



Beyond the Pages: Exploring Web 2.0 Proficiencies in LIS Professionals A PRISMA-Based Literature Review

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Abstract

This study conducts a systematic review of literature published in the last six years on web 2.0 skills and competencies for library professionals, adhering to PRISMA guidelines. The pertinent literature was obtained from two of the largest academic databases, ProQuest and Scopus. The 36 relevant studies that met the inclusion criteria were added. An evaluation of the quality of the listed studies was also carried out. The analysis is critical to understanding professionals' challenges with Web 2.0. Many broad conclusions have been formed from the chosen articles in addition to the review to highlight the salient aspects of the publications published during the previous six years. The integrated study highlights the benefits of Web 2.0 technologies for libraries and how they affect library workers. Because the digital ecosystem is changing quickly, LIS professionals must possess various Web 2.0 skills and abilities. Ensuring staff competency and proficiency becomes a critical responsibility of library administrators. These fundamental abilities include information literacy, digital reference, content curation, and social media management, and they go beyond the services provided by traditional libraries.

Keywords: Web 2.0 Proficiencies, LIS Skills and Competencies, LIS Professionals, Systematic Review, Library Services



Introduction

Library and Information Science (LIS) professionals must have Web 2.0 skills and capacities to function in the modern digital ecosystem. LIS professionals must adjust to users' shifting needs and technology's rapid advancement. The knowledge and experience of knowledgeable staff members make library resources user-friendly. Web 2.0 refers to the network as a platform that effortlessly connects all devices. It includes the discontinuous software and service development that improves as user interaction rises. It also includes combining and reinterpreting information from various sources, including the users themselves. The provision of data and services in a format conducive to reinterpretation by others, coupled with generating network effects through an "architecture of networks" (O'Reilly, 2004), characterizes the essence of Web 2.0.

Library 2.0 represents a user-centric online community in a digitally diverse and often egalitarian environment. While Librarians 2.0 are facilitators and a source of assistance, their primary role sometimes revolves around material development. Users collaboratively create resources in conjunction with librarians and among themselves. This model somewhat mirrors the online counterpart of a physical library, thereby establishing a virtual reality for libraries.

In the context of academic libraries, Maness (2006) observes that a library's web presence in Library 2.0 integrates with the company of its constituency, utilizing the same applications and technology employed by its community. Gichora and Kwanya (2015) also introduce Web 2.0 features through the acronym "SLATES."

- (i) **S for Search:** The platform's value is derived from how simple it is to obtain information using keyword search;
- (ii) **L for Links:** resources for vital bits of knowledge. The best pages are those that are linked to most;
- (iii) **A for Authoring:** the capacity to produce frequently updated information on a regularly updated network rather than only being the labour of a select few. In wikis, for example, users can undo and redo each other's work, making the material iterative. In blogs, user-generated content and comments are uploaded and amassed over time;



- (iv) **T for -Tags:** categorizing content by designating brief tags with one-word descriptors that make searching more convenient and do away with inflexible, pre-made categories;
- (v) **E for Extensions:** employing algorithms to automate some of the labour and match patterns and
- (vi) **S for Signals:** Through various communication methods, users are informed when content that interests them changes.” (Gichora & Kwanya, 2015)

Objectives of the study

- (i) Examine the benefits of incorporating Web 2.0 in library settings.
- (ii) Investigate the impact of Web 2.0 technology on both library professionals and users.
- (iii) Explore the obstacles library professionals encounter in adopting Web 2.0.
- (iv) Determine what competencies LIS professionals need to use Web 2.0.
- (v) Examine developments in the field of study over the reviewed literature years, including trends, patterns, and growth.

Methodology

To evaluate the published literature critically, this study employed a systematic literature review methodology with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines on Web 2.0 library services, emerging roles, challenges, and preferred collaborative tools. “PRISMA standards allow investigators to provide evidence-based items useful for systematically appraising published literature” (Moher et al., 2009). PRISMA looks at four components of a study: identification, screening, eligibility, and included studies. “Though it was originally designed for use in the healthcare professions, it has been demonstrated to be relevant in many other fields. PRISMA standards have been successfully employed in recent research in LIS to perform systematic reviews of scientific literature” (Ashiq et al., 2021).

