Transcending Learning and Information Access by Academic Libraries in the perspective of Digital Accessibility and Policies in Higher education during Covid-19 in India

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ABSTRACT

The strategic shift in addressing the current situation during the Covid-19 pandemic has compelled the learners to face challenges in the higher education sector. The digital environment and "open" information have been instrumental in inviting current knowledge delivery efforts of libraries and users' access invite attention in the context of digital learning and legal aspects associated with free resources and open access in higher education. The chapter dwells on the role of libraries and faculty members to boost the digital participation and the mechanisms derived and actions taken in context of remote access, open access, and other alternate platforms for the higher education sector. The recent policy changes and implementations, digital mechanisms and innovative information access tools in the higher education such as measures, channels and framework (digital research help and instruction, and copyright guidance) provisions are discussed including recent trends in India and worldwide.

KEYWORDS: academic libraries, digital access, higher education, India, remote access, usage mechanisms, UGC.

1. INTRODUCTION: STRATEGIC SHIFT

New "Learning Landscape" ambiance has an intense focus on comprehensive approaches to higher education. The factors were different yet the strategies to overcome the lack of space and other limitations of print collections have

been producing results now. The focus has been placed on integration of various kinds of digital subscriptions and platforms at one platform with objectives to have user oriented technology rich environment. The meaning of the library in higher education as smart digital learning platform is having vast and relevant digital information with supported technologies along with "information commons", and "Commons 2.0". These concepts in higher education are instrumental in encouraging creativity and peer learning. All this is possible with the active participation of the library staff with the "Net Gen students". Present chapter is based on review of recent literature (spanning though last decade) collected from Web of Science and Google scholar with the help of certain keywords/phrases such as framed as various sections of the chapter; and collecting information as well as content analysis of various efforts of UGC-MHRD (University Grant Commission), India website after declaring Covid-19 pandemic.

1.1 Web-Based Knowledge Discovery and Delivery

To achieve customer satisfaction, library services quality is to be maintained by practitioners by understanding the meaning of user satisfaction and services quality simultaneously. The users' perspective should be considered for digital resources and web-based services:

- a. Reliability: the digital information services should be provided on such platforms that have ability to deliver the information service accurately.
- b. Digital-responsiveness: the intuitive capabilities of digital tools to support researchers with prompt response.
- c. Individual attention: the provisions to facilitate researchers at individual level through digital means

The unconventional approaches to establish library engagement with their student workers [1] and other academic groups support in understanding the promotional ways of libraries in context with student learning and their retention.

1.2 e-Resources and Transitions

The growth of libraries to include ebooks in their collections has provided immense opportunity for users and popularity of digital environments. Few internal components of ebooks such as indexes, accessibility from various aggregators, different interfaces, and technical features have been either highly supportive or detrimental in the adoptability of ebooks in the library. There have been several obstacles to e-book adoption in libraries, such as insufficient budget and technical reasons such as single universal format and device dependency, including users' lack of demands [2]. Shifting from "a book warehouse" towards "forward-thinking library model" [3], the need to integrate digital resources and services was necessary for university research aorta.

1.3 Copyright and Usage Aspects

The accessibility and enhancement issues are related to the academic library to ensure the technological, learning, and educational factors. Cawthorne (2015) have emphasized the significance of various stake-holders such as "library directors, provosts, and administrators for human resources" along with potential responsibilities [4] due to changes in recent "scholarly communications model" and inconsistent factors associated with social and technical issues pervasive in a pandemic situation. The problems related to access, rights, and permissions are complex, whereas the students need the latest update. In the complicated information environment and specializations such as digital rights management, fair use, and copyright laws.

1.4 Innovative Information Access

The changed situations and international environments force university libraries to respond in rapid ways to march along with a world where information resources are rapidly changing and increasing in their parent institution missions. The areas that reflect the library contribution are students' benefit in coursework, leading to; higher course grades due to collaborative academic programs to boost information literacy instruction. Student engagement and libraries are highly relational for educational success, with the support of [5] "student's support network" leading to higher academic performance [6, 7]. According to Oliveira (2017) [8], the library functions as a social learning space impacting GPA through information literacy initiatives.

