



# Library staffing in the 4th Industrial Revolution: Skill-gap Analysis of library professionals

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Received: 25th April 2024 - Revised: 13th May 2025 - Accepted: 31st May 2025

DOI: <https://doi.org/10.4314/glj.v30i1.6>

## Abstract

*The skill-gap precipitated by the inadequacy of Library and Information Science (LIS) curricula to meet the skill requirements of employers in the Fourth Industrial Revolution (4IR) remains under-researched. Consequently, this study was carried out to ascertain the skill-gap between employers' skill requirements and skill coverage in library schools' curricula. To achieve this, the authors carried out content analysis of two major job websites (ALA JobLIST and Indeed) and four (4) library schools' curricula from 4 different countries, two (2) each from the Global North and Global South. The skill coverage was measured using 3-point likert scale with a criterion mean of 2.0, against which the average rating score (calculated mean) was considered. The study found that employers demanded more of soft skills, followed by leadership/ managerial skills, and then technical/ technological skills. The library schools' curricula analyzed revealed that soft skills and leadership/managerial skills were not adequately covered. However, technical/technological skills were adequately covered in the curricula. The study revealed a skill-gap with respect to soft skills and leadership/managerial skills. It concluded that library schools should train students in the light of current realities, periodically reviewing their curricula to cater for the changing skills requirement of employers in order to produce graduates that are employable, with high market value. The study contributes in providing a justification for revamping library schools' curricula in light of the changes in the skill expectations that characterizes the 4IR. The value of this study is reinforced by the current fluidity in the employment landscape of LIS profession.*

**Keywords:** Library and Information Science (LIS) education, Library professionals, Library school curricula, Skill-gap, Skills in librarianship

## Introduction

Over the years, scientific and technological developments have prompted a paradigm shift in the way things are done, with drastic effect on the economy and the society at large. These developments stimulated drastic changes across all strata of the societal and has been dubbed as Industrial Revolution (IR). There has been a transition from the First IR which started in England around late 18th century and ended early 19th century (Mohajan, 2019), to the Fifth IR which is a notion for the next stage of industrialization

(Musarat et al., 2023), and signifies a human-machine collaboration (Ziatdinov et al., 2024). Today's society is heavily experiencing the wave of the Fourth IR (4IR) which according to Datta (2023) is from 2010-present, characterized by digital convergence and Artificial Intelligence (AI). This wave has caused social, cultural and economic changes that affect people's pattern of living and the operational structure of organizations.

The 4IR has transformed today's workplace, with the propensity to increase productivity and achieve organizational goal. According to Musarat et al. (2023),

the 4IR is aimed at digitizing industrial process, transforming it into an intelligent process which introduces new prospects to industries, and increases operational effectiveness and efficiency. However, this revolution is considered as a disruption to the conventional operations in workplace, as such, the technologies that define this revolution is considered as disruptive innovations, which has implications for workforce skill.

The Global Challenge Insight Report hinted on this disruption when it reported that the 4IR would significantly impact job creation and displacement, increase labour productivity and widen skill-gaps (World Economic Forum, 2016). Thus, this transformative era introduces critical adjustment in employment pattern and management of human resources, as well as stimulates proactive thinking in bridging the skill-gap of workforce especially in service-oriented industries like libraries.

Libraries have embraced the ideology of the 4IR given their adoption of IR 4.0 technologies in their service delivery processes. These sophisticated technologies adopted by libraries include robots, Internet of Things (IoT), big data, 3D/4D printing, cloud computing, augmented reality, sensor technology, Internet of Service (IoS) and Cobots (Akpobasah et al., 2022). The IR 4.0 adoption and deployment in libraries has created a gap in the skillset of library personnel and raises the question of skillset expectations for library personnel. This aligns with the opinion of Hussain (2020) that the 4IR will affect library staffing by making some library personnel redundant and necessitate the replacement of staff with those who possesses the needed skills. There is therefore the need to open dialogue on the skillsets expectations for library personnel towards equipping them for relevance in the 4IR. This corroborates the analysis of the World Economic Forum (2016), portraying the need for dialogue with industry leaders on addressing the challenges of industry-specific talents in the 4IR.