Research Questions

- (i) What are the benefits of integrating Web 2.0 in libraries?
- (ii) How has Web 2.0 technology affected LIS professionals' collaborative resource sharing?



- (iii) How do users at the library benefit from Web 2.0 technology?
- (iv) What obstacles must LIS professionals overcome to implement Web 2.0?
- (v) What essential skills are required by LIS professionals to utilize Web 2.0 effectively?

Search Strategy

The initial search methodology involved a fusion of backward and forward citations and examining keywords used by authors in papers related to Web 2.0 skills and competencies. Our research used two primary indexing and abstracting databases: Scopus and ProQuest.

The search strategy incorporated keyword combinations such as "(Web 2.0 AND Libraries AND Advantages)," "(Web 2.0 AND Impact AND Library)," "(Web 2.0 AND Effects AND Users AND Library Professionals)," "(Web 2.0 AND Challenges AND Library Professionals)," and "(Web 2.0 AND Skills AND Library Professionals)" to retrieve pertinent literature. We curated academic library studies published from 2018 to 2023 that met specific criteria. Inclusion criteria comprised peer-reviewed original articles and studies addressing more than one aspect of the research or fulfilling at least two research objectives. Additionally, only research articles written in English were considered.

Synthesis of result

We used Microsoft Excel to display and synthesize the results methodically. This method entails systematically developing codes and descriptive topics. For this review, the findings from each study were retrieved and reported using MS Excel. After this process was completed, the relevant articles were written.

Risk of Bias and Criteria

Two unique strategies were used to increase the dependability of the search results and study methodology while minimizing the possibility of bias. First, we repeated the search and download method (first by the first author, then the second). In addition, we employed quality rating criteria to assess the selected publications. The second author repeated the search technique to check the study's accuracy and downloaded, extracted, and reported the results. The inclusion and exclusion criteria used for this study are as follows:



Inclusion Criteria:

- (i) Articles published between Jan 2018 - May 2023.
- (ii) Document type is article only.
- (iii) The study should cover at least two research questions.
- (iv) The study should be based on college, public, special and university libraries.
- (v) The article should be in English only.

Exclusion Criteria:

- (i) Non-English publications.
- (ii) Non- availability of full-text article.
- (iii) Studies cover only a single research question.