2. DIGITAL PARTICIPATION AND THE MECHANISMS

The exponential growth and usage of digital resources have been instrumental in shaping library services. The wide availability of digital resources and accessibility in remote access has allowed the entrance of many search platforms such as Google [9] and federated search engines.

2.1 Digital landscape, Pedagogy and Remote access

There have been strategic pedagogic developments in the higher education sector and academic libraries have prepared to influence learning with student-centered, pedagogic strategy [10]. The academic library has been considered as "third place" [11] in higher education in comparison to home as first place and workplaces taken as second place due to some fundamental changes in the digital landscape of academic library:

- a. Relaxed rules for digital and augmented access to more free digital resources
- b. Technical adaptability in terms of various digital gadgets and devices across campus and network-independent situations
- c. Promptness and digital awareness among the library staff to facilitate quick and easy access to remote/digital resources

2.2 Digital outreach

The university libraries function as a bridge "between what students see as generic marketing and the important message of how the institution differentiates itself from other schools in rationale and purpose" [12]. Observation in the effort to "contribute to institutional mission through programming, services, and partnerships that engage our external communities" [13] has been effective and sustainable for digital information services. To provide remote-access based outreach to students and teachers depends upon established digital presence accessible from far and beyond the campus walls; the faculty members encourage the students to have awareness and utilize digital resources and services of university libraries to explore the network of resources.

2.3 Alternate Information platforms and Knowledge Discovery

There have been alternate information service systems other than academic libraries being pursued by users to access the scholarly information. The portals, Google Scholar, CiteULike.org, etc., provide an insight into the changes of users' information-seeking behavior. A study suggests that "although scholars may choose to bypass libraries when they seek scholarly information, academic libraries continue to provide a majority of scholarly documentation needs through open access and institutional repositories," as stated by Burns (2014) [14]. The competition between academic libraries and the alternate services in the form of open access has revealed the increasing use of such platforms.

3. LIBRARY AND FACULTY COLLABORATION

Libraries are an essential and integral component of higher education institutions; moreover, libraries have been responding to recent changes in technological implementations, digital resources integration, and pedagogical requirements of faculty members. Observations by Stone and Ramsden (2013) among the library and students interactions are eye-opening [15]. Use of useful "infographics" (Yuvaraj (2017) is helpful in the creation of engaging information products to enhance the collaborative environment in higher education [16]. Considering librarians as integral academic professionals, supporting in reflecting library's ability and encouragement to use library resources and services at greater length [17]. The library support for open-access publishing, literature search, etc., is helpful for research students according to their discipline requirements.

4. FRAMEWORK FOR DIGITAL INFORMATION ACCESS TRANSFORMATION

The momentum of change and reinventing the libraries' ambience and services are driven by few aspects such as leadership, renewed commitment, technological self-reflection, and engaged strategic planning for building digital library learning scenarios by devising an integrative model of academic support services with integrating classroom learning.

4.1 Unconventional Channels for Information Exchange, Access, and Instruction

The unconventional approaches are supportive in a rich environment to engage the academic community for information exchange and data-share. Using and adopting various social network platforms is vogue in library circles for the expansion of library services and visibility. Popular social media networks include use of Twitter (Al-Daihani & AlAwadhi, 2015) among many libraries for varied content [18] such as "Internet links, images, videos and audio clips" for sharing resources/URLs etc. There have been significant instances for Twitter use in the libraries for "receiving patrons' opinions" in the routine to enhance the users' experience in services. Twitter adoption has been observed in information delivery and user as a practical communication tool. The nature and context of messages can be assessed in terms of comprehensiveness related to users' interests and information sharing. For example, Cornell University Library has been instrumental in updating policies and providing enhanced online services through remote services during COVID-19 health crisis.

To provide access to extensive online collections and licensed resources, the publishers/ aggregators/vendors support free access during the COVID-19 facing health emergency. The libraries are supporting virtual research help. In contrast, other software such as Google class, Zoom, Webex are being used for in-depth consultations. Libraries have been instrumental, busy, and innovative in teaching online by working with instructors and integrating library research. Libraries were conducting online classes and supporting the redesigning of research assignments. The instruction coordinators, liaison staff, and consulting the resource guides are helpful for researchers. Libraries are providing guiding materials for the library's support for "Remote Teaching" [19]. The libraries have been instrumental for copyright guidance. The altered copyright policies [20] during the COVID-19 emergency duration are available for users to comply and apply.