Moreover, the LIS curricula of universities have been criticized for inadequately preparing LIS professionals for the 21st century work realities. That is, LIS education and training programme do not have robust curricula covering the skills required by employees to meet the job descriptions in library workplace. In the light of this, Katuli-Munyoro and Mutula (2016) averred that the skill-gap precipitated by the inadequacy of LIS curricula to meet the skill requirements of employers in the 4IR remain under-researched.

This study therefore carried out an analysis of contents on library staffing with regards to staff skilling precipitated by the ever changing service demands in the 4IR. First, the study examined the job requirements for library staff in the 4IR. To achieve this, the study examined some recent library job advertisements from around the world and x-rayed the knowledge or skill requirements emphasized by employers of labour in the job advertisements. The study also accessed the current skills expected to be resident in the cognate domain of LIS professionals based on their educational programmes. From the skills expectations of employers and skills inculcated on professionals based on the LIS curricula, a skill-gap analysis was carried out.

### Literature Review

The 4IR has introduced a new way of thinking and doing things with the aim of boosting efficiency and productivity. This paradigm shift has altered the conventional practices in workplaces including libraries. Among other things, it has changed users' expectation of libraries and conversely evolved the pattern of library service delivery and the skills required for the delivery of library services. As the roles of libraries continue to evolve in the 4IR (Isiaka et al., 2024), there is need for LIS professionals to equip themselves with new skills that aligns with the changing roles and expectations to keep them relevant amidst the revolutions been experienced.

In the 4IR, new information and knowledge are created and the jobs of LIS professionals are redefined demanding new skills for increased productivity (Ayinde & Kirkwood, 2020). Whilst the 4IR has introduced advanced technologies like AI into the library system, LIS professionals require technological skills to put them into productive use. However, these technologies cannot perform certain jobs that require human traits and interpersonal abilities which reinforce the need for new skills in the 4IR (Hawksworth et al., 2018). Thus, the need for LIS professionals to develop new knowledge and skills cannot be overemphasized.

LIS professionals are currently in a dynamic work environment that stimulates continuous learning and skill development (Hallam & Ellard, 2015). This calls for professionals to train and retrain themselves in order to meet up with the skill expectations of the 4IR (Ayinde & Kirkwood, 2020; Baldwin, 2019), and also meet up with the skill requirements of employers of library workforce (Okorie, 2024; Emenari et al., 2023). These employers are challenged with the obligation of ensuring they recruit LIS professionals with the right

competence and emerging skills that matches the specified job description (Hallam & Ellard, 2015), and that will deliver effective services in a fast changing work environment (Singh & Pinki in Lalhlimpuii, 2022). However, acquiring these skills is a challenging endeavor for LIS professionals (Ayinde & Kirkwood, 2020), which could be as a result of the deficiency in their training programme,

According to Katuli-Munyoro and Mutula (2016), the inadequacies of LIS education is reflected in the lack of employability skills by the graduates, and the possession of these skills will be determined by the nature of LIS education and training programmes. This implies that LIS education has the capacity to address employability issues of professionals through a deliberately tailored curricula that meets the expectation of the 21st century workplace. Pasipamire (2014) opined that LIS curricula and workplace skill requirement mismatch is common in developing countries. This mismatch can be addressed by curricula review aimed at equipping LIS graduates with the skills required to succeed in the ever changing LIS workplace (Abubakar, 2021). Therefore, skilling upskilling and reskilling are critical factors in striving in the current employment landscape which is constantly evolving.

The 4IR stimulates fluidity in workforce that requires the acquisition of more skills that meets the demands of the era. As such, Li (2022) noted that future-ready workforce should commit to reskilling and upskilling in the 4IR and beyond. The author noted that what used to be required as workplace skill is continually being replaced, and as such, it is recommended that educational curricula aligns with Industry 4.0 skills. The current LIS curricula do not seem to adequately meet the skill expectations of the 4IR. LIS schools have been criticized for producing graduates without the required skills to meet the job requirement of the 21st Century (Katuli-Munyoro & Mutula, 2016; Pasipamire, 2014). Katuli-Munyoro and Mutula (2016) hinted that this criticism is as a result of LIS graduates' lack of requisite skill for effective performance in their jobs. This strengthens the need to examine the relationship between LIS curricula and the skills possessed by LIS professionals germane to the delivery of effective and efficient library services.

