RESKILLING AND UPSKILLING LIBRARY PROFESSIONALS FOR THE FIFTH INDUSTRIAL REVOLUTION

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Abstract

This research focused on the need of reskilling and upskilling of library professionals in light of the new Fifth Industrial Revolution (5IR). The 5IR differs from its predecessors in that it combines sophisticated technologies with people-centered approaches that reshape the delivery of information services. To keep up with actual user demands, library personnel need to acquire new competencies and improve some of the existing ones. The paper, drawing from various literatures, discusses the level of readiness of professionals about digital literacy, training, technology adaptability, implementation obstacles, and the preparedness gaps. The review was carried out using a qualitative desk-based approach, relying on secondary data obtained from peer-reviewed journal articles, conference proceedings, and academic reports retrieved from reputable scholarly databases such as Google Scholar, ResearchGate, Semantic Scholar, and institutional repositories. These sources provided empirical and conceptual evidence on reskilling, upskilling, and technological adaptation within library practice. The available information shows that librarians are more cognizant of innovations in artificial intelligence, robotics, and other smart technologies, and many of them regard these innovations as enablers of greater inclusivity and qualitative service delivery. Still, inadequate funding, limited infrastructure, and skills gaps in the workforce obstruct effective adoption. The paper recommends intentional targeted capacity building, active professional development, and stronger institutional frameworks.

Keywords: Reskilling, Upskilling, Library Professionals, Fifth Industrial Revolution

Introduction

Library professionals today may be navigating one of the most transformative periods in the history of their profession, driven by the emergence of the Fifth Industrial Revolution (5IR). Unlike previous industrial revolutions that may not have be defined by mechanization, automation, and technological advancement alone, the 5IR distinguishes itself by blending technological innovation with human creativity, empathy, and ethical consciousness. Technologies such as artificial intelligence, robotics, and the Internet of Things may no longer be operating in isolation for they are increasingly being integrated into library services in ways that complement human expertise. This fusion may be reshaping how knowledge is created, shared, and accessed. As observed by Ibinaiye and Jiyane (2021), this new reality challenges librarians to rethink their roles and develop a broader range of competencies that will make them valuable contributors to both academic and societal development.

In this evolving landscape, reskilling and upskilling are no longer optional they have become essential for professional relevance. According to Nwobu, Dumbiri, Lbia, and Oladokun (2024) reskilling involves acquiring entirely new competencies to meet emerging responsibilities, while upskilling focuses on improving and expanding existing abilities to remain effective in a changing environment. Within the library profession, Tella, Bamidele, Olaniyi, and Ajani (2023) explained that this does not only entail strengthening digital literacy and data management capabilities but also extends to mastering advanced tools such as AI-powered discovery systems, virtual and augmented reality applications, and user behavior analytics. By incorporating these technologies, librarians can design and deliver services that are more personalized, efficient, and accessible to users. In the same vein, Singh, Bilal, Cox, Chidziwisano and Dinneen (2023) emphasized that continuous professional development acts as a bridge between traditional library practices and the rapidly evolving demands of the 5IR.

However, reskilling and upskilling may not be limited to mastering technology. They also require intellectual flexibility, ethical decision-making, and cross-cultural communication skills that are critical for navigating today's interconnected information environments. As individuals may be becoming more digitally engaged, libraries must reposition themselves as spaces of

empowerment, learning, and inclusion. This broader vision may recast librarians not just as technology facilitators, but as advocates for equitable information access and lifelong learning. Ekwueme, Oluwaseun, Ajie, Ofodu, and Ambrose (2024) further observed that developing adaptive and people-centered skills is essential to sustaining the social and cultural relevance of libraries in this new era. For such initiatives to succeed, institutional and stakeholder commitment is vital. Effective reskilling and upskilling programs require deliberate planning, consistent investment, and cooperation among universities, professional associations, and policy makers. Samuel and Moagi (2022) argued that libraries should design training programs that remain flexible enough to adapt to evolving technologies while aligning with the career aspirations of individual professionals. Similarly, Ajayi, Ojo, Oyeniyi and Otuyalo, (2024) maintained that participatory training models where librarians are treated as co-creators rather than passive learners tend to yield higher engagement and more lasting results.

