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The Impact of Library 4.0 Adoption on the Organisational Climate of Academic Libraries: Evidence from Lagos State, Nigeria

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Abstract

This study investigates the influence of Library 4.0 adoption on organisational climate of library professionals in public universities in Lagos State, Nigeria. A quantitative research approach was adopted using total enumeration sampling of 191 library professionals across four public universities: University of Lagos (UNILAG), Lagos State University (LASU), Lagos State University of Education (LASUED), and Lagos State University of Science and Technology (LASUSTECH). Data were collected through a structured questionnaire and 156 valid responses were analyzed using descriptive and inferential statistics, including regression analysis. Findings revealed a moderate to high level of Library 4.0 use among library professionals (aggregate mean = 2.98), with perceived usefulness scoring highest (mean = 3.16) and actual usage lowest (mean = 2.89). Organisational climate was highly positive (aggregate mean = 3.19), with strong person-job fit (mean = 3.43) and person-organisation fit (mean = 3.18), but weaker person-group fit (mean = 2.96). Regression analysis demonstrated that Library 4.0 use significantly and positively influences organisational climate ($R = 0.551$, $R^2 = 0.304$, $\beta = 0.551$, $p < 0.001$), accounting for 30.4% of the variance in organisational climate. The study concludes that increased adoption of Library 4.0 technology contributes significantly to a positive organisational climate among library professionals. However, while technological adoption and role alignment appeared strong, attention should be directed toward improving interpersonal and collaborative group dynamics within the university libraries.

Keywords: Library 4.0 Adoption, Organisational Climate, Academic Libraries, Technology Acceptance, Library Professionals.

Introduction

The advancement of digital technologies has significantly reshaped the work environment and organisational climate of library professionals through enhanced communication, collaboration and knowledge exchanged mechanisms. (Ajie, 2019; OLatokun & Njideka, 2020). Rapid technological evolution has transformed traditional library operations and contributed to the emergence of Library 4.0, a concept derived from Industry 4.0 that emphasizes automation, artificial intelligence (AI), and interconnected smart systems (Limwichitr, 2024). Library 4.0 represents a paradigm shift from conventional library services toward digitally enhanced, user-centred, and data-driven service models that leverage emerging technologies to improve accessibility, user engagement, and operational efficiency (Almeida & Tavares, 2021). Consequently, libraries are evolving from traditional information repositories into intelligent environments that actively support learning, collaboration, and innovation (Bakare, 2023).

The library 4.0 technologies examined in this study include generative artificial intelligence, cloud computing, social networking platforms, and mobile technologies. The integration of these technologies into library operations extends beyond transforming information access and service delivery; it also influences employees' work experiences, interactions, and perceptions of their organisational environment. Since technology adoption affects both information systems and user behaviour, it is important to assess the extent to which users accept and utilize technological innovations (Adekeye & Odunlade, 2025). One of the most widely used frameworks for understanding technology adoption is the Technology Acceptance Model (TAM).

Developed by Fred Davis in 1986, TAM explains and predicts users' acceptance and use of technology. The model proposes that users' perceptions influence their willingness to adopt and use technological systems, making it highly relevant for examining Library 4.0 use among library professionals in public university libraries in Lagos State, Nigeria (Adeyemi & Akinyemi, 2021). The model focuses on constructs such as perceived usefulness, perceived ease of use, behavioural intention to use, actual system use, and user satisfaction, which are essential indicators for assessing Library 4.0 use (Limwichitr, 2024; Riyadi, 2020).

Organisational climate refers to the shared perceptions, attitudes, and experiences of employees regarding their work environment, leadership, institutional policies, and interpersonal relationships (Bonacci et al., 2020). Unlike organisational culture, which reflects deep-rooted beliefs and values, organisational climate focuses on employees' perceptions of workplace

conditions that influence behaviour, job satisfaction, and institutional effectiveness (Nugroho et al., 2020). The theoretical framework underpinning organisational climate in this study is the Person–Environment (P–E) Fit Model, derived from Kurt Lewin's proposition that behaviour is a function of both personal characteristics and environmental factors (Ishak et al., 2023). Within the library context, the P–E Fit Model suggests that compatibility between individual attributes and workplace conditions contributes to favourable organisational outcomes. Specifically, alignment between librarians' competencies, values, and needs and the organisation's culture, resources, and work demands may foster a positive organisational climate. Conversely, a mismatch may contribute to stress, reduced job satisfaction, and lower organisational commitment. Key dimensions examined through this model include person–organisation fit, person–group fit, and person–job fit (Level & Mach, 2015).