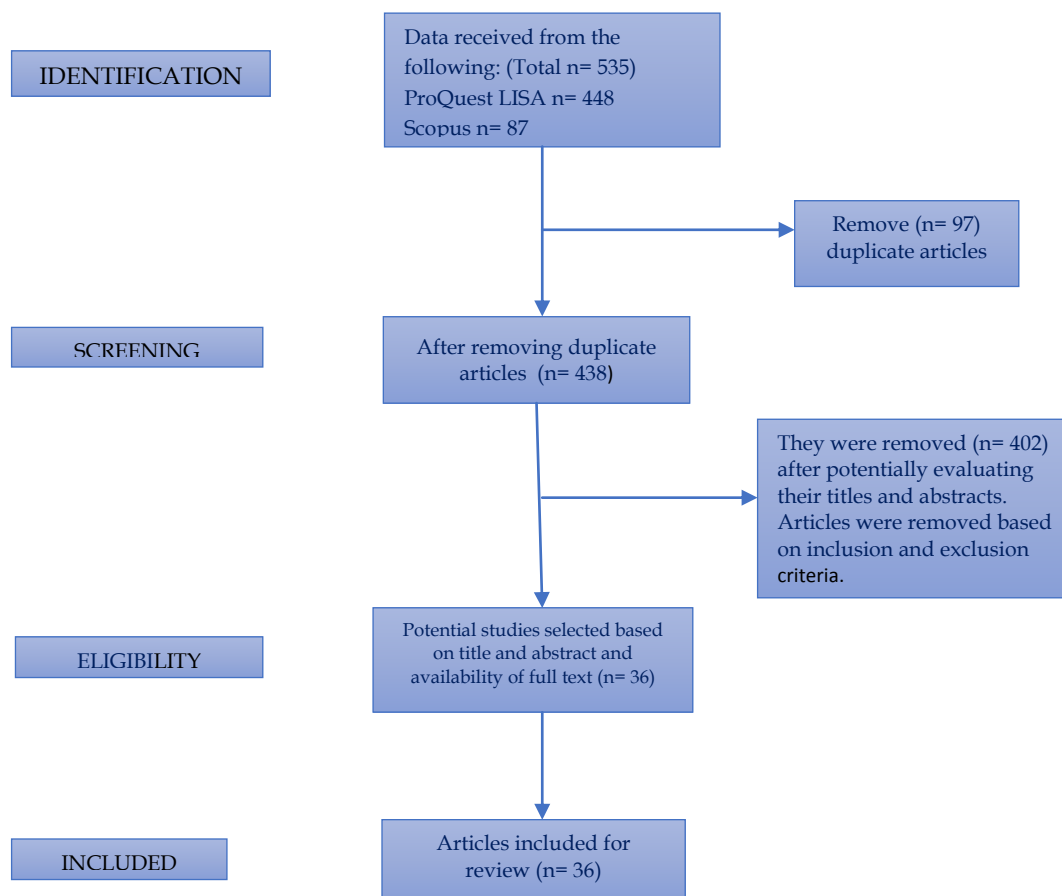


Fig. 1: Flow Diagram of PRISMA

n denotes the number of articles*

General Findings from the Review Articles

In this section, the authors have diligently distilled key insights from the thoughtfully selected articles under review. These observations are solely drawn from the bibliographic details of the chosen articles. It is crucial to highlight that although these analyses may resemble bibliometric studies to certain readers, the authors stress that they constitute straightforward examinations of specific bibliographic aspects. The authors wish to clarify that no bibliometric laws or indicators are applied in these analyses. Instead, they present a focused and simplified exploration of the selected articles' bibliographic information, providing a clear and concise perspective on the research landscape without delving into intricate bibliometric methodologies.

Authorship Trends in Selected Studies

Fig. 2 illustrates the distribution of authors in the chosen articles. The analysis indicates that a predominant number of selected articles were co-authored by two individuals (14 articles), followed by solo-authored works (10 articles) and collaborations involving three authors (7 articles). Additionally, four articles resulted from four author collaborations, while one exhibited a more extensive team effort with six authors.

Over the past five years, this observed authorship pattern underscores a prevailing trend of collaboration among authors in Web 2.0 skills and competencies within library studies. The dynamism of Web 2.0, facilitated by network and communication technologies, necessitates collaborative efforts to acquire the requisite skills, making collaboration a crucial aspect of this domain.

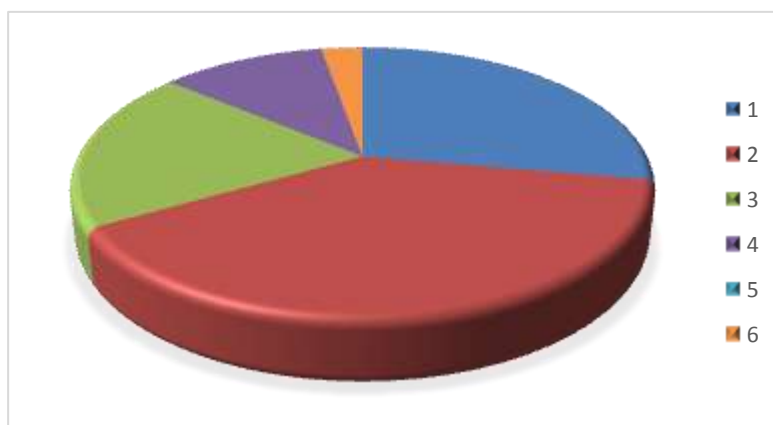


Fig. 2: Number of Authors in Selected Studies

Growth in Publications Over the Past Six Years

Fig. 3 illustrates the evolution of publications in Web 2.0 skills and competencies for library professionals over the last five years. The data reveals a concentration of articles in 2019 and 2021, followed by 2020 and 2022. The primary objective of examining publication growth is to convey to readers the trends within the research domain over the specified timeframe.