Nevertheless, several challenges persist, especially in developing nations. Ayinde, Ajayi and Adedeji (2024) noted that many libraries continue to grapple with inadequate funding, infrastructural limitations, and resistance to change among staff accustomed to traditional methods. Without addressing these barriers, reskilling efforts risk becoming unsustainable. Ibinaiye and Jiyane (2021) also highlighted the importance of building institutional resilience to ensure that librarians are positioned as innovators rather than victims of technological disruption. In light of these realities, the present study seeks to examine the extent to which library professionals are reskilling and upskilling under the framework of the Fifth Industrial Revolution. It aims to explore how effectively librarians are adapting to emerging technologies, identify gaps in existing training systems, and recommend strategies that can promote continuous growth. By addressing these issues, the study hopes to contribute to the transformation of libraries from static information repositories into dynamic learning spaces— centers of innovation, creativity, and authentic human connection in a digital age.

Statement of the Problem

Library professionals are still at the heart of access to knowledge, research assistance, and the facilitation of lifelong learning in educational and public spaces. However, the dawn of

the Fifth Industrial Revolution (5IR) is transforming their work in ways no other previous industrial transition did. Different from earlier industrial transitions, which were predominantly technology driven, the 5IR is characterized by a conscious combination of sophisticated digital systems with human-centered principles. For librarians, this means that set practices are no longer sufficient; instead, they must acquire new skills through reskilling and upskilling in order to be capable of keeping pace with tools such as artificial intelligence, big data analytics, and other digital innovations.

Despite this imperative, the majority of libraries cannot effectively prepare their workforce. Professional development opportunities all too often come in the form of intermittent, outdated, or insufficiently aligned to address the requirements of today's environment. Institutional commitment is predominantly poor, and training frameworks do not produce the intensity of extension necessary for long-term reform. As such, there is a widening gap(s) which now prevails between skills needed to function optimally in the 5IR and available skills held by the majority of professionals. Not only is it reducing the ability of libraries to deliver superior services, but it also risks diluting their relevance in meeting the evolving needs of the users. Addressing this problem involves a deliberate reflection on how skills reskilling and upskilling initiatives can be redirected and embedded within areas that can support the library professionals' potential in the future.

Objectives of the Study

1. assess the current level of digital literacy and technical competence among library professionals in relation to the demands of the Fifth Industrial Revolution.

2. examine the types of training and professional development opportunities available for library professionals in emerging technologies.

3. identify the major challenges hindering effective reskilling and upskilling among library personnel in academic and public libraries.

4. strategies for improving reskilling and upskilling efforts to ensure library professionals are adequately prepared for the evolving needs of the Fifth Industrial Revolution

Conceptual Framework

The research reviewed the following concepts:

Reskilling

In today's library, with technological progress revolutionizing virtually every unit, possessing the ability to acquire new skills has been the difference between survival and growth. Reskilling, Samuel and Moagi (2022) observe, is not just about improving skills but acquiring an entirely new skillset that prepares one for work entirely different from existing activities. This typically happens when automation, digitalization, or organizational structure changes render existing skills redundant (Ajayi, *et.al.,* 2024). For instance, workers whose jobs are automated by artificial intelligence or machine learning may have to transition into areas such as cybersecurity, data analysis, or other technical-support roles (Singh, *et.al.,* 2023). Reskilling therefore continues to be critical to workforce resilience, reducing unemployment risks that technological disruption brings. In librarianship, Ekwueme, *et.al.,* (2024) saw that reskilling may involve the redeployment of indigenous cataloguers into positions like metadata analysis or digital asset management, reflecting the larger trend in the organization and retrieval of knowledge