Statement of the Problem

The increasing integration of digital technologies in academic libraries has accelerated the transition toward Library 4.0, characterized by the use of intelligent and interconnected technologies to enhance library service delivery and operational efficiency. Although these technological innovations have transformed library practices globally, their successful implementation depends not only on technological infrastructure but also on organisational factors that influence users' acceptance and engagement. Organisational climate, reflected in workplace relationships, institutional support, and employees' perceptions of their work environment, may significantly shape the adoption and effective use of emerging technologies among library professionals.

However, despite growing scholarly attention to digital transformation in libraries, empirical studies examining the relationship between Library 4.0 use and organisational climate among library professionals in Nigerian academic libraries remain limited. Existing studies have focused largely on technology adoption, digital competencies, or service delivery outcomes, with less attention given to how organisational climate may influence or interact with the use of Library 4.0 technologies. This gap is particularly evident within public universities in Lagos State, where the extent of Library 4.0 use and its implications for organisational climate remain insufficiently explored.

The limited understanding of this relationship may hinder efforts to create supportive organisational environments that facilitate technological integration and improve workplace experiences among library professionals. Therefore, there is a need to investigate the effect of Library 4.0 use on organisational climate among library professionals in public universities in Lagos State, Nigeria.

Research Questions

This study will answer the following questions:

i. What is the level of Library 4.0 adoption among library professionals in public universities in Lagos State, Nigeria?

ii. What is the Organisational Climate within academic libraries in public universities in Lagos State?

Hypothesis

H_o1: There will be no significant influence of Library 4.0 adoption on the Organisational Climate within academic libraries in public universities in Lagos State.

Literature Review

This section reviews relevant conceptual, theoretical, and empirical literature related to the major variables of the study. The review is organized around key themes including Library 4.0 adoption, organisational climate, and the effect of Library 4.0 adoption on organisational climate in academic libraries. The purpose is to provide a comprehensive understanding of the concepts, theoretical foundations, and existing empirical evidence relevant to the study, while identifying gaps in the literature that justify the present investigation.

Library 4.0 Adoption

The impact of emerging technologies continues to shape everyday life and redefine the future direction of academic libraries (Alala et al., 2024). The twenty-first century has witnessed unprecedented technological advancement, making activities once considered impossible increasingly achievable. Human interactions, communication, and information exchange are now facilitated through digital environments supported by emerging technologies that provide platforms for innovation and dynamic service delivery (Bakare, 2023). These technological transformations have significantly altered information creation, access, and dissemination processes, leading to the emergence of more intelligent and interconnected systems across sectors, including libraries.

One of the outcomes of this digital transformation is the emergence of Library 4.0, a concept derived from the Fourth Industrial Revolution and inspired by Industry 4.0 principles. Library 4.0 is an advanced service model that integrates technologies such as artificial intelligence (AI), the Internet of Things (IoT), big data, blockchain, and augmented or virtual reality (AR/VR) to improve user experience, automate processes, and support smart knowledge management (Limwichitr, 2024). The concept reflects the transition of libraries from conventional information centres into smart, connected, and user-centred environments that leverage digital technologies to improve accessibility, operational efficiency, and user engagement (Almeida & Tavares, 2021). Key characteristics of Library 4.0 include user-centredness, accessibility and inclusivity, collaboration, integration of emerging technologies, and data-driven decision-making processes (Adekeye & Odunlade, 2025).

Among the technological innovations underpinning Library 4.0 are artificial intelligence, cloud computing, social networking technologies, and mobile technologies. These technologies support the delivery of innovative library services and create opportunities for collaboration, communication, and enhanced professional practice among library personnel.

Artificial intelligence refers to a branch of computer science focused on creating systems capable of performing tasks that ordinarily require human intelligence, such as learning, language understanding, pattern recognition, problem-solving, and decision-making (Alala et al., 2024). In academic libraries, AI facilitates services such as intelligent information retrieval, virtual reference systems, recommendation systems, chatbots, and automated decision-making tools. The recent advancement of generative AI applications such as ChatGPT and other chatbot systems demonstrates the growing potential of AI to support library operations and service delivery (Adetayo & Williams-Ilemobola, 2021).

Another important component of Library 4.0 is cloud computing, which evolved from distributed computing and database technologies to provide internet-based computing services (Aiyebelehin et al., 2020). Cloud computing enables users to access computing resources such as servers, storage systems, databases, software, and analytics services remotely through internet platforms. In academic libraries, cloud-based services facilitate access to journals, e-books, and Online Public Access Catalogues (OPACs), while enhancing scalability, flexibility, and cost-effectiveness. Examples of cloud-based library service platforms include WorldCat, Summon, Google Docs, Polaris Library Systems, Scribd, and the Online Computer Library Centre (OCLC). The adoption of cloud computing enhances knowledge sharing, connectivity, openness, and continuous service accessibility in academic libraries (Aiyebelehin et al., 2020).