The observed trend indicates that many articles were published in 2019 and 2021, corresponding to the initiation and conclusion of the COVID-19 pandemic, respectively. This suggests a proactive response by library professionals, recognizing the importance of acquiring and implementing Web 2.0 skills and competencies to ensure uninterrupted service delivery during emergencies.

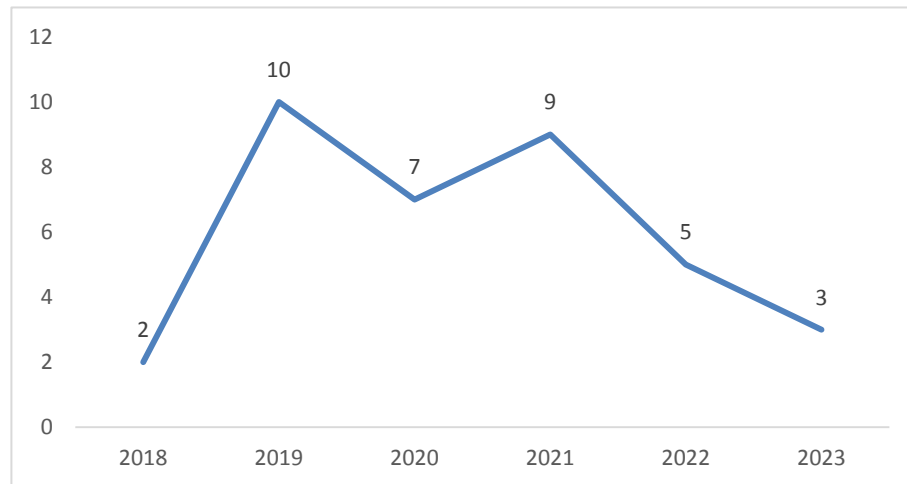


Fig. 3: Growth of Publications in the Last Six Years

Distribution of Chosen Articles Across Journals

Fig. 4 illustrates the allocation of selected articles across different journals. Library Philosophy and Practice emerged as the journal with the most articles, totalling 27. Following closely is the International Journal of Knowledge Content Development & Technology, which contributed two articles, while other journals featured one article each. The primary objective of scrutinizing the distribution of articles across various journals is to provide readers with key sources to access literature related to the chosen research area.

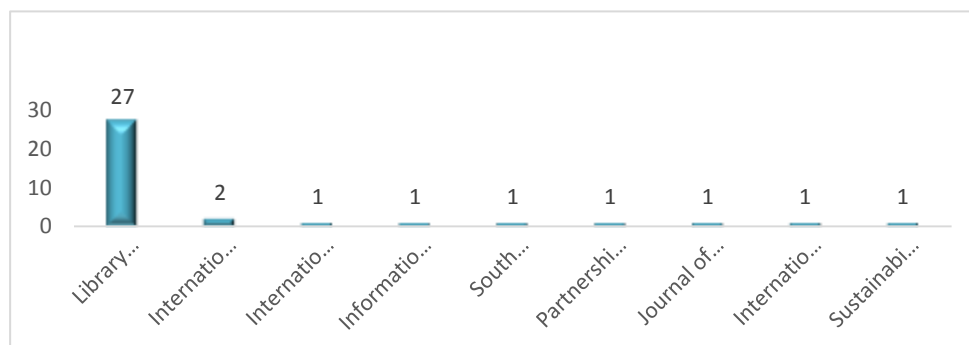


Fig. 4: Distribution of Selected Articles in Journals

Country-wise Distribution of Selected Articles

Fig. 5 depicts the countries where the selected articles have been published. The data reveals that Nigeria leads with 15 articles, followed by India with 10, Pakistan and South Africa with two

each. Additionally, Zambia, China, Hong Kong, Indonesia, and Iran each contributed 1 article. Ghana and Canada also have 1 article each in the distribution.