Upskilling

Of a similar proximity to reskilling is upskilling, whose aim is skill development and upgrading of current skills within an individual's initial career. Contrary to reskilling, which prepares individuals for completely different objectives, Nwobu, *et.al.,* (2024) observed that upskilling helps specialists cope with incremental technological advancements and altered tasks. As Trang, et.al., (2023) note, upskilling makes specialists more relevant by delving deeper into new tools, systems, and techniques within their fundamental career paths. Tella, *et.al.,* (2023) highlight that this is a method of empowering lifelong learning and continuous professional development, which are necessary for productivity, innovation, and effectiveness. Upskilling, for librarians, might include mastering high-level cataloguing software, possessing

293

improved information retrieval competencies, or becoming skilled in user experience design to improve digital library services (Oseghale, 2023; Ayinde, *et.al.,* 2024). By embedding a culture of permanent self-development, upskilling benefits both the organization and the individual, creating libraries that are robust and responsive in rapidly changing environments (Ajayi *et al.,* 2024).

Library Professionals

Library professionals are at the cutting edge of information management, preservation, and access. Traditionally characterized by activities such as cataloging, circulation, and reference work, their work has exploded in the digital era. According to Ekwueme *et al.* (2024), today's librarians are increasingly involved in digital curation, data management, information literacy education, and technology-enabled delivery of service (Ayinde *et al.,* 2024). As digital infrastructures grow in educational and public libraries, the role of library staff today includes ensuring digital preservation, safeguarding information systems, and developing services with the user in mind (Oladokun, *et.at.,* 2023). Their expertise transform libraries into vibrant places for learning, creativity, and lifelong education. However, Nwobu *et al.,* (2024) believed that in order to work within the expanded roles, continuous upskilling and reskilling are essential. Fifth

Industrial Revolution

The Fifth Industrial Revolution (5IR) is a shift in the way that societies interact with technological progress. Rather than focusing on automation or efficiency alone, Noble, Mende, Grewal *et.al*., (2022) noted that it emphasizes how human values can augment digital innovation. As opposed to earlier phases, which centered on mechanization or digitalization, Ibinaiye and Jiyane (2021) asserted that the 5IR places on center stage ethics, sustainability, social welfare, and inclusivity alongside cutting-edge technology. In this era, Ekwueme *et al.* (2024) said, technological literacy must be blended with creativity, emotional intelligence, and ethical reasoning. Singh et al. (2023) and Samuel & Moagi (2022) also noted that the professionals must create hybrid competencies which combine technical skills with critical thinking. For librarians, Ayinde *et al.,* (2024) argued that this new environment offers

294

opportunities to use artificial intelligence to organize knowledge, design smart environments that predict user requirements, and tailor services for scholars and learners. In achieving this vision, Oladokun *et al.,* (2023) strongly believed it rests on purposeful investment in upskilling and reskilling, enabling library staff to leverage latest systems while yet possessing principles of equity and access.

Theoretical Framework

Dynamic Capabilities Theory (DCT) also known as the Teece, Pisano and Shuen theory of 1997, guided the study. The theory explained how organizations and individuals react to rapid changes by continually renewing their competencies and resources. It prioritizes flexibility, strategic learning, and innovation as the determinants of success in fast-changing circumstances. For library professionals working with emerging technologies and evolving user requirements in the 5IR environment, this model is particularly relevant. They are successful only to the degree that they reskill through acquiring entirely new capabilities and upskill through adding existing ones. Equally important is the support of the institution in the establishment of provision of continuous professional opportunities. Through facilitating flexibility and ongoing learning, the Dynamic Capabilities Theory is keen to indicate how librarians may remain ahead and impact in a time marked by disruptive change.

Review of Related literature

The literatures below were reviewed in alignment with the work:

Nwobu, *et.al.,* (2024) researched Libraries in the fifth industrial revolution: Skills and knowledge needed in preparing librarians for an unpredictable future and identified that 5IR technologies are reshaping information access, organization, and dissemination. The paper listed out both the opportunities and challenges presented by these changes to the profession. The study argued that librarian readiness is the key to navigating such complexities, arguing that the professionals must now work not only as information managers but as facilitators of digital literacy and guardians of ethical information use. Similarly, Ekwueme, *et.al.,* (2024) looked at the readiness of Nigerian academic librarians for open and distance learning settings.

