ISSN:1596-5414

Samaru Journal of Information Studies

Vol. 24 (2) 2024

Department of Library and Information Science

Ahmadu Bello University, Zaria

December 2024

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Subscription Rate

		Overseas
Institutions	₦ 10,000.00	US$ 10.00
Individual	₦ 5000.00	US$ 5.00

The above rates excludes cost of postage

PERCEIVED INFLUENCE OF NOLLYWOOD MOVIE "A TRIBE CALLED JUDAH" ON THE SOCIAL BEHAVIOUR OF UNIVERSITY STUDENTS IN OGUN STATE

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Abstract

The popularity of Nollywood films raises substantial concerns about their impact on social behaviours, particularly in the context of university students who are at a formative stage in their social development. Against the backdrop of a relatively limited body of work examining the specific impact of Nollywood on university students' social behaviour in Nigeria, this study examined the perceived influence of "A Tribe Called Judah", a Nollywood movie, on the social behaviour of students of selected universities in Ogun state, Nigeria. A quantitative research method was deployed using a survey research design; the study was premised on the Social Learning and Cultivation theories. With a population of 3,804 students, a sample size of 532 was derived using the Taro Yamane formula. The proportional and convenient sampling techniques were used to pick respondents from selected universities. A validated questionnaire was used for data collection, and the data collected was analyzed using descriptive statistics. The study revealed that Nollywood movies hurt the social vices ($\bar{x}$ = 4.20, SD = 0.82) and disruptive behaviour ($\bar{x}$ = 4.19, SD = 0.77) of university students in Ogun state. However, the study also highlighted a positive aspect, showing that Nollywood significantly influences family ties among the students ($\bar{x}$= 4.18, SD = 0.86), bringing a sense of hope and optimism to the audience. The study concluded that "A Tribe Called Judah", a Nollywood movie, significantly impacted the social behaviour of university students in Ogun State both positively and negatively. It recommends that parents play a crucial role in shaping students' behaviour.

Keywords: Nollywood, Social behaviour, University students, A Tribe Called Judah, Family Ties.

Introduction

The Nigerian Nollywood industry stands as one of the most powerful mediums of entertainment and cultural expression, significantly influencing audiences' social behaviours and attitudes, especially the youth. Established as the second-largest film industry in the world by output, Nollywood not only entertains but also serves as a tool for storytelling that reflects and shapes societal norms, values, and behavioural trends (Adesemoye, Hamedi & Sarmiti 2023). With a large and enthusiastic audience, Nigerian movies are viral in Africa and are gradually gaining worldwide attention. Nollywood produced 2,561 films in 2020, surpassing Hollywood (2,375 films) and Bollywood (1,901 firms). Several factors have been introduced that are responsible for Nollywood's remarkable success and growth. Among them is a huge domestic demand for local content, driven by Nigeria's large population (over 200 million) and a growing middle class; Nollywood films are made on relatively low budgets, allowing for more films to be produced quickly, and Nollywood films often focus on African stories, themes, and experiences, resonating with local audiences. Other reasons include Professional filmmakers, informal distribution networks, government support, collaborations and partnerships, and digital platforms.

The penetration and acceptance of Nollywood cut across age, sex, race, tribe and culture. Its popularity and appeal transcend the borders of Nigeria and have significant influence and acceptance in Europe, America, and Canada (Net Operating Income, 2020). Nollywood films are widely accepted and enjoyed across cultures, including African diasporic communities (Ogunleye, 2018). Movies in Nollywood cover a broad spectrum of themes, from romance and drama to politics, social justice, and crime, reaching audiences across different demographics, particularly university students who are often immersed in media consumption. Nollywood’s content is deeply rooted in Nigerian culture, history, and societal issues, making it a powerful force that influences local perceptions and behaviours. University students in a critical stage of identity development often look to media representations as sources of cultural validation or aspiration. Given the prevalence of Nollywood’s portrayal of social and moral challenges, its influence is especially significant in relationships, family dynamics, and social responsibility.

According to Ogbebor (2023), Nollywood films frequently emphasize communal values, familial bonds, and respect for tradition, which are central aspects of Nigerian society. Through movies, young viewers can internalize these values and see them as benchmarks for their behaviour. Simultaneously, Nollywood does not shy away from addressing the contradictions and tensions within Nigerian society, such as the clash between modernity and tradition or the challenges of economic hardship. These portrayals give students a broader understanding of their society, prompting them to reflect on their roles and responsibilities.

The Nigerian youth, especially university students, are impressionable and at a formative age where they actively seek ideas, lifestyles, and identities that resonate with their aspirations and realities. As they consume media content, the narratives and images they encounter can shape their perceptions, influence their attitudes, and sometimes dictate their behaviour. Nollywood movies firmly hold this demographic due to their accessibility, relatability, and cultural relevance. Unlike foreign films, Nollywood movies often depict scenarios and characters that mirror Nigerians' everyday lives, struggles, and aspirations (Aniukwu, 2019). This realism allows university students to relate deeply to the narratives, characters, and settings portrayed in Nollywood films, thus heightening the potential for these movies to impact social behaviour.

While there is ample research on the influence of foreign media on Nigerian youth, there needs to be more body of work examining the specific impact of Nollywood on university students' social behaviour in Nigeria. This study seeks to fill this gap by focusing on *A Tribe Called Judah* and its perceived influence on students in Ogun State. Understanding this influence can contribute to the broader field of media studies by highlighting the unique role Nollywood plays in shaping societal values and behaviours among Nigerian youth. This sets the stage for investigating the perceived influence of *A Tribe Called Judah* on students, recognizing Nollywood's decisive role in shaping Nigerian youth perspectives and social behaviours.

Objectives of the study

The objective is to:

1. find out the extent to which university students in Ogun State are exposed to Nollywood movies.
2. determine whether Nollywood movies (A Tribe Called Judah) influence social vices amongst university students in Ogun State.

3. examine how Nollywood movies (A Tribe Called Judah) influence family ties among university students in Ogun State.
4. ascertain if Nollywood movies (A Tribe Called Judah) influence defiance/ disruptive behaviour among university students in Ogun State.

Review of Related Literature

The Nollywood movie *A Tribe Called Judah* offers an intricate narrative that delves into themes such as loyalty, ambition, betrayal, and the moral complexities of modern Nigerian society. Saddled with directing the film, Adeoluwa Owu offers a nuanced and intimate portrayal of a woman called Jedidah Judah, who has five sons from five different men, all belonging to different tribes of Nigeria. It centres on their lives, navigating family pressures, economic challenges, and societal expectations while trying to define their identities. The film's protagonist, Jedidah Judah, embodies a mix of resilience and moral conflict, reflecting the struggles faced by many single mothers in Nigerians who are torn between traditional values and modern aspirations. Exploring the themes of resilience, social justice, and the search for meaning within a society that often presents conflicting values, the film tells the story of a family of boys who decide to rob a mall to raise money for their mother's hospital bill. However, upon getting there, they face armed robbers, leading to unintended consequences.