The main aim of analyzing the country-wise distribution of articles is to present the trend of Web 2.0 skills and competencies among library professionals of various countries before the readers. It can be seen from Fig. 5 that most of the articles on Web 2.0 skills and competencies are published in developing countries such as Nigeria, India, Pakistan, etc. Only two developed countries are on the list, i.e., Hong Kong and Canada. The LIS professionals in developed countries have already mastered Web 2.0 skills and competencies. Hence, LIS professionals from developing and developed countries should collaborate to facilitate the adoption of Web 2.0 skills and competencies at an even more rapid pace.

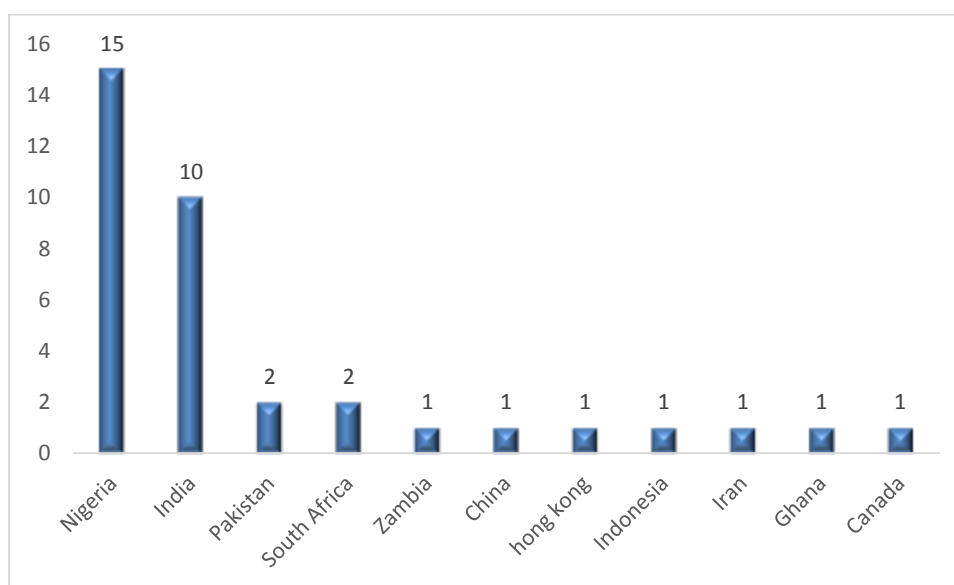
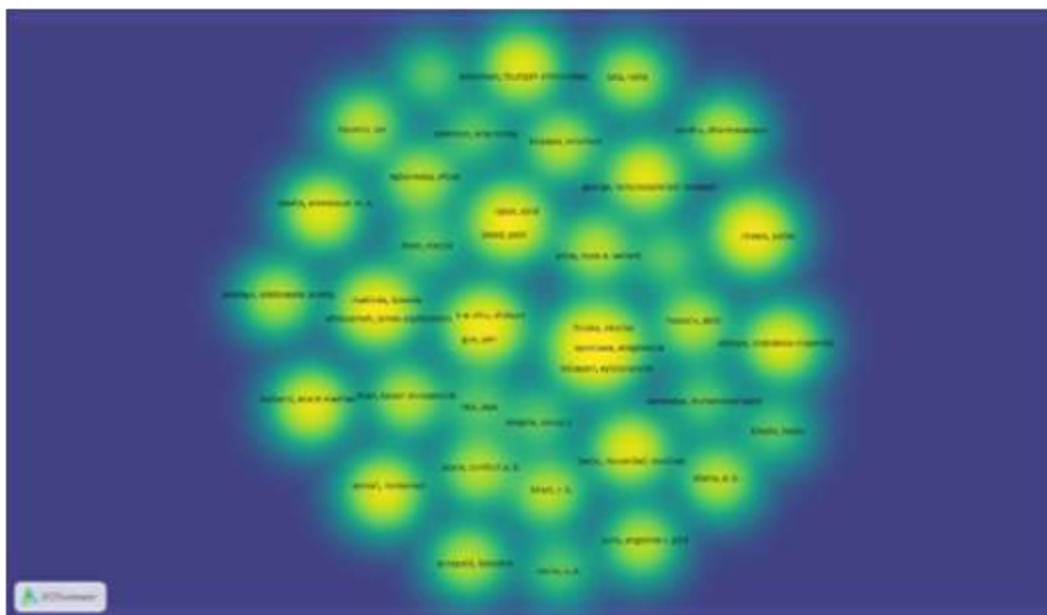