295

Referring to feedback from National Open University of Nigeria employees, they learned that there were impressive levels of familiarity with 5IR technologies, where robotics was the best-known tool. Awareness levels varied depending on librarians' credentials and grade level, suggesting that qualifications and advanced training shape how professionals respond and make sense of technological change. Even though the participants viewed 5IR positively, especially in how it could enable inclusive and personalized services, the study also was interested in their ability to evaluate and select appropriate tools for practice.

In another perceptions, Ibinaiye and Jiyane (2021) explored the prospect of 5th Industrial Revolution and academic library services: Investigating the post-pandemic role of data science. The review found an explosion of scholarly interest in data science applications, including the opportunities created by 5G technologies. The study also noted that a majority of the studies are still centered around 2020 and that knowledge gaps exist in terms of how best libraries in new environments can integrate data science into their conventional information services. That conclusion justifies the need for further studies that emphasize regional variations in adoption and implementation. Ajayi, *et.al.,* (2024) surveyed the practice of professional development among librarians in Lagos State. The findings revealed that librarians were generally committed to staying abreast with new technologies, often by self-sponsored activities. Nonetheless, the study also recorded encountering significant challenges in sustaining such endeavors, which suggested that there are still deficient institutional support structures.

Ekwueme, *et.al.,* (2024) conducted a study on empowering librarians for the Fifth Industrial Revolution: Navigating skills, challenges, and strategies for effective library services in open and distance learning. The study provided a closer look at how librarians of open and distance learning are meeting the needs of 5IR. The survey revealed that the overwhelming majority of professionals are already in possession of collaboration and digital skills that enable them to effectively communicate with people and machinery. However, the study also acknowledged existing challenges such as erratic power supply and insufficient training opportunities. Ayinde, *et.al.,* (2024) revealed reimagining the competencies and roles of the information professional in the 5IR offered a broader discussion of changing roles for

information professionals within the 5IR. The study argued that while the Fourth Industrial Revolution highlighted automation and digitalization, the Fifth places greater emphasis on finding a balance between technological progress and human-oriented values. This transformation, they claimed, requires at once technical expertise and soft skills, supported by ongoing reskilling, upskilling, and even, as they term it, mega-skilling. The workforce is in support of the claim that librarianship, like other professions, must adapt anew if it is to remain relevant in a world where human machine partnership is becoming the norm.

Research Methodology

The study was qualitative in nature and involved desk research, drawing insight from other comparable literatures instead of designing a questionnaire and collecting data in the field. The selection of applying related literatures that is secondary sources such as journal articles, conference proceedings, and other scholarly articles was intentional, as it left space for a careful consideration of how library professionals are upskilled and reskilled to fit the needs of the Fifth Industrial Revolution (5IR). By reading and combining the work of other scholars like Nwobu *et al.* (2024), Ekwueme *et al.* (2024), Ibinaiye and Jiyane (2021), Ajayi *et al*. (2024), and Ayinde *et al.* (2024), it was able to identify common themes as well as pointing out where gaps lay that required research. These contributions offered scholarly evidence and discussions in fields of digital literacy, the development of technological skill sets, in-house training opportunities, and structural obstacles to library service innovation. The literature-based method thus guaranteed that the study charted both the positive impact realized and the obstacles impeding the successful preparation of library staff for the realities of 5IR, without being limited by the difficulties of field-based data collection. Findings in these studies were themed using thematic analysis.

Each publication was thoroughly read, and similar ideas were observed and collated into thematic themes that were aligned with the objective of the study. These were the prevailing levels of digital literacy and technological expertise among library professionals, the nature and scope of training courses and professional capacity-building measures, the key constraints and challenges affecting the dev elopment of skills, and the strategic actions needed to enhance

professional capacity in the evolving 5IR environment. Comparison was made across the different studies to determine areas of convergence, inconsistencies and gaps left by the earlier studies to be addressed by the present. This meant that the synthesis offers an evenly balanced, evidence-based, and broad picture of the subject.