The skills that are required by LIS professionals in the 4IR are dynamic and vary from one job description to another. However, these skills are variously categorized based on authors' discretion and professional judgment. Some of the skills needed by workforce in this current dispensation include "complex problem

solving, critical thinking, creativity, management of people, coordinating others people, emotional intelligence, judging and making of decisions, service orientation, negotiation, and cognitive flexibility" (Gleason, 2018 p.229). In the library workplace, the key skills and competences required in the 4IR are categorized by Nonthacumjane in Abubakar (2021 p.63) to include "personal skills (analytical, creative and flexibility), generic skills (communication, critical thinking, and information literacy), and discipline-specific skills (metadata, digital archiving, content management and database management)". World Economic Forum in Abdullahi, Jabor and Akor (2020) listed some of the skills required by employers in the 4IR, for which curricula of higher institutions must take into considerations, include "critical thinking, complex problem-solving, coordinating with others, people management, judgment and decision-making, emotional intelligence, negotiation, cognitive flexibility, and service orientation" (p. 2638). Most of these skills are considered to be soft skills, also referred to as people skills, because it influence people's interaction within an organizational setting, invariably determining the achievement of organizational goals.

In the context of librarianship, Abubakar (2021) affirmed that skills in seeking, processing and using information [technical skills] are required to be addressed by LIS curricula given the new information environment. However, when there is a discrepancy or variation between the skills required by employers of library workforce and the skills possessed by LIS professionals through educational and training programmes, it leads to a skill-gap. According to Mahadeva Prasad and Gangadnara (n.d), the less emphasis on soft skills in LIS curricula creates skill-gap between the skill required by employers and skill resident in the cognate domain of the professional. By implication, the inability of LIS curricula to inculcate the required skills into professionals in training can translate into skill-gap.

The study of Choi and Rasmussen (2009) carried out a job analysis to examine skills that are required for Digital Librarian position. Their study showed that employers are looking at a mix of soft skills, managerial skills and technical skills to fill up such position. It was noted that LIS jobs market is increasingly demanding professionals to possess these skills to thrive in the modern workplace. Specifically these skills include project management skills, teamwork skills, adaptive skills, communication skills, managerial skills, technological skills (like programming skills,

application skills, software skill). Choi and Rasmussen further noted that these new skill requirements prompt changes in the curricula of LIS schools and necessitates continuing development programs. The need for soft skills in library workplace in the 4IR was also emphasized by Monyela (2021). The author also reiterates the need for educational institutions to tilt their curricula to reflect the trends in knowledge and skill requirements in order to provide LIS students with adequate skills required for future jobs.

## Methodology

The study employed content analysis to identify the skills required in the current 4IR and also identify skills covered in LIS curricula. Consequently, two contents will be analyzed in order to achieve the aim of the study, contents containing jobs advertisements and LIS curricula. In analyzing job advertisements, two major job websites (ALA JobLIST and Indeed), were considered. The rationale for selecting these Job advertisement websites is because of their universal coverage and the need to have one discipline-based job website and one generic job website. For the discipline-based job website, the American Library Association (ALA) JobLIST (<http://joblist.ala.org/>) which is ALA's major resources that aggregates library related jobs across American and the profession, was analyzed. For the generic job website, the study examined job adverts posted on Indeed (<https://www.indeed.com/>), a global job seeking website. The analysis was carried out to have a glimpse of the knowledge/skill requirements for library jobs around the globe. The search on these websites was made on the 16th of September, 2024 and only adverts that were still open at the time of the search were considered.