Fig. 5: Country-Wise Distribution of Selected Articles

Co-Authorship Trends in the Chosen Studies

Fig. 6 shows the co-authorship pattern among the authors in the selected article for the review. Fig. 6 shows that Okocha, Foluke; Aregbesola, Ayooluwa; Eyiolorunshe, Toluwani; Dickson, K W Chiu; Yan, Guo; Bosede, Makinde and James Aiyebelehin, Afebuameh are main authors that are working in the relatedness with each other.

The authors have yet to have any intentions of bibliometric analysis through Fig. 6. Rather, its sole purpose is to inform readers about the primary authors actively contributing to the field of Web 2.0 and its application in libraries. By providing visibility to these main authors, the aim is



to facilitate potential collaborations for individuals interested in research within the same domain.

Fig. 6: Co-Authorship Pattern in the Selected Studies

Keywords Co-occurrence Analysis

Fig. 7 presents the analysis of keyword co-occurrence within the selected articles. The illustration highlights that libraries employ social networks as the primary Web 2.0 tool. Notably, keywords such as Web 2.0, information professionals, and academic libraries are distantly positioned from each other, indicating a relatively lower integration of Web 2.0 tools in academic libraries by information professionals.

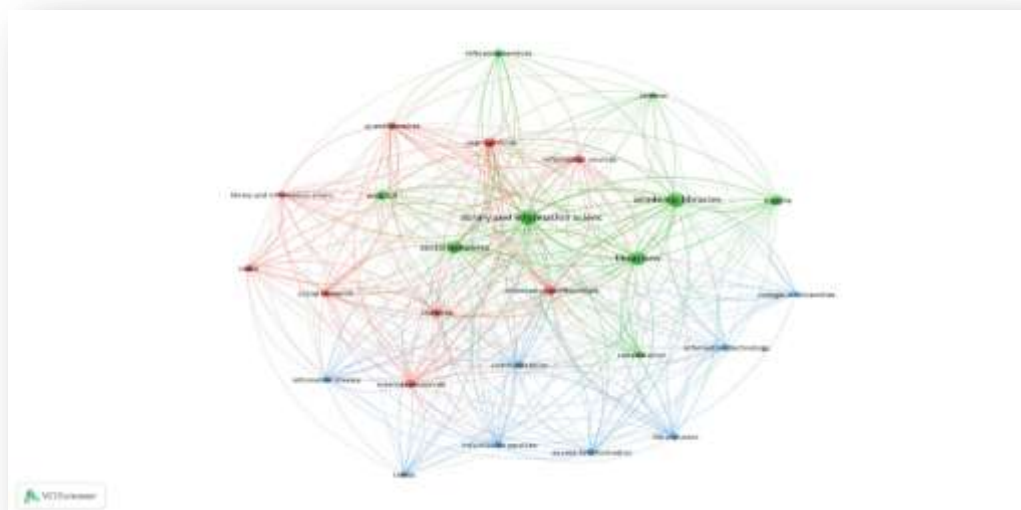


Fig. 7: Keywords Co-occurrence Analysis

Discussion

Advantages of Web 2.0 in Libraries

Libraries, traditionally spaces brimming with an array of books, embody the spirit of learning, exploration, and the joy of reading. Web 2.0 injects vibrancy into this environment, providing a touch of reality and fostering a globally interactive concept with numerous merits. The key strengths of Web 2.0 in libraries are manifold.