Since libraries are unable to provide physical access and print resources, smart and quick arrangements for online access are being provided. An example is from the library of Cornell University by "temporary online access" through their membership in "HathiTrust" with the help of their comprehensive library catalog (<https://newcatalog.library.cornell.edu/>) [21] till health emergency continues. This facility is supporting access to millions of full-text books for Cornell users. Cornell instructors were advised to use their emergency "print purchase

and delivery service" [22] during the physical library routines are closed to support the faculty members in their teaching assignments. To offer rare and manuscript [23] collections, the libraries are facilitating in digital mode via online exhibitions. The quality and access-based library services have bypassed the significance of library collection. The widened and in-depth "library discovery services" efficiently reveal and provide access to institutional resources, including institutional repositories, research profiles, and libraries' unique materials.

4.2 Open Access and Open Learning

The increasing roles of libraries in publishing aspects are visible in various author/publishing workshops and training programs for the academic community. Such efforts aim to create awareness among the researchers for writing quality articles and publishing in reputed journals or platforms. Open access publishing models and increasing efforts [6] are related to Open Educational Resources (OER) services. Integration of IL instruction is described as a shift from a single organization approach towards a standard goal-oriented consortial method. The students benefit from "shared instruction system" to function in different kinds of learning environments.

Another research service is becoming popular among researchers is "digital humanities". Few areas of individual needs include curriculum-based requirements, faculty information needs, packaged form of information needs, and professional information needs. Assessing users' needs helps libraries to design specific services such as rediscovery of library resources and "Direct-2-U Reference", etc. for students.

4.3 Digital Literacy and Guidance

Digital literacy is needed at high levels of leanings and library services' delivery in the context of various media platforms, social network websites, digital devices, and digital worlds. Paradoxically, the digital information culture has been considered boon to support higher education's current situation. Digital literacy and digital rights management are significant as ((Tait, et al., 2016) observed. Embedded librarians and blended learning involve issues and learning such as digital resource services, IPR training, innovative user research, digital alerting services, literature evaluation, strong web content management [24] with dedicated library teamwork, faculty collaboration and technological support.

The learning to students and researchers can be better supported by involving open access, user identities (such as research-id, Orcid profiles), visibility in Institutional Repository, comprehensive and robust metadata, support in citation tracking related to academics' research work, encouraging research-focused social media platforms (for example, Google scholars, ResearchGate, Mendelay and Academia.edu along with Endnote, Zotero etc.) during Covid-19 pandemic times, wider level transition has been witnessed due to active collaboration and academic librarians' roles in changing blended learning environments. The areas such as research and data management, information literacy, and IPR instruction need technological, transferable skills, and individual attention.

5. DIVERSITY, READINESS TO CHANGE AND ACADEMIC LIBRARIES

Diversity plays a crucial role in academic libraries' planning services to support higher education. To address "power dynamics and inequalities in libraries and academia, and how they empower students to resist these structures" (Withorn, 2019), various approaches are in practice, such as the implementation of uncommon projects to support digital pedagogy, augment participatory learning, increased use of primary sources, boosting open access and opting for innovative educational technology [25]. In this context, for effective organizational change, task-oriented culture

is strongly suggested [26]. Key challenges are noticed for the academic libraries today; some include; open-access resources, up-to-date policy, and procedure due to the changing nature of scholarly communication.

5.1 Measures and Channels for the Digital Information Access

The multiple formats of information resources and services have endeavored to meet information needs, supporting users to indicate and locate resources' virtual locations. The databases access, create bibliographies, citation analysis have been connecting links in the context of digital information services beyond chat or Instant Messaging (IM), videoconferencing activities.

5.2 Library Instruction and Supplemental Digital Resources

The importance of library instructions in academic ambiance has been supporting faculty members and scholars about the new technological implementations and tools meant for information retrieval and searching strategies. Cordell (2013) shared the view of "the opportunity to view their programs globally and develop strategies for student learning at various levels" such as one-shot sessions, multi-session instruction design [27], and finally, leading to credit-based information literacy programs.