Social networking also constitutes a significant component of Library 4.0. Derived from the concept of networking, it involves creating and sustaining relationships for communication, collaboration, and information sharing. Within the library profession, social networking refers to the use of digital platforms and online communities to facilitate interactions among librarians, information professionals, and other stakeholders (Chewe et al., 2020). These platforms support professional networking, collaborative research, advocacy, and continuous professional development (Adeyemi & Akinyemi, 2021).

Platforms such as Facebook, LinkedIn, Instagram, X (formerly Twitter), YouTube, TikTok, WhatsApp, and Threads provide opportunities for librarians to connect beyond geographical boundaries and remain informed about emerging developments within the profession. These platforms support the exchange of ideas, dissemination of information, and strengthening of professional communities among library personnel (Adetayo & Williams-Ilemobola, 2021).

Organisational Climate

Organisations are structured entities established by individuals who work collectively toward achieving shared goals and objectives (Riyadi, 2020). These entities may exist as companies, institutions, associations, or government agencies, each operating within defined structures and systems. To achieve organisational goals effectively, organisations create internal environments that shape employees' attitudes, behaviours, and interactions. This internal environment is often reflected through organisational climate.

The concept of organisational climate originated from the work of Lewin, Lippitt, and White in their studies on social climate and was further grounded in Lewin's Field Theory in Social Science. Organisational climate has been described as a set of measurable characteristics of the work environment perceived directly or indirectly by employees and capable of influencing their motivation and behaviour (Bonacci et al., 2020). It reflects employees' shared perceptions of workplace conditions and experiences and serves as an important indicator of how individuals interpret and respond to their organisational environment.

Unlike organisational culture, which focuses on deeply embedded beliefs and values, organisational climate captures employees' perceptions of day-to-day workplace realities, including leadership practices, communication patterns, institutional support, interpersonal relationships, and recognition systems (Nugroho et al., 2020). These perceptions collectively shape employees' attitudes toward their organisation and influence how they perform their roles.

Within academic libraries, organisational climate assumes particular importance because libraries consist of professionals working within structured environments characterized by policies, operational procedures, and institutional goals. The increasing influence of digital transformation and emerging technologies has further altered workplace interactions and responsibilities among library and information science (LIS) professionals (Ishak et al., 2023). Consequently, creating a supportive organisational climate becomes essential for coordinating activities, facilitating collaboration, and promoting effective service delivery.

Organisational climate plays a critical role in influencing employee performance through its effects on motivation, job satisfaction, morale, and workplace engagement (Nugroho et al., 2020). Employees who perceive their work environment positively are more likely to demonstrate commitment, collaboration, and productive behaviours, whereas negative perceptions may result in reduced engagement and poorer performance outcomes (Olatokun & Njideaka, 2020). Therefore, organisational climate not only shapes employees' experiences but also determines how effectively they perform their duties and contribute toward organisational objectives.

Effect of Library 4.0 Adoption on Organisational Climate in Academic Libraries

The integration of Library 4.0 technologies within academic libraries extends beyond improving service delivery and operational efficiency; it also has implications for workplace experiences and organisational dynamics. Emerging technologies increasingly shape how library professionals interact, communicate, collaborate, and perform their responsibilities. Consequently, the adoption of Library 4.0 technologies may influence employees' perceptions of their work environment and contribute to the development of a positive organisational climate. Technology-enabled work environments often foster flexibility, innovation, and collaborative engagement, all of which are important dimensions of organisational climate.

One mechanism through which Library 4.0 influences organisational climate is the automation of routine and repetitive tasks. Adekeye and Odunlade (2025) argued that Library 4.0

technologies enable library professionals to redirect their efforts from routine transactional activities toward higher-value responsibilities such as research data management, digital scholarship support, and advanced information literacy services. This shift may promote greater professional autonomy and empowerment, as professionals experience increased control and decision-making capacity over their work activities. To support this transition, the authors proposed an integrated competency development framework that combines cognitive, technical, and socio-emotional learning dimensions.

Library 4.0 technologies also facilitate collaboration and communication within academic libraries. According to Limwichitr (2024), cloud-based collaboration platforms and integrated communication systems help break traditional departmental barriers by promoting interaction across functional units. Findings from a study involving eight academic libraries in Thailand revealed improvements in cross-functional teamwork, joint problem-solving, and knowledge sharing practices. These outcomes contributed to a collaborative organisational climate characterized by mutual trust and stronger interpersonal relationships. The findings further suggest that technology-enabled collaboration tools can enhance social cohesion when implemented alongside effective change management practices.

