modules are divided into sub-modules and each sub-module supports various facilities to carry out tasks related to the procedures.⁷

Personnel management can be broken down into several elements as listed below:

1. Selection
2. Recruitment of staff
3. Training
4. Performance assessment
5. Career development
6. Pay and salary distribution
7. Attendance and leave

In recent years the newer alternative term 'human resource management' has come into use. Library management is a sub-discipline of institutional management that focuses on specific issues faced by libraries and library management professionals. Library management encompasses normal management tasks as well as intellectual freedom, anti-censorship, and fundraising tasks. Issues faced in library management frequently overlap those faced in management of non-profit organizations.⁴

Areas of ICT involves for personal management:

E- EMPLOYEE PROFILE:

The E-Employee Profile web application provides a central point of access to the employee contact information and provides a comprehensive employee database solution, simplifying Human Resource management and team building by providing an employee skills,

organization chart and even pictures. E-Employee profile maintenance lies with the individual employee, the manager and the database manager.

E-Employee profile consist of the following: Certification, honor/award, membership, education, past work experience, assignment skills, competency, employee assignment rules, employee availability, employee exception hours, employee utilization, employee tools, job information, sensitive job Information, service details, calendar, calendar administration, employee locator.

E-SELECTION:

Most employers seem to be embracing Internet recruitment with enthusiasm, the penetration of on-line assessment tools such as personality assessments or ability tests, has so far been limited. A survey has shown that although more than half respondents organizations already use either psychometric or other assessment during the recruitment process, only few of these companies use on-line assessments prior to interview. Fewer still include a core fit questionnaire in the recruitment pages of their websites.

E-Selection uses technology to help organs more efficiently manage the process of identifying the best job candidates – those who have the right knowledge, skills and abilities for each job and who may best fit the organ.

Faced with pressures to continually improve on the accuracy of selection methods and to meet legal requirements, organs view technology as a way to manage the selection process more actively and to provide more evidence of the effectiveness of the chosen selection method. The business drivers behind the adoption of e-selection technology include: reducing the time and resources required to manage the selection process, increasing flexibility in selection test administration, improving the utility of selection tests and enhancing an organs ability to provide adaptive testing of applicants.

E-RECRUITMENT:

Organizations first started using computers as a recruiting tool by advertising jobs on a bulletin board service from which prospective applicants would contact employers. Then some companies began to take e-applications. Today the internet has become a primary means for employers to search for job candidates and for applicants to look for job. As many as 100,000 recruiting web sites are available to employers and job candidates and which to post jobs and review resumes of various types. But the explosive growth of internet recruiting also means the Human Resource professionals can be overwhelmed by the breadth and scope of internet recruiting. E-Recruiting Methods: Job boards, Professional/Career, websites, Employer Websites.

Web-based recruiting who is considered an applicant: The individual expresses interest in an advertised position through the internet or related technology, the contractor considers the individual for employment in a specific position. The individual expressing interest specific that he or she meets the basic qualifications for the position and the selection process before receiving an offer does the individual remove his or her name from consideration or indicate that the position is no longer of interest.

E-TRAINING:

Most companies start to think of online learning primarily as a more efficient way to distribute training inside the organization, making it available any time anywhere reducing direct costs (instructors, printed materials, training facilities), and indirect costs (travel time, lodging and travel expenses, workforce downtimes). Attracted by these significant and

measurable advantages, companies start to look for ways to make the most of their existing core training available online, and to manage and measure the utilization of the new capabilities.

E-PERFORMANCE MANAGEMENT SYSTEM:

A web-based appraisal system can be defined as the system which uses the web (intranet and internet) to effectively evaluate the skills, knowledge and the performance of the employees. E-performance management uses technology to automate the collection of performance data, monitor employee work and support the development and delivery of performance appraisal. Organizations have many motivations for implementing e-performance management including; improving access to performance data, providing data that can make performance appraisals more objectives and valuable, reducing biases in appraisal and linking performance information to other Human Resource data.⁸

PAY AND SALARY DISTRIBUTION:

Another part of the operational activities of personnel management staff is to ensure employee payroll functions correctly. It may also involve setting pay scales or job levels. Traditional payment systems are crossable instruments such as cheques and documentary credits such as letter of credits. With the emerged of computers and electronic communications, a large number of substitute electronic payment systems have arose. These comprise debit cards, credit cards, electronic funds transfers, direct credits, direct debits, internet banking and e-commerce payment systems.

ATTENDANCE AND LEAVE:

Managing personnel also means overseeing time off for sick and personal days. This function also involves leaves of absence or short-term disability. Automated attendance and leave management systems help in efficiently handling administrative tasks. It reduces both the time and effort on the process and also aids in maintaining data accuracy. An automated system enhances the overall efficiency of the process.