5.3 Research Strength and Support Services

Measuring research output and contributions to the rise of academics has become a significant area among most universities. The information and communication technologies (ICTs) bought a concept of "e-research" where a range of research activities are performed with ICT tools. Data-intensive research and ideas such as "re-contextualizing" have changed the mechanisms of interpretations; the examples are digital humanities and research data management to deal with information demands and available tools to serve them [28, 29].

The libraries ensure access to literature for researchers and alternative mechanisms such as open access (OA) movement. The example of OA institutional repositories has been serving scholarly research. Academic libraries play a significant role in extending support for research impact measurement in the form of Bibliometrics, citation analysis, and discipline oriented research, h-index calculations, etc. as related to research.

5.4 Forces for Change in Research Support Services

The "slide to performativity" in context with the financial problems has forced academic libraries to design the research supporting environment and component services to include perceptions of users' needs and altered definitions of professional developments. Various factors such as "accountability, increased casualization, increasing emphasis on producing research outputs" have emerged in the "increasing global economic crises" related to the education sector [30]. The application of technology in research has enhanced computing quality, management of data repositories, and few other shared research infrastructures. These developments are considered as "eResearch," "eSocial Sciences" and "The Grid" in recent times due to augmented collaboration of technologies and researchers, as well [31]. To manage, share, and preserve research data has been possible due to the following characteristics of data:

- a. funded research
- b. unique data in context with time or space
- c. research reproduction and reusability of data
- d. inter-disciplinary nature of data

6. VISIONS FOR HIGHER EDUCATION AND LIBRARY SCENARIO IN FUTURE

The recent challenges have forced libraries to monitor trends related to modern information-driven societies where each component functions based on data. The Corona pandemic has provided various challenges to academic libraries to improve their current service patterns and discard conventional practices to remain relevant by indulging with users through innovation. The revised roles of librarians are apparent. Much is needed to eliminate the library image as physical space to hold collections to respond to changing pedagogical trends in higher education [32, 33]. The recent trends, observations in practice, and kinds of literature invite attention to:

- **Infrastructure and Budgetary concerns:** The uncertainty in the global economic situation has brought tensions in arranging technological infrastructure due to budgetary constraints, affecting the demographically challenging situation in higher education and forces to empower academic libraries.
- **Value and future sustainability:** The resultant need to add value through intelligent technologies, systematic assessment, and quality assured information services for the equity-based design of learning in higher education.

Keeping the global perspective in planning and changing their working environment, the analysis of current trends and issues point to libraries to act according to alternate scholarly sources. The libraries are motivated to design remote-based information delivery practices instead of only remote-access to specific numbers of databases. The future trends in academic libraries in the higher education system can be further visualized in the following areas to enhance research and learning as scholarly communication and open-access publishing, and reframing the higher education with inclusions of open education aspects and MOOCs.

7. POLICY CHANGES AND IMPLEMENTATIONS: ROLE OF MHRD AND UGC IN INDIA

University Grants Commission (UGC), India, has taken many initiatives for strengthening online learning under the aegis of the Ministry of Human Resource Development (MHRD). Since the Covid-19 situation, UGC has become proactive in facilitating the academic community by providing infrastructure and guidelines for continuing education, research, theoretical persuasions, and grievance redressal [33].

- a. **Digital Libraries:** UGC created awareness about India's National Digital Library (NDLI) during COVID-19 situation about its richness in collection and access available in various languages (table 1) for the Indian users.

Table 1. Efforts and contributions of UGC for Digital library

Efforts and contributions of UGC for Digital library	Date	Remarks
National Digital Library (NDLI) COVID-19 Academic and Research Repository	04-05-2020	Significance of NDLI
National Digital Library (NDL)	16-08-2016	National digital library of India for online information

Interface meeting for the Subjects of Environmental Science, Electrical Engineering/ Electronics, Mathematics/Statistics, Computer Science/ Bioinformatics and Library & Information Science held on 10-07-2015	14-07-2015	Subject discussions
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- b. **SWAYAM:** The "Study Webs of Active-Learning for Young Aspiring Minds" (SWAYAM) platform is an indigenous platform of the Government of India which hosts MOOCs (Massive Open Online Courses) courses to enable students (table 2) to virtually attend the courses taught by the best faculty; access high-quality reading resources; participate in discussion forums; take tests and earn academic grades. The courses hosted on SWAYAM are in 4 quadrants "to enrich the learning experience by using audio-video and multi-media and state of the art pedagogy/technology".