Furthermore, the implementation of real-time analytics systems and integrated library management platforms contributes to organisational transparency and role clarity. Such technologies provide library professionals with access to performance information and service outcome indicators that clarify expectations and align individual responsibilities with institutional goals (Parry, 2018). Research on integrated library system adoption in South African public universities similarly demonstrated that technologically mature library systems enhance workflow transparency and strengthen role definition, thereby reducing uncertainty within the work environment.

Overall, the literature suggests that Library 4.0 technologies can positively influence organisational climate by enhancing professional autonomy, strengthening collaboration, improving communication processes, and creating more transparent work environments. However, evidence within Nigerian academic libraries remains limited, indicating the need for further investigation into how Library 4.0 adoption affects organisational climate among library professionals in public universities in Lagos State.

Theoretical Framework

This study is grounded in the Technology Acceptance Model (TAM) and the Person-Environment (P-E) Fit Model. Technology Acceptance Model (TAM) is an information systems theory that models how users come to accept and use technology (Adeyemi & Akinyemi, 2021). It enables prediction of users' acceptance of technology based on measurement of their intentions and the ability of those intentions regarding attitudes, subjective norms, perceived usefulness, perceived ease of use, and related variables. First introduced by Davis, TAM is based on the Theory of Reasoned Action (TRA). Technology Acceptance Model (TAM) main objective is to understand users' motivation to adopt specific

technologies. The theory posits that a person's intention to adopt a particular information technology is guided and determined by two distinct beliefs: perceived ease of use (PEoU) and perceived usefulness (PU) (Limwichitr, 2024).

The Person-Environment (P-E) Fit Model examines the relationship between an individual's characteristics and their environment (Ishak et al., 2023). Its history is rooted in early 20th-century vocational counselling, with the concept of congruence first introduced by Frank Parsons in 1909. According to P-E fit theory, people have innate needs to seek fit between the external environment and personal demands. The person and the environment not only directly affect individual outcomes but also interact with one another to influence these outcomes. Individuals tend to seek out and create "fitting" environments that allow them to manifest their personalities. P-E fit theory has been applied in several digital technology studies and has demonstrated positive organisational outcomes, such as organisational commitment and improved task performance (Ishak et al., 2023).

Methodology

This study adopts a quantitative research approach to investigate the influence Library 4.0 adoption on the organisational climate within academic libraries in public universities in Lagos State, Nigeria. The population for this study comprised all library professionals (both academic and non-academic staff) working in the four public universities in Lagos State, Nigeria, namely, University of Lagos (UNILAG), Lagos State University (LASU), Lagos State University of Education (LASUED), Lagos State University of Science and Technology (LASUSTECH). The total population of this study consists of 191 library professionals working in public universities in Lagos State, Nigeria. The sampling procedure used for this study is total enumeration since the study consists of only 191 Library professionals. A structured questionnaire titled Questionnaire on Library 4.0 Adoption and Organizational Climate among Library Professionals in Public Universities, Lagos State, Nigeria was the primary research instrument for data collection.

Validity and Reliability of Research Instrument

Validity is the degree to which an instrument measures what it is supposed to measure. The research instrument was evaluated for content and face validity. The reliability of the research instrument was measured through a pre-test. The researchers administered the research instrument on thirty (30) library personnel from Osun State University, Osogbo who were not part of the original study. The responses were analysed to determine the Cronbach alpha value of each section of the scale at 0.05 level of significance. The results showed that the instrument is highly reliable as the Cronbach alpha value of 0.871 was recorded after the pre-test. The breakdown also showed that each of the scales are reliable with the following results Knowledge Sharing scale – 0.719; Library 4.0 adoption scale – 0.876; and Organisational Climate scale 0.903 respectively.

Method of Data Collection

Using total enumeration where every member of the population is included, the data collection methods was comprehensive, systematic, and accurate to capture information from all participants. This study used a structured set of closed-ended questions designed to collect information on Library 4.0 Adoption and Organisational Climate among Library Professionals in Public Universities, Lagos State, Nigeria. Descriptive and inferential statistics was used to analyse the data. Specifically, descriptive analysis such as frequencies, percentages, mean, and standard deviation was used to analysis the demographic data and research questions

Data Presentation and Discussion

Data Presentation

Table 1: Demographic Distribution of the Respondents

Item	Frequency	Percentages
Male	82	52.6
Female	74	47.4
Total	156	100.0
Age		
20 – 30	44	28.2
31 – 40	26	16.7
41 – 50	50	32.1
51 and above	36	23.1
Total	156	100.0
Highest Qualification		
Diploma	12	7.7
HND	12	7.7
B.Sc/BLIS	28	17.9
PGD	9	5.8
M.sc/MLIS	88	56.4
PhD	7	4.5
Total	156	100.0
Designation		
Library Assistant	10	6.4
Library Officer	6	3.8
Higher Library Officer	11	7.1
Senior Library Officer	16	10.3
Librarian II	72	46.2
Librarian I	25	16.0
Senior Librarian	10	6.4
Principal Librarian	6	3.8
Total	156	100.0