Summary of indicative Findings and discussions on Upskilling and Reskilling of Library Professionals for the Fifth Industrial Revolution (5IR)

S/N	Key Findings	Description / Discussion
1	**High awareness of 5IR technologies**	The review showed that many librarians are already familiar with the main ideas behind the Fifth Industrial Revolution. Concepts such as robotics, automation, and artificial intelligence were commonly mentioned. This level of awareness appeared to grow with seniority and educational attainment, suggesting that experience and advanced study contribute to greater exposure to new technologies (Ekwueme et al., 2024; Nwobu et al., 2024).
2	**Positive perception toward 5IR adoption**	Most librarians expressed a hopeful attitude toward the introduction of 5IR technologies. They viewed these innovations as opportunities to create more inclusive and flexible learning environments, with content that can be tailored to individual users. In this way, new technologies are being embraced as tools for strengthening open and distance education (Ekwueme et al., 2024; Ayinde et al., 2024).
3	**Existence of skill gaps**	Despite the encouraging level of awareness, many library professionals still lack the technical skills needed to fully utilize advanced digital systems. This gap has made it difficult to apply new technologies effectively in daily library operations, leaving some innovations underused or poorly implemented (Nwobu et al., 2024; Ibinaiye & Jiyane, 2021).
4	**Barriers to professional development**	A number of practical barriers continue to limit librarians' ability to upgrade their skills. Poor funding, limited institutional commitment, and few training opportunities have slowed down efforts to strengthen professional competence and technological adaptation in the sector (Ajayi et al., 2024; Ekwueme et al., 2024).
5	**Infrastructure limitations**	In many developing contexts, libraries face serious infrastructural challenges. Unstable power supply, weak internet connectivity, and limited access to quality digital resources all restrict the ability of librarians to make full use of 5IR tools and services. These gaps have also affected the delivery of efficient, data-driven library operations (Ekwueme et al., 2024; Ibinaiye & Jiyane, 2021).
6	**Importance of**	Beyond technical know-how, human-centered abilities such as

	soft skills	adaptability, communication, teamwork, and ethical decision-making have become vital. These skills enable librarians to work effectively alongside intelligent machines and to maintain the human touch in service delivery (Nwobu et al., 2024; Ayinde et al., 2024).
7	**Adoption of a mega-skilling approach**	The findings highlighted the growing importance of a "mega-skilling" model, which combines reskilling, upskilling, and cross-skilling. This integrated approach helps librarians develop broader, more versatile competencies that support lifelong learning and long-term professional relevance in a fast-changing digital world (Ayinde et al., 2024).

Way Forward on the Major Challenges of Upskilling and Reskilling of Library Professionals for the Fifth Industrial Revolution (5IR)

The following recommendations are made based on the findings of the study:

1. Libraries should regularly evaluate staff digital literacy and provide targeted training in automation, artificial intelligence, and related 5IR technologies.

2. Institutions should expand professional development opportunities through workshops, online certifications, and partnerships with technology experts.

3. Libraries should address barriers such as poor funding, weak infrastructure, and limited institutional support that hinder effective reskilling and upskilling.

4. Sustainable strategies such as continuous learning, mentoring, and the mega-skilling approach should be adopted to ensure librarians remain competent and adaptable in the 5IR era.

Conclusion

The findings of this study make it evident that the future of librarianship is being reshaped by rapid technological advancement. Most library professionals are aware of the transformations brought about by the Fifth Industrial Revolution and have a positive attitude toward embracing them. However, this enthusiasm is often limited by skill deficiencies, inadequate institutional support, and infrastructural weaknesses that hinder full implementation.

To remain relevant in this evolving environment, libraries must view reskilling and upskilling as an ongoing necessity rather than an occasional exercise. Investing in digital competence, fostering a culture of lifelong learning, and embracing a balanced approach that values both human and technological contributions are key steps forward. By doing so, libraries can reposition themselves not merely as repositories of information but as active centers of innovation, creativity, and human–technology collaboration. Ultimately, reskilling and upskilling should be seen as continuous journeys essential strategies for ensuring that library professionals remain vital contributors in a world where human insight and digital intelligence increasingly work hand in hand.

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