Table 2. MOOCs and SWAYAM related efforts by UGC

MOOCs and SWAYAM related efforts by UGC	Number of Orders and Notices by UGC
2020	03
2019	05
2018	03
2017	07
2016	02

- c. **"Bharat Padhe Online campaign":** UGC invited suggestions and proposals for this online campaign "to make productive use of the lockdown period in the wake of COVID-19 outbreak" and to leverage the potential of ICT, MHRD and UGC has come up with digital platforms, to be accessed by academicians, scholars and other academic communities in India.
- d. **NSQF:** The National Skills Qualifications Framework (NSQF) is a competency-based framework supporting the organization of "qualifications according to a series of knowledge, skills and aptitude" by the Government of India and since 2013-14, UGC has been instrumental in this direction and in pilot mode the scheme of Community Colleges was implemented.
- e. **LOCF:** Learning Outcomes-based Curriculum Framework (LOCF) is the kind of "Quality Mandate" of the UGC which is based on Curriculum Reforms. By constituting various subject Expert Committees, UGC has given thrust on drafting LOCF (table 3) in multiple disciplines since 2018 through coordinated regulatory reform to provide equity-related initiatives.

Table 3. Learning Outcomes-based Curriculum Framework (LOCF)

Learning Outcomes-based Curriculum Framework (LOCF)	Efforts and Notices by UGC (number)
2020	03
2019	07
2018	01

- f. **STRIDE:** *Scheme For Trans-Disciplinary Research For India's Developing Economic (STRIDE)* is a comprehensive program for research projects to be initiated in a manner that connects the local and national topics and inclusion in academics. In this context, several initiatives (table 4) have been taken. One example is "Deeksharambh, which is a "Student Induction Programme" (SIP) initiated in 2019.

Table 4. STRIDE

CATEGORY-I	CATEGORY.II
Aided Universities (16)	Private College (1)
Aided Colleges (18)	

- g. **NAD:** National Academic Depository (NAD) is a 24X7 online storehouse of all academic awards viz. certificates, diplomas, degrees, mark-sheets, etc., duly digitized and lodged by academic institutions/boards/eligibility assessment bodies. NAD users (table 5) include students and other academic award holders, Academic Institutions/Boards/Eligibility assessment bodies, verifying entities, etc.

Table 5. National Academic Depository Efforts by UGC

National Academic Depository	Implementation Date	Remarks
Implementation of National Academic Depository (NAD)	30-06-2020	In all universities; DigiLockers
Implementation of NAD	26-06-2020	As a permanent scheme under "MeitY"
NAD	28-11-2019	1106 organizations- service level agreements
NAD	07-11-2019	1106 organizations- service level agreements, NAD ID in online examination form made mandatory
NAD	29-05-2019	1005 organizations- service level agreements
National Level Workshop on NAD	19-09-2018	National level workshop for awareness, implementation etc.
Creation of hyperlink of NAD website's URL on the institution's website	24-01-2018	Universities, HEIs, etc., to provide links and awareness to students
NAD	14-07-2017	UGC as authorized body and NAD Cell arrangement
Schedule of Countrywide Awareness Programme on NAD	13-06-2017	16-06-2017 to 30.06.2017 awareness programs

NAD	23-11-2016	Service agreement
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Few other efforts of UGC-MHRD are given as follows:

- a. **Avoiding Plagiarism in research:** UGC has issued guidelines and provided a framework to prevent plagiarism, various mechanisms, and legalities (table 6, 7) for higher education institutions as following:

Table 6. Efforts and contributions of UGC related to Research Improvements

Efforts and contributions of UGC	Date of Implementation	Remarks
Self-Plagiarism	20-04-2020	Guidelines indicating the detailed aspects of self-plagiarism and how to avoid it
Plagiarism Detection Software	02-08-2019	Information about the plagiarism detection software for the universities; URKUND
UGC (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018	07-08-2018	Guidelines for avoiding plagiarism and various awareness programs
Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions Regulations, 2017	01-09-2017	The mechanisms to prevent plagiarism in research

- b. **Publication Ethics and Consortium for Academic Research and Ethics (CARE)**