In retrospect, Nigeria's cinema history dates back to the early 20th century, when the British government colonized Nigeria. Historically, the industry has gone through various eras, which include the colonial era: 1903-1960, the independence era: 1903-1960, the Indigenization Decree era: 1960-1972, and the Nollywood era: 1992(Ernest-Samuel & Joe, 2019). Due to political and societal considerations, the British brought the first motion pictures to Nigeria during the colonial era. Following independence, the Nigerian Federal and State Film Units assumed control, concentrating on newsreel and documentary films. Economics was one of the many elements that led to the emergence of the Nollywood era. Betrayal, adultery, love, and revenge are common themes in Nigerian cinema, along with theatre, juju, witchcraft, romance, history, and folklore.

Ernest-Samuel and Joe (2019) recount that Nollywood, a creative business in Nigeria, has become a global phenomenon in less than 20 years. The Nigerian film industry has seen significant advancements since the release of films like "Fincho" in 1957, "Kadara" in 1980, "Living in Bondage" in 1992, "Keeping in Faith" in 2002, "October 1" in 2014, and "Wedding Party" in 2017, among others. The Nollywood era began in 1926 with the release of Nigeria's first feature film,

"Fincho." The country's independence in 1960 led to more theatres being built, and the Indigenization Decree in 1972 allowed Nigerians to own 300 theatres: the first blockbuster movie, Izuzu: 2017. "Papa Ajasco" was adapted into a film in 1984, earning an estimated 61,000 naira in three days. Directors like Adeyemi Afolayan created classic movies like "Kadara (Destiny)," "Taxi Driver," and others in the 1980s and still do today. Many Nigerians who had come to pay their respects saw his film "Kadara" in 2016 during Ade Love's 20th memory memorial. The term "Nollywood" emerged due to various factors, including the economy. It was initially applied to the Nigerian film industry in its present configuration. Haynes claims that "Nollywood" was initially used by a non-native speaker and first surfaced in a Matt Steinglass article from The New York Times in 2002 when it was described as "a kind of film produced in Nigeria." Common themes in Nigerian films include betrayal, adultery, love, and retaliation, as well as theatre, juju, witchcraft, romance, history, folklore, and love (Azeez, 2019).

The most time-consuming pastime for young and adolescent Nigerians is viewing Nollywood films. By the time they were 12 years old, most kids would have watched more Nollywood movies on television and video players than they would have done anything else. Nollywood films: Much scientific research has been done on watching films.

Understanding Behaviour and Social Behaviour

Behaviour and social behaviour involve exploring the complex factors influencing human actions, interactions, and decision-making processes. In their submission, Martin and Bateson (2007) define "behaviour" as an organism's or system's response to various stimuli, whether they come from the inside or the outside, are conscious or unconscious, overt or covert, voluntary or involuntary. Behaviour is not always a purposeful, premeditated way to respond to external stimuli. Initially, all behaviour is a reflex, a response to a particular anatomical or physiological event. Like all phenotypes, it emerges later and is the result of chance.

On the other hand, social behaviour involves multiple people creating, preserving, or altering relationships within a group or between individuals. It is typically exhibited in interactions between members of the same species but can include agonistic behaviour, communication, parenting, and sexuality. Sociologists argue that behaviour is an action without social meaning or context, but this definition is not helpful as all behaviours have a social connotation and context (Ritzer, 2020).

The Influence of Movies on Altering Attitude and Behaviour

The mass media's extensive appeal and influence also extend to home films, making them a crucial part of the communication landscape (Nwaoboli et al., 2022). The viewpoint of Opubor, Alfred, Nwunali, and Onwura (2015), who assert that movies have arguably the most popularity and effect globally of all the mass communication mediums, lends weight to this notion. A well-planned and produced film's visual effects can efficiently communicate a reasonably consistent message to a wide range of spectators, overcoming linguistic and cultural obstacles. Movies can influence people favourably or negatively, just like any other influence. In 2021, a wide range of cinematic content will be available, including comedies, dramas, action movies, and much more. A movie can have a good effect on one viewer while hurting another. Numerous elements decide whether the audience's reaction to the movie will be favourable or unfavourable. These characteristics include the viewer's age, maturity level, and degree of outside-world awareness. In today's world of limitless movies, it can be very challenging to discern between detrimental and helpful films. The viewer's viewing habits influence a film's positive and negative impressions. While some movies can leave positive messages and make us laugh, the problem lies in the wrong audience. However, things can improve when adults recognise that these films are just entertainment. Kim and Lee (2017) suggest that movies should appeal to the target audience and consider common public aspects, promoting a more comprehensive range of people. Movies significantly shape attitudes, beliefs, and ideas as they influence our everyday lives.

Review of "A Tribe Called Judah" Movie

This movie has the power to change the mindset of young people watching it, making them think that the way things are done in the movie is the best way to live their lives. This is crucial since children are easily influenced and in a vulnerable stage of life regarding external influences. Most parents have left their children's education up to what they see in Nollywood movies since they are too busy running their businesses and looking for better ways to raise their kids. A *Tribe called Judah* is a 2023 film produced by Funke Akindele and directed by Funke Akindele and Adeoluwa Owu, starring well-known, talented and promising Nollywood actors like Funke Akindele, Jide Kene Achufusi, Uzee Usman, Nse-Ikpe Etim, Timini Egbuson, Tobi Makinde, Olumide Owonu, Uzor Arukwe and Genova Umeh. From the nuanced exploration of familial dynamics to the underlying themes of sacrifice, moral ambiguity, strength of motherhood, unity and disunity, brotherhood, dysfunction and moral dilemma," A Tribe Called Judah" offered a poignant reflection of the human experience. The film is a

touching exploration of the intricate dynamics within a struggling family facing not only the challenges of daily life but also the overwhelming burden of a grave medical condition. The movie weaves a narrative emphasizing the indomitable spirit of familial love and the sacrifices individuals are willing to make for the greater good.

At the story's centre is Jedidah, a single mother courageously shouldering the responsibility of raising five diverse sons. The film beautifully captures the struggles of a single mother trying to keep her family together despite the divergent paths her sons have chosen. Each son represents a different facet of society, from an honest salesboy to a community nuisance, and this diversity adds layers to the story. Additionally, the sons who emerged from the different tribes in Nigeria, Igbo, Yoruba, Ijaw, Hausa and Urhobo, highlight the dynamics of the country and the need to unite for a more extraordinary good act amid diverse roots. The heart-wrenching revelation of Jedidah's chronic kidney disease sets the stage for the family's desperate quest to secure the exorbitant funds required for her weekly dialysis treatment. The desperation is palpable as the sons, financially incapacitated, turn to an ill-fated heist as their last resort. This decision forms the film's crux, showcasing the lengths one is willing to go for the sake of a loved one. Tragedy strikes when a rival gang interferes, resulting in the death of one of the sons. His sacrifice symbolizes the lengths to which love can drive individuals, illustrating the film's overarching theme of sacrifice for a more significant cause.