Its timely implementation using Information and Communication Technology (ICT) is a significant asset in the contemporary digital era (Asare & Holmer, 2021; Guo & Ho, 2022). Web 2.0 allows access to information and engages in multimedia communication, including images, videos, and voice calls (Akagha, 2021; Asare & Holmer, 2021; Rajan et al., 2022). Furthermore, as noted by Asare & Holmer (2021), Mogale & Bopape (2023), Joel et al. (2020), and Ranjan & Bhatt (2021), it enables users to publish, arrange, and distribute multimedia content on social media platforms like Instagram, Flickr, and YouTube.



Since Web 2.0 is intuitive, it allows users easy access to the collection and makes things simple and enjoyable (Asare & Malene, 2021; Kaladhar & Rao, 2020). It also helps enhance education and teaching (Abubakar, 2022). It is user-friendly, too (Pandey, 2019). Another benefit of Web 2.0 is providing location awareness and letting users know the location of resources in real-time. Web 2.0 promotes user participation (Asare & Marlene, 2021; Akagha, 2021; Jerome et al., 2019; Shah & Khan, 2019; Shehu & Singh, 2019; Susan Nnadozie, 2019).

Another distinguishing feature of Web 2.0 is its ability to help users complete activities quickly by utilizing clever tactics and productivity tools. It is all about users using the resources and sharing ideas, therefore Web 2.0 not only enables collaboration but also leads to innovative solutions and makes magic happen (Asare & Marlene, 2021; Akagha, 2021; Adetayo & Williams-Ilemobola, 2021; Afebuameh et al., 2020; Shehu & Singh, 2019; Ranjan & Bhatt, 2021). Promoting interaction is one of the other pros of Web 2.0 that fosters a sense of active learning through users' participation, which means conveying knowledge and ideas clearly to keep the conversation flowing with valuable info (Jerome et al., 2019; Afebuameh et al., 2020; Sonawane et al., 2021; Margam & Haumin, 2018; Susan Nnadozie, 2019). It also markets library services by highlighting the precious resources and benefits it offers (Jerome et al., 2019; Hussain & Jan, 2018). Another key that helps users become discerning thinkers and lifelong Learners is the promotion of information literacy by Web 2.0. It empowers them with the skills to navigate and access information (Jerome et al., 2019; Afebuameh et al., 2020; Sonawane et al., 2021; Anna & Srirahayu, 2020).

The Effect of Web 2.0 on Professionals in Libraries

Libraries use Web 2.0 technologies to communicate with patrons and offer services. An analysis of the chosen articles demonstrates how Web 2.0 has the potential to enhance library services greatly. In addition to providing top-notch services within the framework of Web 2.0 technology, libraries can engage with the public by integrating multiple social media and multimedia platforms. It is crucial to understand that to function in these dynamic Web 2.0 environments, library employees need to be highly competent. Their skills are essential for creating dynamic, captivating, and user-focused library environments and optimizing emerging technology usage.



Professionals must prioritize strengthening their leadership and organizational qualities to improve decision-making and social skills inside the organization.

Additionally, it is imperative to explore the potential of the most recent Web 2.0 intelligent technologies. However, the policies and types of material to be included in these tools need to be strategically planned for this research. Ultimately, user education becomes crucial to integrating Web 2.0 technologies in libraries, ensuring that users and staff fully utilize these state-of-the-art services. Library administrators should organize workshops and seminars to provide their staff with these essential skills to make this happen.

Web 2.0 Technologies Impact on Library Users

The information would previously be retrieved manually by users, but Web 2.0 has completely changed the landscape by introducing a gorgeous, contemporary touch of digitization. Patrons must have the requisite ICT abilities to use the library's ICT services and materials. Users must be capable of using ICT devices for resource management (Izevbekhai & Egharevba, 2020; Subaveerapandiyani & Sindhu, 2021). Web 2.0 uses modern technologies such as social networking, mobile applications, and online service provider checks (Uche & Udo-Anyanwu, 2019; Susan Nnadozie, 2019). It functions as a guiding hand provided by the library profession to users in their pursuit of information. It enables patrons to justify the purchase of documents or provide comments to the library.