Accessing the current skills generally possessed by library personnel could be quiet challenging and laced with social desirability bias; hence, the need to examine some LIS curricula to give an idea of the skill that library schools could inculcate on library professionals. Consequently, four (4) library schools' curricula were considered from 4 different countries, two (2) each from the Global North and Global South. These schools were randomly selected based on four (4) inclusion criteria. First, they must be public universities which are often characterized by greater diversity and broader educational landscape. Secondly, their training curricula must be available and accessible online for transparency. Thirdly, they must offer LIS at both undergraduate and postgraduate levels. Lastly, the university's name must reflect its geographical

location, in the broadest term possible.

These schools are named School A (A University in America – Named: University of Washington), School B (A University in England – Named: University of Sheffield), School C (A University in Indian – Named: University of Delhi) and School D (A University in Nigeria – Named: University of Nigeria). Since the content analysis focused on concepts (conceptual content analysis) as explicitly used in the contents, the authors merely categorized the skills into broad themes following the Global Skills Taxonomy of World Economic Forum (2024). The identified themes were entered into an excel sheet and codes within each themes were extracted from the content, documented and scored based on their frequency in the content.

The skill coverage was made in three-point likert scale of adequate coverage (AC), moderate coverage (MC) and no coverage (NC) with scores ranging from 3 to 1 respectively. The analysis of documented data was done descriptively using mean scores (average ratings). The three-point likert scale gives a criterion mean of 2.0 against which the decisions were made.

## Presentation of Results

This section presents the findings from the contents analyzed based on the sequence of a skill-gap analysis. That is, the results for employees' skill requirements were presented. Subsequently, the skills covered in the various Library Schools' curricula were documented, and then the discrepancies which formed the skill-gap were established.

### *Employees' Skill Requirement for library Staff in the 4IR*

This section x-rayed the skill requirements emphasized by employers of labour in library jobs advertisements in order to have a 'real-life' glimpse on employees' skill requirements for library professionals in the 4IR. The authors considered core library jobs posted in the ALA JobLIST website within 7 days, that is, 9th to 16th September, 2024. Within this timeframe, 8 library job offers were posted as seen in the Part A of Table 1 below. Whereas Part B of the same Table contained 7 library job adverts posted within the same timeframe in Indeed website.

Table 1: Skills Required by Employers in Job Advertisements

S/N	Institution	Position	Skill Requirement
<b>Part A</b>			
1.	University of North Carolina School of the Arts Library	University Librarian	Management skills (like budgeting, fiscal management, strategic resources allocation) and soft skills (leadership and communication skills).
2.	East Stroudsburg University	Electronic Resources librarian	Communication skills, critical thinking skills, ability to learn new technologies and use application software like Word, Excel and Teams
3.	Converse County Library	Library Director	communication skill and managerial including fiscal management, planning, public relations and personnel supervision
4.	Douglas County Libraries, Colorado	Director of Customer Experience	Leadership and functional expertise skills, team coordination, strategy and business planning skills, supervisory and talent modeling skills.
5.	Appalachian State University Belk Library	Electronic Resources Librarian	E-resource management skill, collaboration skill, negotiation skill and scholarly communication skills.
6.	Atlanta University Center Robert W. Woodruff Library of the AUC	Content Strategist Librarian	Content management skills, soft skills (communication and collaboration skills), technological skills (integrated library systems and data analysis tools) and management skills (budgeting and resources management).
7.	Texas A&M University	Curator of Maps Librarian	project management skills, collections management and digital tools or platforms (e.g., ArcGIS, Spotlight, StoryMaps, Mapbox)
8.	Contra Costa County Library	Librarian 1	Soft skill (writing and oral communication skills, critical thinking and decision making skills, relationship skill), stress management, adaptability and technological skills (electronic hardware and software applications).
<b>• Part B</b>			
9.	University of South Wales	Faculty Librarian	Interpersonal and communication skills, information literacy skills, understanding of the needs of library users and an interest in technological developments in libraries