Years of experience		
1 - 5	36	23.1
6 – 10	24	15.4
11 – 15	43	27.6
16 – 20	26	16.7
21 – 25	12	7.7
26 – 30	12	7.7
31 – 35	3	1.9
Total	156	100.0

Source Fieldwork 2025

Table 1 presents the demographic distribution of the respondents. The findings reveal that out of 156 respondents, 82 (52.6%) were male, while 74 (47.4%) were female. This shows a relatively balanced gender distribution with a slight male dominance. The age distribution of the respondents indicates that the largest group of respondents were 41–50 years (50; 32.1%), followed by those within 20–30 years (44; 28.2%). Respondents aged 51 years and above constituted 36 (23.1%), while those in the 31–40 years category made up 26 (16.7%). This distribution suggests that a significant proportion of library personnel fall within the middle-aged bracket, with a reasonable presence of younger staff who represent the future of the profession.

In terms of academic qualifications, the majority of respondents held a Master's degree (M.Sc./MLIS) with 88 (56.4%). This is followed by those with a Bachelor's degree (B.Sc./BLIS) with 28 (17.9%). Smaller proportions were recorded for Diploma (12; 7.7%), HND (12; 7.7%), PGD (9; 5.8%), and PhD (7; 4.5%). This indicates that university libraries in Lagos Metropolis are staffed with highly qualified professionals, with more than half possessing postgraduate-level education. The table also shows that the largest group of respondents were Librarian II (72; 46.2%), followed by Librarian I (25; 16.0%), and Senior Library Officers (16; 10.3%). Other designations included Higher Library Officer (11; 7.1%), Senior Librarian (10; 6.4%), Library Assistants (10; 6.4%), Library Officers (6; 3.8%), and Principal Librarians (6; 3.8%). The dominance of respondents in the Librarian II category suggests that the majority of staff are in the entry-to-mid professional level.

In term of Years of Experience, the results show that the largest group of respondents had 11–15 years of experience (43; 27.6%), followed by 1–5 years (36; 23.1%), 16–20 years (26; 16.7%), and 6–10 years (24; 15.4%). Smaller proportions had 21–25 years (12; 7.7%), 26–30 years (12; 7.7%), and 31–35 years (3; 1.9%). This distribution suggests a healthy mix of early-career and mid-career professionals, with a moderate number of highly experienced staff.

Table 2: Level of Library 4.0 Adoption among Library Professionals in Public Universities, Lagos State, Nigeria

Library 4.0	VH	H	L	VL	Mean
Perceived Usefulness (PU)					
The use of library 4.0 tools help me in sharing of knowledge	54 (34.6%)	75 (48.1%)	25 (16.0%)	2 (1.3%)	3.16
The use of library 4.0 tools makes it possible for me to successfully complete tasks faster	62 (39.7%)	72 (46.2%)	17 (10.9%)	5 (3.2%)	3.22
The use of library 4.0 makes it easier for me to share knowledge	53 (34.0%)	77 (49.4%)	18 (11.5%)	8 (5.1%)	3.12
From all indications, library 4.0 is useful for sharing knowledge	53 (34.0%)	75 (48.1%)	26 (16.7%)	2 (1.3%)	3.15
Average Mean					**3.16**
Perceived Ease of Use (PEOU)	**VH**	**H**	**L**	**VL**	**Mean**
It is easy for me to interact with Library 4.0 tools	55 (35.3%)	51 (32.7%)	48 (30.8%)	2 (1.3%)	3.02
It is easy for me to get information using library 4.0 tools	46 (29.5%)	71 (45.5%)	26 (16.7%)	13 (8.3%)	2.96
It is easy for me to understand my interaction with the library 4.0 use	40 (25.6%)	74 (47.4%)	33 (21.2%)	9 (5.8%)	2.93
From all indications, library 4.0 tools are easy for me to use	53 (33.9%)	81 (51.9%)	20 (12.8%)	2 (1.3%)	3.19
Average Mean					**3.03**
User Intention (UI)					
I use library 4.0 for my personal academic work	63 (40.4%)	54 (34.6%)	37 (23.7%)	2 (1.3%)	3.14
I use library 4.0 tools to share knowledge among my colleagues	54 (34.6%)	45 (28.8%)	37 (23.7%)	20 (12.8%)	2.85
I use library 4.0 tools only for socialisation	33 (21.2%)	55 (35.3%)	40 (25.6%)	28 (17.9%)	2.60
I use Library 4.0 tools to meet users information needs	25 (16.0%)	73 (46.8%)	50 (32.1%)	8 (5.1%)	2.74
Average Mean					**2.83**

Actual Usage (AU)	VH	H	L	VL	Mean
I use library 4.0 tools like AI, cloud computing, and social networking sites often for knowledge sharing with users	37 (23.7%)	72 (46.2%)	39 (25.0%)	8 (5.1%)	2.88
Library 4.0 use enhances easy collaboration among my colleagues	47 (30.1%)	72 (46.2%)	15 (9.6%)	22 (14.1%)	2.92
Library 4.0 use facilitates knowledge sharing among my colleagues	38 (24.4%)	73 (46.8%)	33 (21.2%)	12 (7.7%)	2.88
Average Mean					**2.89**
Aggregate Mean					**2.98**

Source Fieldwork 2025

Decision Rule 1.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high.