Table 7. Consortium for Academic Research and Ethics (CARE) Guidelines

Efforts and contributions of UGC	Published on Date	Remarks
Two Credit Courses for awareness about Publication Ethics and Publication Misconduct	26-12-2019	Research and Publication Ethics-RPE course (two credit- 30 hours) for research scholars; research integrity, publication ethics, pedagogy, etc.
UGC-CARE list of Quality Journals	16-09-2019	Details of quality journals for publications
UGC Notice "CARE List of Journals"	30-03-2019	Notification to be on 31 st May 2019
CARE: Reference List of Quality Journals.	14-01-2019	Four regional level Universities to determine the criterion for quality journals based on UGC guideline

c. A comparative presentation of various efforts by UGC:

Table 8 reflects the comparative efforts of UGC in various contexts.

Table 8. Efforts and contributions of UGC in various areas

Efforts and contributions of UGC	Frequency of efforts
Plagiarism related issues	04
Publication Ethics and Consortium for Academic Research and Ethics (CARE)	04
Digital Library	03
Moocs and Swayam	20
LOCF	11
NAD	10
STRIDE	04

8. TRANSITION AND VISION FOR FUTURE

Many university libraries are restructuring their policies and services in a fast-shifting digital environment due to changes in the current higher education scenario. The challenges due to the Covid-19 virus attack worldwide have compelled to redesign leadership roles to listen to library patrons' needs without physical access to the library [26].

Preparing library for remote learning: Offering remote access to digital content is different from providing support to hidden knowledge that needs scalar planning and flexible approaches:

- Augmented access to educational course related to digital resources
- Identification of digital versions of books and other resources.
- Organizing digital course resources more accessible, affordable, and available for students
- creating aggressive awareness of digital library resources and services among faculty and students

Standards for E-Learning Library Services: Provisions of sufficient facilities related to digital equipment and tools to receive and access digital learning environment with the support of [6, 34]:

- digital platforms: designated digital space for e-learning consultations, digital reference collections
- online digital services, virtual libraries, and course management software
- Cultural competence, solving legal issues (related to language, international intellectual property rights, licensing, etc.

Standards for Libraries in Higher Education: The two forms of model, "Evidence-based model" and "Outcomes-based assessment model" have been influential in this context. ACRL (2018) [35] has provided specific guidelines, and "outcomes-based method to adopt the Standards" is a guiding force in the current scenario.

9. EVOLUTION AND CHANGE IN CURRENT EDUCATION ENVIRONMENT

The rapid changes in the last couple of months have accounted for continuous transformation in learning spaces for the young generation who grew up with the internet and the seamless access due to innovative support systems. Academic librarianship and research coincide with the constant expansion of learners' demands and academic libraries policies to exhibit and respond to dynamic trends in higher education with the following aspects [36]:

- a. Change agents
- b. Change management
- c. *Competition-collaboration continuum*
- d. *Accountability*
- e. *Agility*
- f. *Accessibility and IPR issues*

10. CONCLUSION

Understanding student perceptions of current digital library channels may help university library staff and academicians to support the higher education system. There is complexity like existing academic relationships among students, teachers, and libraries in the digital higher education environment, the mixed experiences and opinions about balancing the education and roles of university libraries in digital perspectives suggest keeping an eye continuously on researchers' information needs throughout an academic year. While the academic libraries have been responding to the changing social and economic impacts during the covid-19 effects, in the recent past, Harris (2018), talked that "libraries are therefore not isolated: they must exist, co-exist, compete and cooperate in an environment characterized by growing alternative information providers, technology, dwindling budgets, changes in higher education and student behavior and demands to articulate value." Understanding this [37] internal and external library environment is fundamental to academic libraries formulating strategy, decision-making, and strategic planning.

Academic librarians have faced confrontations with the challenge of redefining roles in virtual training adaptation in current times. Understanding changed societal needs is significant. The virtual environment is the common platform where self-services, awareness creation, and availing training for the correct ways of using digital ambience resources are possible. The higher education and learning environment is evolving due to library services' transformation with the intrinsic forces affecting libraries to deliver knowledge. The virtual learning scenarios and librarians' efforts are crucial for identifying and developing IPR and accessing skills among users.

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