10.	Kings' College School	Assistant Librarian	Information resources organization and management skill, relation skills and users' support skills
11.	Stanford University	Research Communications Librarian	databases and research software skills, research data management skill, relation skills, proficiency in research impact software and tools, communication skills, proficiency in emerging technologies
12.	George Washington University	Research Service Librarian for Undergraduate Research	Oral and written communication skills, Interpersonal relationship skills, project management,
13.	University of Pittsburgh	Research Data Librarian	Interpersonal communication skills, Team playing, research data management, proficiency in managing dataset repositories.
14.	Syracuse University	Electronic Services Librarian	Professional grade software programs such as Photoshop and Adobe Acrobat Pro; knowledge of WordPress, web content management systems, digitization standards for institutional repositories, emerging technologies, electronic resources management using integrated library system, verbal and written communication skills, interpersonal relation skills.
15.	American International College	Information Literacy Librarian	Information literacy skills, supervisory skills, collaborative working,

Source: Authors' Compilation

The Table 1 showed 15 recent job adverts extracted from two major job advertisement platforms in a view of ascertaining the knowledge/skill required by employees in the 4IR. First, it was noted that almost all the job adverts required applicants to have a minimum of Master degree in LIS (MLIS) which could indicate the relevance of a professional degree in developing the required knowledge and skills for effective library service delivery in the 4IR. It was also revealed that most library job adverts are specialized, that is, these offers are met to fill a particular area of responsibility within the library service structure.

It can be extrapolated from Table 1 that employers of labour in the library sector seems to demand more of soft skills, in addition to the core competency areas related to the position been advertised. The 15 job adverts considered all had soft skills requirement, this was more emphasized for middle to top level managerial positions. These soft skills cut across communication skills, interpersonal skills, critical thinking skills, collaboration skills and supervisory skills. The technical and technological skills required for most of these job adverts were related to the specific responsibilities or tasks within the scope of the job been advertised. These technical and technological skills include research data management skills, information literacy skills, application software skills, metadata skills and emerging technologies skills.

### ***Potential skills possessed by library personnel from the Curricula Standpoint***

The Table 2 contains skills extracted from table 1 based on the requirement of employers and the extent to which these skills are covered in the Syllabus (Bachelor's and/or Masters' degree) of the 4 universities under consideration. These skills are classified under soft skills, technical/technological skills and leadership/

managerial skills; and there levels of coverage in the syllabus are therefore presented in Table 2 below.

*Table 2: Library Schools' Curricula Coverage of Required Skills*

<b>Skill Category</b>	<b>Specific Skills</b>	<b>Average Rating by Skill</b>	<b>School A</b>	<b>School B</b>	<b>School C</b>	<b>School D</b>
Soft Skills = 1.4	Communication skill	2.0	AC	MC	MC	NC
	Critical thinking skill	1.3	MC	NC	NC	NC
	Collaboration skill,	1.3	MC	NC	NC	NC
	Interpersonal relation skills	1.5	MC	MC	NC	NC
	Team playing skill	1.5	MC	MC	NC	NC
	Adaptability skill	1.0	NC	NC	NC	NC
	Users' support skill	1.3	MC	NC	NC	NC
Leadership/Managerial Skills = 1.5	Decision making skill	1.5	MC	MC	NC	NC
	Supervisory skills	1.3	MC	NC	NC	NC
	Negotiation skill	1.3	MC	NC	NC	NC
	Fiscal management skill	2.0	MC	MC	MC	MC
Technical/Technological Skills = 2.0	Content management skills	1.5	MC	NC	NC	MC
	Project management skill	1.5	AC	NC	NC	NC
	Information literacy skills	3.0	AC	AC	AC	AC
	Integrated library system	1.5	NC	NC	AC	NC
	Hardware and software skills	2.0	NC	MC	AC	MC
	Emerging technologies	2.0	MC	MC	AC	NC
	Electronic resources management	1.8	MC	NC	MC	MC
	Research (data) management skill	2.5	AC	MC	MC	AC
	Information resources organization and management skills	3.0	AC	AC	AC	AC
	Scholarly communication skills	1.5	MC	NC	NC	MC
<b>Average Rating by Institution</b>			<b>2.1</b>	<b>1.6</b>	<b>1.7</b>	<b>1.5</b>

Key: AC = Adequate Coverage (3); MC = Moderate Coverage (2); NC = No Coverage (1)

Source: Authors' Compilation

Table 2 shows the presence of required skills (in Table 1) on LIS curricula of the institutions under consideration. AC is allotted to skills that have significant coverage on the curricula, or for which a specific course outline within the curricula is dedicated to. MC is allotted to skills which are moderately, partially or

sparsely covered or as a minor discourse within a particular course in the curricula. NC is allotted when nothing about the skill can be found within the courses on the curricula.