The film's strength lies in its portrayal of the resilience of familial bonds and the sacrifices made in the face of adversity. Despite the tragic events, the film embraces the idea that sacrifice for the people we love is an inherent part of life. It becomes a testament to the complexities and unpredictability of human decisions and the interplay between personal choices and external factors. The narrative suggests that while the consequences may be dire, the sacrifice is not something to regret. It is portrayed as an intrinsic part of the human experience, showcasing the lengths individuals may go for the ones they hold dear. (Medium, 2024).

Theoretical background

The study is anchored on two theoretical foundations: The Social Learning Theory (SLT) and the Cultivation theory, propounded by Albert Bandura, the **Social Learning Theory** posits that individuals learn behaviours, attitudes, and emotional reactions through observing others, particularly role models or characters they identify with. This learning is significantly pronounced when individuals see behaviours rewarded or punished, reinforcing the desirability or

undesirability of these actions. SLT emphasizes that learning from media happens through four stages: attention, retention, reproduction, and motivation. In the same vein, the **Cultivation Theory**, which George Gerbner developed, examines the long-term effects of media exposure on audiences' perceptions of reality. The theory argues that extensive media exposure gradually shapes viewers' beliefs and worldviews to align with their media content, creating a "cultivated" perception of reality. Gerbner's theory emphasizes that people who consume a large amount of media may begin to perceive the world in ways that reflect the dominant themes and values portrayed within that media.

Putting it in context, both the Social Learning Theory (SLT) and Cultivation Theory are highly relevant to this study on the perceived influence of the Nollywood movie *A Tribe Called Judah* on the social behaviour of university students in Ogun State, Nigeria. Each theory provides a unique perspective on how media content, such as films, can shape behaviours, attitudes, and perceptions among viewers, especially young adults. While SLT's relevance to *A Tribe Called Judah*is in its presentation of characters and social scenarios that university students in Ogun State may identify with or find relatable, Cultivation Theory investigates whether the themes and messages in *A Tribe Called Judah have* a cumulative effect on students' perceptions of social reality and whether these portrayals have led to shifts in their attitudes, beliefs, and behaviour over time. Both theories provide a framework for understanding the potential influence of *A Tribe Called Judah* on university students' attitudes and social behaviour, (Ritzer, 2020).

Empirical Review

Scholars have made several recent attempts to dissect the impact of Nollywood movies on audiences' behaviours, especially the youth. Akintayo, Awofadeju, and Afolabi (2024) looked at the social view of ritual content in Nollywood films among undergraduate students of the Federal University of Oye-Ekiti. The findings revealed that the use of ritualistic elements in Nollywood films harmed undergraduate students' mindsets and lifestyles by heightening the desire to partake in rituals in an attempt to become wealthy quickly and lead opulent lives. The findings also showed that young people's attitudes have changed from working hard to the get-rich-quick syndrome as a result of watching Nollywood films, which contain ritualistic elements. Sandeep (2023) also examined how young people's social consciousness and response to Bollywood films are influenced. The study focused on how Nollywood movies affect social concerns and dispel stigma while being profitable and entertaining.

Similarly, Aniukwu's (2023) study critically assessed the themes of depravity and delinquency in Nollywood movies, particularly emphasizing the movies Sewaa and Calabar Nurses. The study suggests that watching films depicting depravity and criminal activity over extended periods may harm viewers. The study advises Nigerian filmmakers to restrict the glorification and glamorization of the themes above and subthemes while critically examining cinematic narratives that explore themes and subthemes of delinquency, depravity, or violence. This guarantees that those who transgress professional and moral decorum are suitably penalized and censured.

The study by Ogbebor (2023) at the Benin Study Centre of the National Open University of Nigeria asserted that students watch home videos for entertainment and enlightenment. While these films can enhance moral ideals and education, they can also encourage unethical conduct. The study recommends that students and other tertiary institutions should not only view Nollywood films as entertainment but also internalize their ethical and moral values. Relating Nollywood movies with culture, Enyindah & Donli (2023) thoroughly analyzed a few Nollywood films, focusing on how they helped advance Nigeria's reputation and foster its cultural development. It was concluded that Nollywood is a more effective medium than other media for fostering the development of Nigeria's indigenous culture. For Nollywood films to faithfully capture Nigeria's cultural history, realities, and values, much research must be done before production or release. This study underscores the importance of letting Nigerians write their own stories.

Methodology

A quantitative research method was deployed, using a survey research design. The population for this study stood at 3804 and was derived from the two selected Universities; Christopher University (304) and Federal University of Agriculture, Abeokuta (3,500); while the primary data for this study was gathered with a questionnaire regarding the perceived influence of “A Tribe Called Judah” Nollywood movies on the social behaviour of university students in Ogun state. The Taro Yamane (1967) in Ogbebor (2023) sample size determination formula was used to arrive at a sample size of 532.

The equation is as follows: $\mathbf{n=N/1+N\ (e)^2}$

When n= is the sample size

N= Population Size

E= level of precision

Therefore,

Christopher University	304 $(304/1+304(0.05)^2$ 304/1+304(0.0025) 304/1.76 **n= 173**
Federal University of Agriculture Abeokuta	3500 $(3500/ 1 + 3500(0.05)^2$ 3500/1+ 3500(0.0025) 1763/9.75 **n= 359**
Total	**532**

The study was validated using the content and construct validity tests to ensure that the questionnaire items were appropriate and relevant to the objectives of the study, after which a pilot study was conducted to pre-test the instrument which allowed the researchers to study and restructure some of the items that appeared confusing or which respondents avoided. Data was analyzed and presented using frequency distribution tables, charts and average weighted mean (AWM) scores from a five-point Likert scale.

Data Presentation, Analysis and Discussion of Findings

Research Question One: To what extent are University students in Ogun State exposed to Nollywood movies?

Table 1: Respondents on Exposure to Nollywood Movies

Items	**Yes Freq.(%)**	**No Freq.(%)**	**Not sure Freq.(%)**	
Do you watch Nollywood (Nigerian) Movies?	412 (80.0)	73 (14.2)	50 (5.8)	
Items	**Daily Freq. (%)**	**Weekly Freq. (%)**	**Occasionally Freq. (%)**	**Rarely Freq. (%)**
How often do you watch Nollywood movies?	124 (24.1)	240 (46.6)	126 (24.5)	25 (4.9)

Items	**TV Freq. (%)**	**Online streaming services Freq.(%)**	**Mobile devices Freq. (%)**
What is your preferred platform for watching Nollywood movies?	71 (13.8)	222 (43.1)	222 (43.1)
Items	**Yes Freq.(%)**	**No Freq.(%)**	
Have you watched the movie "A Tribe Called Judah"?	415 (80.6)	100 (19.4)	
Items	**Yes Freq.(%)**	**No Freq.(%)**	
Do you think Nollywood movies like "A Tribe Called Judah" influence your daily life in any way?	373 (72.4)	142 (27.6)	
Average Mean	**Weighted**		

The data presented in Table 1 illustrates the engagement of students from Christopher University and the Federal University of Agriculture Abeokuta with Nollywood films. A significant (80%) of these students reported that they watch Nollywood movies, whereas (20%) reported that they do not. On a follow-up question on how often students watch Nollywood movies, the table reveals a nearly equal distribution. However, 46.6% watch weekly. According to the data, online streaming and mobile devices were the favoured platforms for watching movies by 86.2 per cent of the students. Furthermore, 80.6% of respondents claimed to have viewed "A Tribe Called Judah," while 19.4% have yet to see the film. Meanwhile, 72.4% of students at the two selected universities agree that seeing A Tribe Called Judah had an impact on their daily lives. The study findings are consistent with the views of Ogbebor (2023), who believes that university students are exposed to Nollywood films and that these films may have both positive and negative effects on them. Chukwu-Okoronkwo, Omeonu, and Onwuka (2020) concluded that Nollywood movies harm young people's

behaviour and well-being, which was also important to the conclusion of this study on the subject of students' exposure to Nollywood movies.