Table 2 presents the level of Library 4.0 adoption among library professionals in public universities in Lagos State, Nigeria. Library 4.0 adoption was assessed under four dimensions: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), User Intention (UI), and Actual Usage (AU). Under Perceived Usefulness (PU), the results show a relatively high acceptance of Library 4.0. For instance, 54 (34.6%) of the respondents indicated very high agreement that Library 4.0 tools help in knowledge sharing, while 75 (48.1%) rated it high. Similarly, 62 (39.7%) and 72 (46.2%) agreed that Library 4.0 helps them complete tasks faster, leading to an average mean of 3.16. This suggests that librarians recognize the value of Library 4.0 in improving efficiency and facilitating knowledge sharing.

For Perceived Ease of Use (PEOU), the responses reveal a moderate but slightly lower level of agreement compared to PU. A total of 55 (35.3%) and 51 (32.7%) rated it very high and high respectively that interacting with Library 4.0 is easy. However, a notable proportion 48 (30.8%) considered it low, which lowered the average mean to 3.03. This indicates that while librarians see Library 4.0 as useful, some still struggle with its ease of interaction and understanding.

On User Intention (UI), the pattern of responses reflects a decline compared to PU and PEOU. While 63 (40.4%) and 54 (34.6%) indicated high intention to use Library 4.0 for academic work, fewer respondents showed strong intention to use it for professional collaboration or meeting user needs. The average mean was 2.83, which points to a gap between perceived usefulness and actual willingness to adopt Library 4.0 broadly. This highlight potential attitudinal or motivational barriers.

Lastly, Actual Usage (AU) recorded the lowest performance, with an average mean of 2.89. Although 72 (46.2%) respondents indicated high use of Library 4.0 tools for collaboration, relatively fewer used them often for knowledge sharing with users. This suggests that actual integration of Library 4.0 tools into daily library operations is still limited, despite recognition of their usefulness. Overall, the aggregate mean of 2.98 implies a moderate level of Library 4.0 use among library professionals in Lagos State. The trend indicates that while librarians perceive Library 4.0 as useful and relatively easy to use, the intention to adopt and actual usage lag behind, reflecting challenges in full integration into library practices.

Research Question Three: What is the organisational climate within academic libraries in public universities in Lagos State?

Table 3: Organisational Climate within Academic Libraries in Public Universities in Lagos State

Organisational climate	SA	A	D	SD	Mean
Person-Job Fit					
My skills are well-suited to the tasks I perform at work.	84 (53.8%)	63 (40.4 %)	9 (5.8%)	--	3.49

Organisational climate	SA	A	D	SD	Mean
I am confident in my ability to meet the demands of my job.	80 (51.3%)	68 (43.6%)	8 (5.1%)		3.47
My job allows me to use my strengths.	82 (52.6%)	51 (32.7%)	20 (12.8%)	3 (1.9%)	3.36
The responsibilities I have at work match my career goals.	74 (47.4%)	67 (42.9%)	15 (9.6%)	--	3.38
Average Mean					3.43
Person-Organisation Fit					
The organization's culture fits my personal values.	69 (44.2%)	69 (44.2%)	13 (8.3%)	5 (3.2%)	3.29
I share similar goals with my organization.	55 (35.3%)	86 (55.1%)	10 (6.4%)	5 (3.2%)	3.22
I feel emotionally attached to this organization.	46 (29.5%)	78 (50.0%)	27 (17.3%)	5 (3.2%)	3.06
I believe that this organization is a good place for me to work.	48 (30.8%)	85 (54.5%)	21 (13.5%)	2 (1.3%)	3.15
Average Mean					3.18

Person-Group Fit	SA	A	D	SD	Mean
I work well with the members of my team.	70 (44.9%)	64 (41.0%)	18 (11.5%)	4 (2.6%)	3.28
I feel accepted by my workgroup.	50 (32.1%)	85 (54.5%)	12 (7.7%)	9 (5.8%)	3.13
I trust my team members to support me.	34 (21.8%)	74 (47.4%)	36 (23.1%)	12 (7.7%)	2.84
I am comfortable expressing my opinions within the group.	27 (17.3%)	69 (44.2%)	29 (18.6%)	31 (19.9%)	2.59
Average Mean					**2.96**
Aggregate Mean					**3.19**

Source Fieldwork 2025

Decision Rule 1.00 – 1.49= very low, 1.50 – 2.49= low, 2.50 – 3.49 = high, 3.50-4.00= very high.