Library automation refers to the implementation of information and communications technologies (ICT) in the libraries and information centers for replacing manual library operations. Library automation helps libraries in the optimal utilisation of resources, increased operational efficiencies and network access to systems and resources on the Web, resource sharing, better quality library services and improve personal management.

References :

1. Key Issues for e-Resource Collection Development: A Guide for Libraries - By Sharon Johnson, with Ole Gunnar Evensen, Julia Gelfand, Glenda Lammers, Lynn Sipe and Nadia Zilper , 2012
2. Khademizadeh Shahnaz - Use of Information and Communication Technology (ICT) in Collection Development in Scientific and Research Institute Libraries in Iran: A study - International Journal of Advancements in Research & Technology (IJOART), Volume 1, Issue3, ISSN 2278-7763, 2012 Sci Res Pub.
3. Prasad, A.: Digital Cataloguing, Arise Publisher, 2012, viii, New Delhi.
4. The Impact of Locally Developed Electronic Resource Management Systems - Marie R. Kennedy - Information Science reference – New York
5. <https://www.lisedunetwork.com/personnel-managemen/>
6. <https://www.nlj.gov.im>
7. <http://www.egyankosh.ac.in>

8. <https://www.linkedin.com/pulse>

Soft Skills and Competencies required for Library Professionals

Gaikwad Manisha Khandu

Librarian

Arts, Science and Commerce College, Indapur

➤ Abstract:

In the era of modern technology, librarians need to cope up with modern developments and challenges in their work. Library professionals have to provide new information services along with traditional information services to meet the user satisfaction of their information needs. This required some soft skills and competencies to the librarians. This paper outlines the skills required for librarians need to use in the modern information technology era. By utilizing these skills, librarians will be able to effectively face the challenges of professional situations and provide better services to their users.

➤ **Keywords** : soft skills, competency, hard skills, leadership skills, modern technology

➤ Introduction:

In any field, for your professional growth academic education is not enough. For better professional growth you should inculcate some soft skills and competencies. The development of information communication technology has also changed the role of the library profession in the field of library. Users' information needs shifted from print media to e-information. The new education policy emphasizes student-centered and self-directed learning. Libraries also manage and make the library resources as per the user information demand. For all this library professionals should gain certain soft skills and competencies for effective librarianship.

In the fast changing environment and competition age, soft skills playing an important role the user oriented services. These skills gaining more importance for employees, students and other professionals. These skills cope up with current and future developments. Hence before, only technical skills alone were appreciated. Now days, with essential qualification, other skills are required. Technical knowledge or hard skills have subject knowledge but soft skills covers intelligence, communication skills, managerial skill hence it is also called as life skills. Taking into consideration the importance of soft skills and computer skills required for effective librarianship some skills are discussed in this paper.

• Understanding user need

A library is a repository of information and research. Library practitioners should build library collections according to the information needs of their users. Also library services should be balanced according to the user need. Library professionals need to be able to effectively cope with the changing information needs of the users due to changing technology.

• Conversation of traditional services into web based services

The library profession, like any other field, has seen the impact of advances in communication technology. With the use of new technologies, library personnel can effectively perform traditional library services. Library services can be enhanced by using new technologies such as digital libraries, e-library, e-resources, manage in-house databases etc.

• Print and non- print collection

Libraries in the past just contained print materials, but as technology has advanced, we now have access to electronic resources such as databases, e-books, e-journals, and other electronic resources. Thus, librarians should be able to maintain a balance between print and non-print collections to satisfy their users in effective manner.

- **Self-evaluation of library services**

Librarians must have the knowledge and skills to evaluate the library services provided to users and are able to ask questions. This self-evaluation method is also helpful in understanding the problems for resolution in the services and bringing about necessary changes and also in updating the services.

- **Selection of user friendly technologies**

In the technology-rich knowledge age, various technologies are available to provide effective service to the user for information processing and retrieval, which can be used to provide efficient and timely service. For this, librarians should be able to compare the required software and technical equipment to make a better purchase of the various technologies available in the market.

- **Library user's attraction**

Library professionals must have the ability to attract users to the library. Librarians should update library collections, services and modern technologies to attract users. Also various activities like book exhibition, book review competition, newspaper review, best reader award etc. activities can be organized to attract users and for better utilization of library collection.

- **Use of new technologies**

To cope up with the rapid advancements in technology, Aschroft (2004) stated the times need for LIS professionals must adapt their responsibilities, competencies, and personal traits. In the technological era, Library professionals should have sound knowledge of technology which is useful for implement in the library.

- **Listening skills**

Listening is the most crucial component of good communication. Thus, the ability to listen well is important for library professionals since it allows librarians to providing library services and solving user's issues.