Research Question Two: What specific social vices do University students in Ogun State exhibit after watching Nollywood movies (A Tribe Called Judah)?

Table Two: Respondents on the Influence of Nollywood Movies on Social Vices

Items	**Neutral Freq. (%)**	**Strongly Disagree Freq. (%)**	**Disagree Freq. (%)**	**Agree Freq. (%)**	**Strongly Agree Freq. (%)**	**Mean** ($\bar{x}$)	**SD**
Do you think watching Nollywood movies like "A Tribe Called Judah" has influenced your behaviour or attitude towards social vices like Drug use/abuse	10 (1.9)	0 (0)	17 (3.3)	314 (61.0)	174 (33.8)	4.24	0.69
Do you think watching Nollywood movies like "A Tribe Called Judah" has influenced your behaviour or attitude towards	13 (2.5)	0 (0)	27 (5.2)	284 (55.1)	191 (37.1)	4.24	0.76

taking someone else's belongings							
Do you think watching Nollywood movies like "A Tribe Called Judah" has influenced your behaviour or attitude by making you lie or being dishonest	28 (5.4)	6 (1.2)	21 (4.1)	214 (41.6)	246 (47.8)	4.25	0.99
Do you think watching Nollywood movies like "A Tribe Called Judah" has influenced your behaviour or attitude towards social vices like use of vulgar languages	11 (2.1)	0 (0)	11 (2.1)	331 (64.3)	162 (31.5)	4.22	0.69
Do you think watching Nollywood movies like "A Tribe	12 (2.3)	0 (0)	24 (4.7)	329 (63.9)	150 (29.1)	4.17	0.71

Called Judah" has influenced your behaviour or attitude towards social vices like indecent dressing							
Do you think watching Nollywood movies like "A Tribe Called Judah" has influenced your behaviour or attitude towards social vices like Cultism and Violent conduct	6 (1.2)	1 (0.2)	17 (3.3)	306 (59.4)	185 (35.9)	4.28	0.65
Do you think watching Nollywood movies like "A Tribe Called Judah" has influenced your behaviour or attitude towards social vices	20 (3.9)	0 (0)	25 (4.9)	271 (52.6)	199 (38.6)	4.22	0.85

like Thuggery							
Have you ever engaged in any of the above-mentioned social vices after watching a Nollywood movie	50 (9.7)	11 (2.1)	60 (11.7)	149 (28.9)	245 (47.6)	4.02	1.24
Average Weighted Mean						**4.20**	**0.82**

Source: Field Survey 2024. **Decision Rule if mean is 1.00 to 1.49 = Strongly Disagree; 1.50 to 2.49 = Disagree; 2.50 to 3.49 = Neutral; 3.50 to 4.49 = Agree; 4.50 to 5.00 = Strongly Agree**

Table 2 shows that generally, the students under study agreed that Nollywood movies (A Tribe Called Judah) influence social vices amongst university students in Ogun State. (Average Weighted Mean = 4.20, SD = 0.82). Specifically, participants agreed that the A Tribe Called Judah" movie can influence its viewers' behaviour or attitude towards social vices like drug use/abuse ($\bar{x}$= 4.24, SD=0.69); they affirm that the movie leads to its viewers taking someone else's belongings ($\bar{x}$= 4.24, SD=0.76) and helps make students lie or be dishonest ($\bar{x}$= 4.25, SD=0.99). The study further revealed that the film influenced the use of vulgar language ($\bar{x}$= 4.22, SD=0.69) and indecent dressing ($\bar{x}$= 4.17, SD=0.71). Emedo (2021) examined the Nollywood movies, their attributes, and their undeniable ability to influence greatly among the people of the society. The study concludes that many individuals are often influenced by the information they consume via Nollywood movies. This is in line with the finding of this study showing that Nollywood significantly influences the behaviour and attitude of the university students under study. In a similar vein, Aniukwu (2019) also juxtaposes the outcome of this study, when the researcher found that the majority of Nollywood films depict themes such as mischief, adult chauvinism, hatred, demonic possessions, and violent politics. These social vices pose significant risks to the child's perception of ideal society.

Question 3: How do University students in Ogun State perceive the portrayal of family relationships in Nollywood movies (A Tribe Called Judah)

Table 3: Respondents on the Influence of Nollywood Movies on Family Ties

Items	Neutral Freq. (%)	Strongly Disagree Freq. (%)	Disagree Freq. (%)	Agree Freq. (%)	Strongly Agree Freq. (%)	Mean ($\bar{x}$)	SD
Watching Nollywood movies like "A Tribe Called Judah" has influenced your relationships with your family members	14 (2.7)	0 (0)	12 (2.3)	311 (60.4)	178 (34.6)	4.24	0.74
You feel Nollywood movies have given you a different perspective on your family or relationships	20 (3.9)	0 (0)	17 (3.3)	337 (65.4)	141 (27.4)	4.12	0.80
You have used Nollywood movies as a way to bond with your family members	10 (1.9)	0 (0)	7 (1.4)	320 (62.1)	178 (34.6)	4.27	0.67
Nollywood movies have	27 (5.2)	0 (0)	18 (3.5)	296 (57.5)	174 (33.8)	4.14	0.90

changed the way you communicate with your family members			
Average Weighted Mean		**4.19**	**0.77**

Source: Field Survey 2024

Table 3 shows that a good proportion of participants held that they perceive the portrayal of family relationships in Nollywood movies (A Tribe Called Judah) with an Average Weighted Mean= 4.19, SD=0.77). The first item to test the family ties, participants agree that watching "A Tribe Called Judah" has influenced their relationships with their family members ($\bar{x}$= 4.24, SD=0.74); they also agree to the fact that the film in question has given the respondents a different perspective about family or relationships ($\bar{x}$= 4.12, SD=0.80); increase bonding among family members ($\bar{x}$= 4.27, SD=0.67) and changed the mode of communicating with their family members. This implies that participants are favourably disposed to the fact that the film under study enhances family ties among siblings and parents. The outcome of this study underscores the perspective of Opubor et al. (2015), who claim that of all the mass communication mediums, movies have arguably the most popularity and impact worldwide. According to him, if a movie is well-planned and executed, its visual effects can transcend language and cultural barriers and effectively convey a reasonably positive, consistent message to diverse viewers. One positive take-home lesson of this film is the portrayal of strong family ties among children and parents. The movie weaves a narrative emphasising the indomitable spirit of familial love and the sacrifices individuals are willing to make for the greater good. This is a recommended attitude for all and sundry in Nigeria. Hence, this family tie portrayal is one of the major highlights of this movie.