Table 3 presents the organisational climate within academic libraries in public universities in Lagos State, Nigeria. Organisational climate was examined through three dimensions: Person–Job Fit, Person–Organisation Fit, and Person–Group Fit. On Person–Job Fit, the responses indicate a generally strong alignment between librarians' skills and their work tasks. For example, 84 (53.8%) strongly agreed and 63 (40.4%) agreed that their skills are well-suited to the tasks they perform at work. Similarly, 80 (51.3%) strongly agreed and 68 (43.6%) agreed that they are confident in meeting job demands. The dimension recorded an average mean of 3.43, suggesting that librarians feel competent, well-matched, and able to apply their strengths in their roles. This reflects a positive and enabling job-personality alignment.

For Person–Organisation Fit, the findings reveal a moderately positive perception. A total of 69 (44.2%) strongly agreed and another 69 (44.2%) agreed that their organization's culture fits their values. Likewise, 55 (35.3%) strongly agreed and 86 (55.1%) agreed that they share similar goals with their organization. However, emotional attachment appears weaker, with only 46 (29.5%) strongly agreeing compared to 27 (17.3%) who disagreed. The average mean of 3.18 indicates that while organizational values and goals resonate with librarians, there may be limited emotional bonding or deep-rooted loyalty.

With respect to Person–Group Fit, the responses portray a more mixed picture. While 70 (44.9%) strongly agreed and 64 (41.0%) agreed that they work well with team members, fewer respondents felt comfortable expressing opinions within the group, only 27 (17.3%) strongly agreed, while 31 (19.9%) strongly disagreed. Similarly, trust within teams is moderate, with 34 (21.8%) strongly agreeing but 36 (23.1%) disagreeing that they trust team members to support them. This dimension had the lowest average mean of 2.96, indicating challenges in team trust, communication, and inclusiveness.

The aggregate mean of 3.19 suggests a highly positive organisational climate overall. However, while person–job and person–organisation fit is relatively strong, person–group fit lags behind, pointing to interpersonal dynamics and group trust as critical areas needing improvement for a more cohesive and supportive work climate.

Hypothesis

The hypothesis is tested at 0.05 level of significance.

$H_0$1: There is no significant influence of library 4.0 adoption on organisational climate among library professionals in public universities, Lagos State, Nigeria.

Table 4: Influence of Library 4.0 Adoption on Organisational Among Library Professionals in Public Universities, Lagos State, Nigeria

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.551[a]	.304	.299	.31106

a. Predictors: (Constant), Library 4.0 Use

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.509	1	6.509	67.270	.000[b]
	Residual	14.901	154	.097		
	Total	21.410	155			

a. Dependent Variable: Organisation Climate

b. Predictors: (Constant), Library 4.0 Use

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.354	.104		22.545	.000
	Library 4.0 Use	.269	.033	.551	8.202	.000

a. Dependent Variable: Organisational Climate

Table 4 presents the influence of Library 4.0 adoption on organisational climate among library professionals in public universities in Lagos State. The results of the regression analysis show that Library 4.0 adoption significantly influences organisational climate, with an R value of 0.551, indicating a moderate positive relationship between the two variables. The coefficient of determination ($R^2 = 0.304$) reveals that Library 4.0 adoption accounts for 30.4% of the variance in organisation climate among the respondents.

The ANOVA results further confirm the model's significance ($F = 67.270$, $p < 0.001$), suggesting that the regression equation provides a good fit for predicting organisational climate from Library 4.0 adoption. The coefficients table indicates that Library 4.0 adoption has a significant positive effect on organisational climate, with an unstandardized coefficient (B) of 0.269 and a standardized coefficient (Beta) of 0.551. Overall, the findings establish that Library 4.0 adoption has a statistically significant and moderately strong positive influence on organisational climate among library professionals in public universities in Lagos State.

Discussion of Findings

This section discusses the findings emanating from the quantitative study conducted which collected data from library personnel in public universities across Lagos State, Nigeria. The findings answer the research questions and reveal the result of hypothesis testing.

In response to the second research question, the study also found a high level of Library 4.0 adoption among library professionals in Lagos State. This finding aligns with some studies in Nigeria while also contradicts what has been reported in other studies. This suggests that at least with respect to specific Library 4.0 components, high adoption is present.