From the average rating by skills, when all participating universities are considered together, only technical/technological skills met the criterion mean point of 2.0 on a three point likert scale. This implies that technical/technological skills were adequately covered in the LIS curricula. Soft skills and leadership/managerial skills were below the criterion mean which implies that they were not adequately covered. By implication, LIS graduates could lack soft and leadership/managerial skills, which will make them unsuitable for job offers in the 4IR.

In terms of average rating based on institutions, only School A trains their students with the curriculum

that meet the skill requirements of employers of labour. This has implication for restructuring the LIS curricula in a bid to meet the skill requirements of employers in the 4IR. Moreover, the curriculum of School A can become a benchmark for revamping LIS curricula across the globe.

### ***Skill-Gap and Possible Intervention***

Skill-gap is often considered as the difference or variance between the skills that employers are looking for and the skills that the employees possess or are likely to possess. Thus, the priority of skills as emphasized in the job advertisements were matched with the skills that library schools prepare LIS professionals for as reflected in their curricula. Possible interventions that could fill identified gaps were put forward as contained in Table 3.

**Table 3: Skill-gap and intervention**

<b>Skills</b>	<b>Employer's Skill Requirement level</b>	<b>Possible skill possession level</b>	<b>Gap</b>	<b>Intervention</b>
Soft Skills	High	Low	✓	Curriculum restructuring and continuous professional development.
Leadership/Managerial Skills	Moderate	Low	✓	Curriculum restructuring and continuous professional development.
Technical/Technological Skills	High	High	X	N/A

Source: Authors' Compilation

The Table 3 revealed the presence of skill-gaps in soft skills and leadership/managerial skills among LIS trainees. This is as a result of the deficiency of library schools' curricula in meeting the skill requirements of employers. The curricula do not seem to have appropriate coverage of the soft skills and leadership/managerial skills expected of workforce in the 4IR. Conversely, the curricula adequately cover technical/technological skills as no gap was identified. By implication, these schools have curricula that address the technical/technological skills that are required to perform in the library workplace. In order to fill the identified skill-gap, there is need for restructuring of the current LIS curricula in order to adequately cater for soft skills and leadership/managerial skills. Also, LIS professionals are expected to vigorously engage in continuous professional development in order to acquire the skills needed by employers of labour and increase their employability in an ever-changing work environment.

### **Discussion of Findings**

On the skills required by employers in job advertisement, the analysis revealed that library employers are looking for employees with the specific skill(s) required to function optimally and achieve the library's objectives. This corroborates the assertion of Ayinde and Kirkwood (2020) when they affirmed the relevance and indispensability of skills in the information profession. They emphasized that these skills ensures optimal

resource utilization and enable the adaption of best practices in achieving the library's objectives. Similarly, Hussain (2020) averred that the world is now desirous of more human skills compared to technology skills.

In line with the finding of this study, task-specific job advertisement like that of a Research Management Librarian position will require technical competence/skill in the core area related to the position been advertised (research management). For instance, Koltay (2019) insinuated that with the academic libraries focus on data, librarians with skills in data management, research data services and digital preservation are required to manage the increasingly complex research data. As such, advertising for the position of Research Management Librarian will require professional with these requisite skills. However, in addition to such core technical skill, Ibinaiye & Jiyane (2021) advised that such position also require digital technology skills. Thus, a proper blend of soft skills, leadership skills and technical/technological skills are essential to effective library service delivery.