Question 4: Do University students in Ogun State engage in defiant or disruptive behavior after watching Nollywood movies (A Tribe Called Judah)?

Table 4: Respondents on the Influence of Nollywood Movies on Defiance/Disruptive Behaviour

Items	Neutral Freq. (%)	Strongly Disagree Freq. (%)	Disagree Freq. (%)	Agree Freq. (%)	Strongly Agree Freq. (%)	Mean ($\bar{x}$)	SD
Watching Nollywood movies like "A Tribe Called Judah" has influenced your behaviour or attitudes towards defiance or disruption	56 (10.9)	0 (0)	47 (9.1)	181 (35.1)	231 (44.9)	4.03	1.23
You have engaged in defiant or disruptive behaviour after watching a Nollywood movie	16 (3.1)	0 (0)	11 (2.1)	329 (63.9)	159 (30.9)	4.19	0.75
You have felt motivated to act defiantly or disruptively after	13 (2.5)	0 (0)	4 (0.8)	326 (63.3)	172 (33.4)	4.25	0.71

watching a Nollywood movie							
Your peers are more likely to engage in defiant or disruptive behaviour after watching a Nollywood movie	9 (1.7)	0 (0)	8 (1.6)	356 (69.1)	142 (27.6)	4.20	0.63
I now follow a dressing or fashion trend I saw in the movie	35 (6.8)	17 (3.3)	19 (3.7)	196 (38.1)	248 (48.2)	4.17	1.11
Do you think there are specific themes or messages in Nollywood movies that contribute to feelings of defiance or disruption	15 (2.9)	0 (0)	11 (2.1)	286 (55.5)	203 (39.4)	4.28	0.77
Average Mean	**Weighted**					**4.18**	**0.86**

Source: Field Survey 2024

Table 4 shows that participants agreed that they engaged in defiant or disruptive behaviour as a result of watching a Nollywood movie ($\bar{x}$= 4.19, SD=0.75) and also felt motivated to act defiantly or disruptively after watching a Nollywood movie ($\bar{x}$= 4.25, SD=0.71). Similarly, peers are likelier to engage in defiant or disruptive behaviour ($\bar{x}$= 4.20, SD=0.63) and follow a dressing or fashion trend

portrayed in the movie ($\bar{x}$= 4.17, SD=1.11). Participants further agree that specific themes or messages in Nollywood movies contribute to feelings of defiance or disruption ($\bar{x}$= 4.28, SD=0.77). Overall, the participants generally concur that **university students in Ogun State engage in defiant or disruptive behaviour after watching Nollywood movies** (Average Weighted Mean= 4.18, SD=0.86). Findings of earlier studies corroborated the outcome of this study; Bushman and Huesmann (2020), in their study titled "The Impact of Violent Media on Aggressive Behavior in Young Adults", asserted that exposure to violent media increased aggressive thoughts, feelings, and behaviours in young adults. Kim and Lee (2017) along the same line when they concluded that frequent movie watching was associated with increased aggressive behaviour, including defiance and disruption, among university students.

Conclusion

The study found that the Nollywood movie "A Tribe Called Judah" significantly impacted university students in Ogun State, influencing their cultural values, emotional connections, social learning, identity formation, and personal growth. These films celebrate Nigerian culture, traditions, and values, foster family connections, promote linguistic diversity, inspire careers in creative industries, foster socialization and community, elicit emotional connections and empathy, provide educational value, represent and validate, and contribute to the local economy. The findings of this study supported George Gerbner's Social Learning and Bandura's Cultivation theories, which suggest that exposure to media content can shape viewers' perceptions of reality, influencing their attitudes, beliefs, and values, as seen in the Nollywood film A Tribe Called Judah". Nollywood films influence students' cultural values, emotional intelligence, and social responsibility by depicting positive ideals, healthy relationships, and conflict resolution solutions, resulting in personal growth, social responsibility, and cultural knowledge. As a result, Nollywood films serve an essential role in conserving and promoting cultural legacy, personal growth, and socioeconomic development among university students in Ogun State.

Recommendations

The following are at this moment recommended:

1. Universities and NGOs should host Nollywood movie screenings and panel discussions to encourage students to critically analyze the social messages and challenges they encounter in the films.

2. Parents should be educated on the impact of Nollywood movies, allowing them to make informed decisions about their children's content consumption.
3. The government and regulatory bodies should enforce stricter content ratings for Nollywood movies, ensuring they are correctly classified and monitored for potentially harmful content.

Contributions to Knowledge

This research focuses on university students in Ogun State, providing a unique perspective on how Nollywood films influence their social behaviour. It uses A Tribe Called Judah as a case study, revealing subtle influences and providing insights into psychological and social factors. The findings will help educators, parents, and policymakers gain a deeper awareness of how media consumption affects the youth, allowing them to address and guide media literacy efforts more effectively.

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INFORMATION LITERACY SKILLS AND KNOWLEDGE SHARING PRACTICES AMONG FEDERAL COLLEGE OF FORESTRY STUDENTS IN IBADAN, OYO-STATE, NIGERIA

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Abstract

The study investigated information literacy skills and knowledge-sharing practices among the Federal College of Forestry students in Ibadan, Oyo-state, Nigeria. Survey research was conducted to determine the influence of Information Literacy Skills (ILS) as a predictor of Knowledge Sharing Practices (KSP) among Federal College of Forestry Students in Ibadan, Oyo-State. The study sought to find the types, tools, purposes and challenges of sharing knowledge among Federal College of Forestry students Ibadan. The study adopted a quantitative method and deployed a questionnaire-based survey research design. Its population consists of 361 respondents from the Federal College of Forestry Students. The sample size was drawn using a random sampling technique. Data were analysed using descriptive and inferential statistics. The findings showed that the common types of knowledge shared are class notes/handouts, previous examination papers and entertainment such as music, video games, movies, Fashion, and sports. The tools mostly used were face-to-face, social media and mobile phones and the least tools used were Laptops. The purposes of sharing knowledge are to solve study-related problems, clarify or discuss the

examination-related matter and discuss requirements of class projects, term papers, or assignments. Challenges to sharing knowledge among federal forestry college students include time constraints, Fear of providing wrong information and poor mobile and internet networks. The findings showed that the respondents had a high level of information literacy skills. The results also showed that information literacy skills have a significant positive relationship with the knowledge-sharing practices of Federal Forestry College students. Information literacy skills were found to have a significant positive relationship with knowledge-sharing practices, underscoring their importance in fostering a collaborative academic environment. To further enhance the positive impact of information literacy on knowledge sharing, the college should integrate comprehensive information literacy training into its curriculum. This will ensure that all students are equipped with the necessary skills to share knowledge effectively

Keywords: Information literacy skills, Knowledge sharing practices, Federal College of Forestry

Introduction

Federal College of Forestry has the goal of expanding education and skills in environmental protection, conservation, and sustainable forest management. The colleges provide a wide range of academic programmes that are specifically designed to address the changing demands of the forestry industry. Academic programmes of the Federal College of Forestry in Ibadan are designed to give students a comprehensive grasp of forestry concepts, methods, and practices. These courses usually cover diploma, certificate, and degree programmes, among other educational levels. A wide range of topics are covered in the curriculum, including forest ecology, silviculture, biodiversity protection, forest engineering, forest economics, and forest policy. To reinforce their learning, students participate in research projects, laboratory tasks, and active fieldwork, with a concentration on both theoretical knowledge and practical abilities.