However, there are also studies that qualify or challenge the concept of what qualifies as 'high' adoption of library 4.0. For instance, a study on the readiness of academic librarians towards the use of robotic technologies in Nigerian university libraries found that Nigerian academic libraries are not ready to adopt robotic technologies despite recognising their potential benefits. This suggests that for more advanced Library 4.0 tools, readiness and actual use may lag behind. Another relevant study is "Librarians' Awareness, Positive Attitude and ICT Skills: A Panacea for Effective Services Delivery in the Fourth Industrial Revolution (4th IR) Era in Academic Libraries in Southern Nigeria". In this work, while librarians generally possess positive attitudes towards 4IR technologies and believe in their importance, their awareness of some of the more advanced innovations is low; the ICT skills available are good

for basic or intermediate tasks, but for more advanced or emerging Library 4.0 tools, there are gaps.

The response to the second research question revealed the finding that there is a highly positive organisational climate in academic libraries in public universities in Lagos state. However, while person–job and person–organisation fit is relatively strong, person–group fit lags behind. This finding aligns with several Nigerian studies. For instance, in their study of university librarians in the Southeast and South-South zones of Nigeria, a group of scholars found that respondents perceived their organisational climate favourably in terms of leadership, work environment, communication, structure, and rewards, as well as teamwork. Similarly, a study on organisational culture a variable influencing the productivity of librarians in university libraries in South-West Nigeria reported that organisational culture is highly practiced among librarians in those universities, with a strong focus on result-orientation and alignment of institutional goals and expectations[i]. These findings support that in many Nigerian academic library settings, staff believe their roles and the organisational values are well matched, echoing the results of this study.

However, the study finding offers a different perspective in finding a weaker person–group fit dimension. Fewer studies seem to have explicitly measured or reported this detail but there are suggestions related to this in previous works. For example, a study found generally high satisfaction with environment, recognition, and promotion, but noted that communication transparency and resource modernization were areas needing improvement. Problems with communication can often underlie poor group cohesion or trust among peers. Also, an expert pointed out that organisational practices, including how well staff perceive support, equity, voice, etc. affect their intentions to leave. These are often related to group-level experiences.

From these comparisons, a plausible interpretation is that while institutions in Lagos are doing well in aligning staff to tasks (person–job) and communicating institutional values or goals so staff feels these are shared (person–organisation), the more interpersonal, relational aspects of working in groups may suffer. This could be due to hierarchical structures, limited open communication, lack of trust, or insufficient opportunities for staff to express dissent or engage in decision-making. In addition, the findings establish that Library 4.0 adoption significantly and positively influences organisational climate among library professionals in public universities in Lagos State.

Summary of Findings

The study's finding is summarised as follows:

The study revealed a notably high-level adoption of Library 4.0 technologies among these professionals, indicating a strong integration of modern digital tools within their practices. Furthermore, the organisational climate within academic libraries in Lagos State was found to be highly positive, fostering an environment conducive to collaboration and professional development.

While the alignment between individuals and their roles (person–job fit) and between individuals and the organisation (person–organisation fit) was relatively strong, the fit between individuals and their specific groups (person–group fit) lagged behind, suggesting an area for potential improvement in team cohesion. Importantly, the study established that Library 4.0 adoption has a statistically significant and positive effect on knowledge sharing among library professionals in public universities in Lagos State. In addition, the findings establish that both Library 4.0 adoption and organisational climate significantly and positively influence knowledge sharing, but Library 4.0 adoption has a stronger influence.

Conclusion

The study concludes that library professionals in public universities in Lagos State are increasingly engaging in practices that reflect both technological advancement and collaborative knowledge cultures. The results further indicate that a positive organisational climate strengthens this process, creating an enabling environment for collaboration. However, the weaker person–group fit suggests that interpersonal dynamics and group cohesion remain areas for improvement, even in otherwise supportive organisational settings. Importantly, the findings demonstrate that while both Library 4.0 adoption and organisational climate positively influence knowledge sharing, technological adoption exerts a stronger effect.

Recommendations

In view of the findings of this study, the following recommendations are made:

1. Given the stronger influence of Library 4.0 on knowledge sharing, universities should continue investing in digital technologies such as AI-driven catalogues, cloud-based repositories, collaborative platforms, and virtual reference services. Continuous upgrades and training in Library 4.0 tools will enable professionals to maximize knowledge creation and dissemination.
2. The highly positive organisational climate should be sustained by reinforcing policies that value openness, recognition, and professional autonomy. Management should institutionalize participatory decision-making and encourage feedback mechanisms that empower staff to contribute to policy and practice improvements.
3. To ensure that both technology adoption and a positive climate translate into sustainable practices, management should provide regular CPD programs. These should focus on both technical skills in Library 4.0 use and soft skills such as communication, collaboration, and conflict management.

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