It aids in forming communities of patrons who actively participate on the library profile page and use their contact (Stanley, 2019). Web 2.0 enables users to gather information from a variety of sources in order to create content and knowledge. It also aids in communication with other users and professionals and disseminating ideas (Stanley, 2019; Shah & Khan, 2019). Users can save time by using Web 2.0 to access and retrieve information. It also helps to reduce information overload (Stanley, 2019; Akagha, 2021). In the digital world, Web 2.0 is adaptable for users and LIS professionals. It assists the user in making the best use of available resources to save money (Stanley, 2019). Customers can stay in their comfort zone to explore and retrieve information of interest and use it as they see fit (Akagha, 2021).



Adoption Challenges of Web 2.0 by LIS Professionals

LIS professionals need help in adopting Web 2.0. It involves many problems, hurdles, or complexities to keep up with the changing environment. Users have insufficient skills in ICT needed to find, assess, and communicate information needed to guide and use accessible information resources (Izevbekhai & Egharevba, 2020). They have to check the frequency of utilizing ICT devices and e-resources. Library professionals also have the problem of recognizing the better ICT devices that users can easily use. They must assess their proficiency in ICT devices and e-resources (Izevbekhai & Egharevba, 2020; Jerome et al., 2019; Subaveerapandiyan & Sindhu, 2021). They must also distinguish the barriers to using ICT devices and e-resources (Jerome et al., 2019). They need help managing digital content files, expenditures related to the tools, and tutoring or training employees (Asare & Marlene, 2021). They should have the awareness and duty to obtain new skills and information about the application and utilize the ICT tools to allow them to support library services among the patrons (Ajayi et al., 2021; Subaveerapandiyan & Sindhu, 2021). LIS professionals may feel anxious about their incapability to continue with the current technological transformations. They may feel powerless in an environment where library professionals train and support patrons (Stanley, 2019).

Skills for Library Professionals to Use Web 2.0 Technologies

Employees serve as the lifeblood of an organization, anchoring their thinking and decision-making in rationality to ensure seamless operations. For library professionals to excel in their roles, they must undergo comprehensive education, continual re-skilling, and effective training (Khedri, 2023). Possessing patience and delivering efficient service to users are also crucial aspects emphasized by Stanley (2019).

Recognizing shared challenges, library professionals play a pivotal role in enhancing the utilization of the library website (Paterson, 2021; George et al., 2022). This involves proficiently managing information organization, resources, and services and implementing information tools and technologies. Strong social abilities are essential for effective interaction and collaboration (Sonawane et al., 2021; Raju, 2019). Library professionals must acquire knowledge to skillfully leverage various social media tools adeptly, catering to the expanding user base. Their



communication approach should be characterized by passion and eagerness, ensuring effective information dissemination. Social media competence is vital for identifying platforms beneficial to library users (Mogale & Bopape, 2023). Web 2.0 serves as a catalyst, empowering library professionals to integrate ICT technologies seamlessly with available resources (Khedri, 2023).

Conclusion

Web 2.0 abilities are critical in today's digital landscape. Individuals and professionals from diverse fields must acquire and perfect certain skills to navigate and succeed in this context, as the internet has evolved into a dynamic, interactive, and user-driven ecosystem. Students achieve more and perform better when online technology is used in teaching and learning. Because of Web 2.0 tools, the students feel more involved in their education, which makes them more satisfied. Their abilities and competencies determine teachers' ability to integrate web technologies. Because of the rapidly evolving digital ecosystem, LIS professionals must have broad Web 2.0 skills and abilities.

The study suggests that *library users will be very dynamic in their information needs and require dynamism in the services of the libraries. Library administration will play a significant role in making its staff skilful and competent. These skills span various subjects outside traditional library services, such as information literacy, digital reference, content curation, and social media management.* Using, navigating, and using the possibilities of digital technologies is no longer a choice for modern LIS professionals; it is a need. By acquiring and consistently developing these skills, LIS professionals can ensure effective information transfer, the preservation of digital resources, and the enhancement of user experiences, ultimately reaffirming the critical role of libraries in the digital era.



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