Depending on the academic programme they have selected, students at the Federal College of Forestry in Ibadan advance through different years of study. Diploma and certificate programmes usually have a one to four years study period. Students go through an intense course of study that builds on fundamental knowledge and gradually goes deeper into specialized fields of environmental sciences and forestry during their academic careers. The people who are considered students at the Federal College of Forestry in Ibadan are a varied set of people who are brought together by their enthusiasm for environmental

stewardship and forestry. Each of these students has specific aims and professional goals within the forestry industry, and they may include aspiring foresters, environmentalists, conservationists, legislators, and researchers (Federal College of Forestry, Ibadan, n.d., accessed 2024). Despite coming from different backgrounds, they are united by a shared goal: gaining the information, expertise, and real-world experience necessary to effectively contribute to the protection and sustainable management of forest resources. Students at Forestry College must share their knowledge, as this might lead to an understanding of the connections between the lessons they have learned and the wider implications for efficient forest management and conservation initiatives.

Ahamad and Karim (2019) define knowledge sharing as the exchange of expertise, advice, and abilities connected to one's line of work with others to help each other accomplish daily chores, find solutions to problems, and come up with fresh concepts. To achieve knowledge growth, Wang (2020) said that knowledge sharing is the process by which knowledge demanders and owners exchange information using a variety of communication techniques. Asterhan and Bouton (2017) state that several aspects of knowledge sharing need to be taken into account. These constituents can facilitate the assessment of individual conduct about the exchange of information among one another. But it is not limited to just one person; it can also be used to describe how information is shared among companies and institutions, especially educational ones like the Federal College of Forestry. Among the elements that might help in better understanding knowledge-sharing practices are the kinds of knowledge conveyed, the purpose of knowledge sharing, the methods utilized for knowledge sharing, and the challenges of knowledge sharing.

Students' sharing of information has become a more essential subject in the knowledge economy age, as it may assist them address the problems of more integrated knowledge (Xu et al., 2016). First and foremost, knowledge-sharing may help college students learn more by allowing them to absorb more information from others' expertise, which can enlarge their knowledge base and enhance their ability to learn. Furthermore, it can convert individual information into group knowledge, include useful resources, enhance the knowledge system, and optimize the significance of knowledge (Cao, Lee and Nguyen 2022). Furthermore, knowledge-sharing learning fosters college students' capacity for autonomous thought as well as their capacity for collaborative teamwork. College students may enhance their teamwork skills by practicing reciprocal communication and sharing, as suggested by Cheruvelil et al. (2014).

Therefore, it is crucial to research students' knowledge-sharing practices to raise learning effectiveness, quality, and vitality, develop students' creative

thinking, encourage resource sharing, boost students' comprehensive ability, strengthen students' sense of social responsibility, and develop exceptional talents for society. The relationship between individuals can have a big influence on knowledge sharing. However, the sharing of information is not always spontaneous; there are several factors that might impact it, one of which is information literacy skills.

Information literacy is a set of skills that requires people to "recognize when information is required and have the ability to locate, evaluate, and effectively use the needed information." (American Library Association, 2024). Having information literacy skills enables individuals from all walks of life, especially federal forestry college students, to find, assess, use, and produce information successfully to meet their social, professional, academic, and personal objectives. People who are information literate can get information about their surroundings, health, education, and employment, and can use that knowledge to make important life decisions (UNESCO, 2023). According to Catts and Lau (2008) cited by Oladejo, Alonge and Oyewole (2020), there are several elements which give a detailed picture of the design of information literacy skills such as definition and articulation of information; location of and access to information; assessment of information; organization of information; use of information; communication and ethical use of information and other skills. The primary objective of federal forestry college students' information search is to close a knowledge gap. Consequently, the students have to have the abilities. To sum up, this research will provide insight into the crucial interactions among knowledge-sharing practices, and information literacy abilities among Federal College of Forestry students. Through the examination of these interrelated elements, important insights into the opportunities and problems facing forestry education and practice may be found. A successful forestry profession requires excellent information literacy and knowledge sharing; nevertheless, there are still gaps in understanding and practice, which made this research urgently necessary. To better understand information literacy, and knowledge-sharing practices of Federal College of Forestry students in Ibadan, Oyo State, this study is imperative.

Statement of the Problem

In the globalized world of today, knowledge sharing is essential to education, creativity, and the advancement of society. It facilitates communication between people, allowing them to share knowledge, perspectives, and ideas to promote teamwork and collective intelligence. Effective information sharing is

critical to fostering a culture of sustainability and well-informed decision-making, especially in educational institutions such as the Federal College of Forestry in Ibadan, where students are deeply engaged in the study of natural resources and environmental management. It is crucial to comprehend the dynamics of college students' knowledge-sharing practices to support their academic achievement as well as to equip them with the skills necessary to handle challenging issues in environmental conservation and forestry as competent professionals.

Although the importance of sharing information has been acknowledged, existing studies have primarily addressed general student groups or certain fields, ignoring the particular context of forestry education. This accounts for a lack of knowledge regarding the attitudes and actions of Federal Forestry College students concerning knowledge sharing in Ibadan. This disparity makes it more difficult to create treatments and plans that are specifically designed to improve Federal college of Forestry students' information literacy skills, and knowledge-sharing practices. To determine the factors impacting forestry students' participation in knowledge-sharing activities, it is necessary to investigate these variables within the student population. To bridge this knowledge gap, the present study aims to shed light on the intricate relationships between information literacy skills and knowledge-sharing practices among Federal College of Forestry students in Ibadan.

Research Questions

The following are the research questions to guide the study:

1. What is the level of information literacy skills possessed by Federal College of Forestry students Ibadan?
2. What types of knowledge are shared by Federal College of Forestry students Ibadan?
3. What tools are used to share knowledge among Federal College of Forestry students Ibadan?
4. What are the purposes for sharing knowledge among Federal College of Forestry students Ibadan?
5. What challenges are been encountered when sharing knowledge among Federal College of Forestry students Ibadan?

Hypothesis

H1. There is no significant relationship between information literacy skills and knowledge-sharing practices of the Federal College of Forestry students Ibadan.