- **Communication skills**

Communication is the medium of transferring information from one to another, in the form of vocally, written, visually or non-verbally. Good communication skills always have great impact to their patrons. For good communication library professionals should have good knowledge about mother tongue and particular local language.

- **Interpersonal skills**

An interpersonal skill is a key to successful relationships at personal, academic or professional life. The library professionals must have the interpersonal skills to maintain good repo with their faculty, library staff, library users, vendors, management and others with they work closely.

- **Presentation skills**

Presentation skills are important in almost every field. If librarian present information clearly and effectively to users, management, vendors, publishers he will get good result to enhance library services.

- **Leadership skills**

Library professionals must have leadership skills to lead the library work effectively. These skills are highly sought as library professionals involve dealing with their supportive staff and have manage work, time of the library and face different types of users daily.

- **Writing skills**

Writing skill is one of the key factors of communication skill. Good writing skill helps to convey message properly. Writing skill plays an important role for library professionals for written communication with their management, vendors, publishers, suppliers and their users.

- **Marketing skills**

According to Wee (2003), advertising and promoting our services is essential to our existence in the information era. Martey (2000) made the implication that because libraries continue to have a purpose in the community, they must endure and prosper. In the age of technology, library professionals must have marketing skills to adopt and to cope up with new challenges taking place in the library environment.

➤ **Conclusion:**

A library is a reservoir of information and knowledge and library professionals have to play a role of good manager for dissemination of information to the users. Due to technological development library professionals have to tackle new challenge in front of them. To manage the situational changes, library professionals should have skills and competencies which will help them to satisfy their users' information need are discussed in the current paper.

➤ **References:**

- www.ijlis.org, Internet Source
- Ashcroft, L. (2004). Developing competencies, critical analysis and personal transferable skills in future information professionals. *Library review*, 53(2), 82-88.
- Kulkarni, V. (2017). Soft skills required for LIS professional: a study. *Episteme: An Online Interdisciplinary, Multidisciplinary and Multi-Cultural Journal*, 6(3), 27-34.
- Martey, A. K. (2000). Marketing products and services of academic libraries in Ghana.
- Wee, J. (2003). Marketing and promotion of library services. *National Library Board*.

RESEARCH LIBRARIES AND DIGITAL TOOLS-NEEDS OF RESEARCH IN MODERN ERA

Dr. Katle Sangita Gulabrao

Librarian,

Arts and Commerce Mahila College, Ambajogai Dist. Beed

Abstract

In modern era, the role of libraries is not only limited to exchange of books, but their scope and services have increased to a great extent. Libraries are also functioning as information centers. Considering the changing role of libraries, according to the new university law, the name of the university libraries has been changed and the university libraries are called as Knowledge Resource Center while the librarians of the university have been called as Director, Knowledge Resource Center. Also, research libraries are becoming more up-to-date in terms of research. Because of new, updated technologies are being used in the field of research. Also modern and updated information is needed for research. Research libraries are very helpful in making it available. From this perspective, the research library and its usefulness in modern times have been explained through the research paper presented.

Keywords-Role of Research Libraries, Needs of Digital Tools, Needs of Research in Modern Era

Introduction

In modern era, the role of libraries is not only limited to exchange of books, but their scope and services have increased to a great extent. Libraries are also functioning as information centers. Considering the changing role of libraries, according to the new university law, the name of the university libraries has been changed and the university libraries are called as Knowledge Resource Center while the librarians of the university have been called as Director, Knowledge Resource Center. Also, research libraries are becoming more up-to-date in terms of research. Because of new, updated technologies are being used in the field of research. Also modern and updated information is needed for research. Research libraries are very helpful in making it available. From this perspective, the research library and its usefulness in modern times have been explained through the research paper presented.

Objectives of research:

- 1) To overview on libraries in modern era.
- 2) To study Role of Research Libraries.
- 3) To study of Needs of Digital Tools.

Research Methodology:

For the purpose of this study used social science research methodology to study the research topic. The main purpose of the study is to introduce Research Libraries. For this paper researcher is used descriptive research methodology and scientific analysis. The researcher is used secondary data form reference books, research articles newspapers, journals, published and unpublished materials and also taken intimate facilities.

A research library is not just a collection of books but a virtual spring of the knowledge. It is an information center with up-to-date knowledge tools on a particular subject. The library system as well as the services and procedures to be provided are designed by knowing the nature of information on a particular subject that researchers need.

'Research' means the pursuit of truth by careful investigative study of a subject. According to another definition, the process of making a scientific and analytical study of a subject to reveal its true nature or elucidate definite principles from it is called 'research'.