On library schools' curricula coverage of skills required by employers, the content analysis shows that soft skills and leadership skills are critical requirements in libraries. This aligns with the position of Omagbemi (2022) that soft skills and leadership/managerial skills are core competencies for LIS professionals to survive in the 4IR. This skill revolution is affecting the way LIS education is delivered (Abubakar, 2021). The author opined that this revolution has prompted library schools to offer diverse/joint degrees, new curricula offerings, changes in market place expectation for LIS graduates as they now require new skills and competence to be relevant in the scheme of things. Although library schools are adjusting their curricula to meet the expectations of employers in the 4IR, there is still poor coverage of these skills in most LIS curricula (Pasipamire, 2014), which calls for concern in the current employment landscape.

The analysis identified skill-gaps in soft skills and in leadership/managerial skills. In agreement with the findings of this study, Pasipamire (2014) affirmed that library schools' curricula do not properly cover the competency areas required by employers. The author further noted that proper or adequate coverage of competencies constituted 32%, inadequate coverage constituted another 32% while the remaining 36% was for competencies not covered at all. In response to this curricula deficiency, Katuli-Munyoro and Mutula (2016) asserted that the academic transcripts of LIS graduates do not show that they have acquired

employability skills in their educational programme, which is an issue of major concern.

The study revealed that soft skills and leadership/managerial skills are considered the missing pieces in LIS curricula which undermine the curricula's ability to effectively prepare LIS trainees for the 21st Century workplace. The under-emphasis on soft skills and leadership/managerial skills could be due to the difficulty in teaching these skills and assessing them. Saunders and Bajjaly (2022) affirmed that even when soft skills are integrated into LIS education; it is often done using passive rather than active learning approaches. Also, lack of periodic update of the existing curricula, poor interest among stakeholders and transitory nature of LIS education are possible reasons why these skills are missing from LIS curricula (Malik, 2021). This skill-gap has implications for reevaluating LIS curricula and the approaches/strategies for impacting such skills in the classroom context.

Moreover, through continuous professional development, library personnel can upskill and reskill in a bid to acquire requisite skills and remain relevant in the 4IR. This corroborates LIASA (2021) and Moonasar (2024) when they noted that continuous professional development equips LIS professionals with the relevant competencies and skills required for optimal job performance.

## Conclusion and Recommendations

Library employers are in constant search for professionals with the proper blend of skillset required for effective library service delivery and optimal job performance. This has particularly been challenging due to the gap between the skills that employers are looking for and those covered in library education and training programmes of most institutions. This creates a skill-gap that demands urgent intervention. In this current dispensation where human-centric approach is critical to the effective delivery of library services, soft skills have become essential to a forward-thinking curricula in the 4IR. These skills are expected to provide excellent personal touch to library service delivery for satisfactory user experience. Meanwhile filling the identified gap in leadership/managerial skills is a stride towards building library personnel's capacity to achieve organisational success.

Based on the findings and conclusion of the study, the following are recommended:

- i. Library schools should periodically update their curricula in the light of current realities, accommodating courses that transfer soft skills and

leadership/managerial skills to professionals.

ii. Library schools should develop in their curricula, active learning strategies for delivering courses on soft skills and leadership/managerial skills.

iii. Employers of labour in the library sector should periodically organize continuing professional development (CPD) for upskilling and reskilling of staff to cater for the skill deficiencies in their training curricula.

iv. As a way of personal development, library personnel should consciously engage in reflective exercises that strengthen their soft skills and leadership/managerial abilities.

v. Library Professional Associations should develop training toolkits on soft skills, and leadership/managerial skills for enhanced capabilities.

### Limitations

There are methodological weaknesses or flaws in the study that the authors would like to account for. These flaws are considered as the study's limitation which weakens its power of generalization. First, the use of only four universities' curricula and two job advertisement websites could lead to generalization bias. Using few sampling units for the study was due to resource constraints. As such, the contents analyzed in the study are not representative samples of the entire contents available. This makes it difficult to generalize that all LIS curricula are deficient in soft skills, and leadership/managerial skills.

Although inclusion criteria were established to achieve the sampling units, choosing only four library schools' curricula for the study would imply the possibility of excluding other universities which met the criteria. The absence of randomization therefore introduces selection bias to the study. In addition, since the study is a conceptual content analysis, frequency of words was used for the analysis, increasing the subjectivity of the findings. These limitations are expected to provide directions for future research related to the skill-gap analysis of library professionals.

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