Literature Review

Kalu, Usiedo and Chdi-Ka;u (2019) examined knowledge-sharing practices and patterns among academic students using the electrical engineering technology students of the National Institute of Technology Edo, Nigeria. It was survey research with a population of 27 students. The questionnaire was used to collect data. Findings showed the most effective channel of knowledge sharing among the students is online chat with 100% agreeing to this. Also, 100% of the respondents agreed that what motivates them to share knowledge is trust. When asked about the barriers of knowledge sharing 100% of the respondents agree that illiteracy is the major cause and 52% of the respondents are okay with sharing knowledge among themselves.

An investigation of postgraduate students' knowledge-sharing practices at a few Nigerian universities was carried out by Opeke and Kehinde (2014). The research approach utilized in this study was a descriptive survey, with 503 postgraduate students making up the study population. The mechanism for gathering data was a questionnaire. Subjects with the greatest proportion (89.9) were found to be most eager to share new ideas with colleagues, according to the examination of the postgraduate students' knowledge-sharing habits. This suggests that the majority of PG students have adequate knowledge-sharing skills. Furthermore, the results showed that, among postgraduate students, knowledge related to their fields of study is most frequently shared (92.8%). Sports news (32.6%), social news (63.6%), campus news (61.6%), library experience (68.9%), religion news (68.8%), and political news (72.2%) are among the other topics that people often share knowledge about. Finally, the study revealed that the majority of postgraduate students (55.6%) favoured in-person knowledge sharing over other media (tools for information sharing). The survey indicates that postgraduate students share information at a high frequency.

In the same vein, to determine the level of information literacy skills among students several studies have been conducted, for instance, Nyarigoti (2020) accessed the information literacy skills of undergraduate students in the United States of America. A descriptive survey research design was used for the study with a population of 179 students. A questionnaire was used to retrieve data from the respondents. The results revealed that 78% of the respondents confirmed finding, critically evaluating and effectively using information as considered to be important indices before one becomes information literate. The respondents (65%) pointed out that the use of a reference page in the article is the most efficient source.

Olubiyo, Oguniyi, Ademilua and Akanmidu-Fagbemi (2019) surveyed information literacy skills among undergraduates of Adeyemi College of

Education, Ondo, Nigeria. The study used a survey research method with a population of 180 students. Data from the respondents were obtained through a questionnaire and the result showed that 76.2% of the respondents are aware of what information literacy skills are. When asked about the course they were taught information literacy skills 34% of the respondents attested that it was through library instruction programmes, then 12% of the respondents indicated it was through the use of a computer. While 19.3% of the respondents said they got to learn information literacy skills through the use of English. The result, it shows the respondents are fully aware of information literacy skills and were duly taught from different courses. As such the information literacy skills of the students is sufficient.

Aghanche, Nkamnebe and Nkamnebe (2019) investigated the information literacy skills of 283 undergraduates in Paul University Awka, Anambra State, Nigeria. Using a survey design, questionnaire and achievement test as data collection instruments. The results of the study indicated that 80% of the participants are proficient in the definition and articulation of information, 72% are vast in the assessment of information, 79% are proficient in the proper evaluation of information, and 75% of the participants attested they understand ethical and legal use of information. This study implies that the undergraduates are highly proficient in information literacy skills, making them information literate. To show the relationship between information literacy skills and knowledge-sharing practices, Keshavarz (2021) in Nyarigoti (2020) investigated personality factors and knowledge-sharing in information services: the mediating role of information literacy competencies. The study adopted a sequential mixed-method approach. With a path coefficient of 0.47, the results showed that information literacy competencies had a positive and substantial impact on knowledge-sharing practices.

Methodology

A descriptive survey research technique was used in this study. Students from the Federal College of Forestry in Ibadan, Oyo State, make up the research population. There are 361 Federal College of Forestry regular students enrolled in the school, based on information gathered from the Academic Planning Unit in 2023. A sample size of 116 students was selected using a random sampling technique. The tool used to gather the data was a questionnaire adapted from Oladejo, Alonge and Oyewole (2020). The statistical package for the social sciences (SPPS) was used to analyse the data, and the results were presented in form of descriptive statistics of frequency counts, percentages, mean and standard deviation.

Data Analysis, Presentation, and Summering of the Findings

Figure: 1. Name of Department of the Respondents

The above chart shows the representation of the respondents from the various departments selected for the study. The Forestry Technology department had the largest number of respondents with 24 (20.69%) followed by Wood Technology with 20 (17.24%), while the least number of respondents was Agri Business Management 3 (2.59%).

Data Analysis and Discussion

Research Question One: What is the level of information literacy skills possessed by Federal College of Forestry students?

Table 1 shows the results on the level of information literacy skills possessed by the Federal College of Forestry Students, Ibadan, Oyo state.

Table 1: Level of information literacy skills possessed by Federal College of Forestry students

	SA		A		D		SD		Mean	SD
	N	%	N	%	N	%	N	%		
Definition and Articulation of information need										
I can recognize when I need information	52	44.8	64	55.2	0	0	0	0	3.45	.499
I understand the need to use information resources to fill my knowledge gap	42	36.2	70	60.3	3	2.6	1	0.9	3.32	.569
I can identify the exact kind of information I need	63	54.3	49	42.2	4	3.4	0	0	3.51	.567
I can express my information needs in clear terms	52	44.8	58	50	5	4.3	1	0.9	3.39	.615
I possess the requisite skills to recognize appropriate information resources e.g. reference sources, journals, textbooks, eBooks, websites etc.	58	50	52	44.8	5	4.3	1	0.9	3.44	.623

weighted mean									**3.42**	**.574**
Location and Access to information										
I know where and how to find necessary information resources to complete my assignment and research	52	44.8	59	50.9	5	4.3	0	0	3.41	.575
I am used to everyday online and offline search tools	48	41.4	48	41.4	20	17.2	0	0	3.24	.730
I can use keywords to search for information materials on the web	51	44	56	48.3	8	6.9	1	0.9	3.35	.649
I have the skills to construct complex searches and search access to a wide range of databases using different user interfaces, redefining terms and repeating searches as required.	35	30.2	70	60.3	8	6.9	3	2.6	3.18	.667
I know the right search engines to use to find necessary information material	52	44.8	62	53.4	1	0.9	1	0.9	3.42	.562
I have the skills to find the exact information I need within a particular reference material	42	36.2	65	56	7	6	2	1.7	3.27	.651
weighted mean									**3.31**	**.638**
Assessment of information										
I can adequately and efficiently identify when information is from a reliable source	34	29.3	78	67.2	4	3.4	0	0	3.26	.513
I can identify specific information sources that are accurate and relevant based on author,	43	37.1	60	51.7	11	9.5	2	1.7	3.24	.693