The speed of progress of any country depends on the speed of development of education system and research programs in that country. Research is an organized and systematic study and is an important tool for innovation. Today, the number of research programs, researchers and research institutes around the world is continuously increasing and for this the government of every country is providing more and more funds. From this point of view, many private industrial groups are also leaders in this matter and have established independent research institutes. In this regard the National Knowledge Commission in its report has elaborated the importance of research and library services, recommended such services and trained manpower for them. Modernization of services, partnership with private industry groups, establishment of independent national commission for development of libraries, establishment of National Knowledge Network of electronic digital broadband and gigabit capacity connecting knowledge institutes at various places in the country for professional consultancy services and exchange of information and knowledge tools etc. Have done

Today, in the newly emerging paperless era, digital library, e-library and virtual library concepts have become essential to traditional libraries. There are various types of libraries like public library, academic library, national library etc. Research library is considered as a special type of library.

In all fields such as humanities, social sciences, science, technology, law, the flow of information is increasing in such a huge amount through research all over the world that this knowledge-accumulation is described in the words Information Explosion. This information in the form of knowledge is regularly collected and broadcasted through various media all over the world. These media can be broadly classified as primary sources, secondary sources and tertiary sources.

Primary sources include manuscripts, correspondence, reports, government publications, periodical articles, theses, dissertations, theses, monographs, standards, patents etc. The information in this is first-hand information and is very necessary for research. Secondary and tertiary sources are created on the basis of information from primary documents. The basic purpose behind secondary and tertiary documentation is to enable the researcher to easily collect information from primary documents that are scattered in various forms. E.g. If he wants to do research on the British historical subject, he has to extensively study the primary documents such as British newspapers, periodical articles, correspondence of the British government, court documents, government records, copies of government gazettes, as well as books on the subject. A bibliography is available if a consolidated list of all the literature on such a subject is available. It will be a problem for the researcher. Because that will enable him to start his researches work with new vigour. Otherwise you have to sit in the dark. On the basis of such a bibliography he will be able to obtain primary documents of the above various forms. Examples of secondary documents are bibliographies or periodicals that

provide directory and article lists. Primary or secondary documents of the above nature may be available in such research libraries.

A table is a list of reading materials in a library made for the use of readers according to a scientific table code. The actual act of making a schedule is scheduling. Cataloguing, like taxonomy, is done in a meticulous and thorough manner in research libraries. The special prefaces enjoyed by some texts can also be noted in the table. A limitation of classification is that even if a text deals with two or more topics, it has to be placed under the same topic. But analytical scheduling can provide a better solution. Important articles from various journals can also be brought to the attention of researchers with the help of such analytical records. Libraries are now needed to have expansive digital collections which comprise electronic journals, EBooks and virtual reference services. They must also make their canons available online for druggies to snappily determine whether the library has the accoutrements they need and when and how these accoutrements will be available for their use. Numerous libraries also have connected systems that enable patrons to reserve and adopt books from combined libraries, effectively adding their collection size while keeping costs down. This can make it possible for libraries to offer coffers that have a narrow appeal and a low demand but that could still be useful for patrons to pierce.

Exploration libraries face a unique challenge of making exploration accoutrements accessible and available to patrons. They also need to insure there are no brand-related issues with their accoutrements, insure that as numerous accoutrements as possible are open access, and insure all their accoutrements are reliably sourced. Some technical exploration libraries could include those combined to governmental associations which may hold documents of literal, legal or political import, or music libraries which will have books and journals on music, as well as flicks and recordings for musicians to pierce.

Conclusion

With the rapid advancement of technology and the advent of the digital age, the expectations of researchers are changing. Libraries need to improve digital infrastructure for researchers. Research libraries are becoming important in this regard. A research library is a library that contains a comprehensive collection of materials on one or more subjects. Research libraries typically include in-depth materials on a particular topic or set of topics. It mainly includes primary sources as well as secondary sources. Research libraries are established to meet the needs of research. The quality materials required for research, the necessary tools and original materials are supplied through the research library. Research libraries are typically affiliated with academic or research institutions. Large university libraries are considered research libraries. Because of it have special branch research libraries. Such libraries provide students with updated knowledge and information for research. Through this, researchers are able to present their research more effectively and efficiently. For this reason, research libraries are becoming a primary requirement for modern research.

Reference Books

1. Perkins, Gay Helen; Slowik, Amy J.W. -The Value of Research in Academic Libraries, 2013
2. V.D.Mhapsekar- Research libraries: Needs of age, Daily Loksatta 19 September 2010
3. Ferguson, Stuart J.; Hebels, Rodney -Computers for Librarians, 2003
4. Tanner, Simon - Librarians in the digital age: planning digitisation projects, 2001

5. Kennedy, Marie R.; Brancolini, Kristine R. -Academic Librarian Research: An Update to a Survey of Attitudes, Involvement, and Perceived Capabilities, 2018
6. Tom Garlinghouse-The rise and fall of the Great Library of Alexandria, 2022
7. Kyrillidou, Martha -Research library trends: ARL statistics, 2000