publisher, date of publication etc.										
I cannot evaluate the accuracy and credibility of the information	17	14.7	37	31.9	56	48.3	6	5.2	2.56	.805
I understand the concept of accuracy, relevance and comprehensiveness of information resources	51	44	60	51.7	4	3.4	1	0.9	3.39	.601
I can select, retrieve and summarize information resources to suit my need	29	25	76	65.5	11	9.5	0	0	3.16	.569
I can filter information	49	42.2	52	44.8	13	11.2	2	1.7	3.28	.729
weighted mean									**3.15**	**.652**
Organization of information										
I know how to merge new information with existing thought to create new information	33	28.4	72	62.1	11	9.5	0	0	3.19	.589
I understand how to use logic and reasoning to synthesize information	48	41.4	56	48.3	9	7.8	3	2.6	3.29	.720
I understand that existing information can be combined with original thought, experiment and analysis to produce new information	58	50	48	41.4	9	7.8	1	0.9	3.41	.672
I can reflect on problems encountered	38	32.8	65	56	10	8.6	3	2.6	3.19	.697
weighted mean									**3.27**	**.670**
Use of information										
I can apply new and prior information to my task	57	49.1	52	44.8	5	4.3	2	1.7	3.41	.660
I can apply my critical thinking and analytical skills effectively	32	27.6	75	64.7	8	6.9	1	0.9	3.19	.589
I can use the information obtained to solve the	29	25	75	64.7	12	10.3	0	0	3.15	.579

problem on the ground										
I am unable to use bibliographic references in research reports	37	31.9	37	31.9	39	33.6	3	2.6	2.93	.872
									3.17	**.675**
Ethical use of information										
I can cite (give reference) to the consulted information sources in an appropriate manner	35	30.2	71	61.2	8	6.9	2	1.7	3.20	.635
I can avoid plagiarism and use information ethically	27	23.3	76	65.5	9	7.8	4	3.4	3.09	.667
I can present the new knowledge I have created to others	58	50	47	40.5	9	7.8	2	1.7	3.39	.707
I can understand the ethical, legal and socio-economic issues surrounding information.	38	32.8	66	56.9	10	8.6	2	1.7	3.21	.666
									3.22	**.669**
Grand Total									**94.52**	**18.67**

Key: SA= Strongly agree; A= Agree; D= Disagree; SD= Strongly disagree

Table 3: Interval table for the level of information literacy skills of the respondents

Interval	Overall mean score image	Remark
0- 38.66	-	Low
38.7 – 77.3	-	Moderate
77.4 – 116	**94.52**	**High**

To find the level of information literacy skills, a test of norm of conducted. The overall mean for the level of information literacy skills as indicated by the responses of the federal forestry college students is 94.52 which falls between the scale "77.4-116" and this showed a high level of information literacy skills.

Research questions two, three, four and five: What are the types, tools, purposes and challenges of knowledge-sharing practices of Federal College of Forestry Students?

Table 3: Knowledge-sharing practices of the respondents

Types	SA		A		D		SD		Mean	SD
	N	%	N	%	N	%	N	%		
Class notes/handouts	68	58.6	47	40.5	1	0.9	0	0	3.58	.513
Current affairs	21	18.1	72	62.1	22	19	1	0.9	2.97	.639
Previous examination papers	76	65.5	29	25	10	8.6	1	0,9	3.55	.690
URLs of useful websites	35	30.2	63	54.3	16	13.8	2	1.7	3.13	.704
Previous assignments/term papers	44	37.9	58	50.0	13	11.2	1	0.9	3.25	.684
Entertainment (music, video games, movies, Fashion, sports)	68	58.6	32	27.6	12	10.3	4	3.4	3.41	.814
Politics	25	21.6	57	49.1	24	20.7	10	8.6	2.84	.864
Scholarships	59	50.9	34	29.3	23	19.8	0	0	3.31	.785
Health-related	40	34.5	60	51.7	14	12.1	2	1.7	3.19	.709
Total									**29.23**	**6.40**
Tools										
E-mail	49	42.2	56	48.3	8	6.9	3	2.6	3.30	.713
Face-to-face	67	57.8	48	41.4	0	0	1	0.9	3.56	.548
Online forums/discussion boards	46	39.7	62	53.4	7	6.0	1	0.9	3.32	.627
Short messaging service (SMS)	51	44	47	40.5	16	13.8	2	1.7	3.27	.762
Mobile phone	53	45.7	57	49.1	5	4.3	1	0.9	3.40	.617
Social media	65	56	44	37.9	6	5.2	1	0.9	3.49	.639
Laptops	41	35.3	62	53.4	6	5.2	7	6.0	3.18	.787
Total									**23.52**	**4.69**
Purposes										
to clarify or discuss examination-related matters.	68	58.6	45	38.8	2	1.7	1	0.9	3.55	.580
to solve study related problems.	79	68.1	32	27.6	4	3.4	1	0.9	3.63	.598
to clarify or discuss certain concepts learned in the class.	51	44	60	51.7	5	4.3	0	0	3.40	.573

to discuss requirements of class projects, term papers, or assignments.	64	55.2	45	38.8	4	3.4	3	2.6	3.47	.691
for entertainment/relaxation purposes.	38	32.8	64	55.2	12	10.3	2	1.7	3.19	.684
so that I can feel appreciated / rewarded by my colleagues.	50	43.1	40	34.5	19	16.4	7	6.0	3.15	.907
to let my opinion/ ideas be heard on a topic	38	32.8	64	55.2	11	9.5	3	2.6	3.18	.705
to increase my confidence level	56	48.3	53	45.7	6	5.2	1	0.9	3.41	.633
to gain more popularity in school	41	35.3	29	25	42	36.2	4	3.4	2.92	.925
to share ideas with students from other groups while working on group projects or assignment	42	36.2	58	50	15	12.9	1	0.9	3.22	.695
Total									**33.12**	**6.99**
Challenges										
Time constraints	54	46.6	38	32.8	24	20.7	0	0	3.26	.782
Lack of knowledge sharing culture	28	24.1	33	28.4	40	34.5	15	12.9	2.64	.990
Lack of depth in relationship	27	23.3	44	37.9	20	17.2	25	21.6	2.63	1.068
Fear of providing wrong information	25	21.6	68	58.6	19	16.4	4	3.4	2.98	.722
Poor mobile and internet networks	33	28.4	39	33.6	41	35.3	3	2.6	2.88	.856
I do not think that I have the right content to share	17	14.7	23	19.8	48	41.4	28	24.1	2.25	.986
Total									**16.64**	**5.40**
Grand Total									**102.51**	**23.48**

Key: SA= Strongly agree; A= Agree; D= Disagree; SD= Strongly disagree

The findings showed that the common types of knowledge shared are class notes/handouts (mean 3.58), previous examination papers (mean 3.55) and

entertainment such as music, video games, movies, Fashion, and sports (mean 3.41) while the least shared is Politics (mean 2.84). The tools mostly used are face-to-face (mean 3.56), social media (mean 3.49) and mobile phones (3.40) and the least tools used are Laptops (3.18).

The purposes of sharing knowledge are to solve study-related problems (mean 3.63), clarify or discuss examination-related matters (3.55) and to discuss requirements of class projects, term papers, or assignments (3.47) while a small number of the respondents shared knowledge to gain more popularity in school (2.92).

The results also revealed that the major challenges of sharing knowledge by the federal forestry college students are time constraints (mean 3.26), fear of providing wrong information (mean 2.98) and poor mobile and internet networks (2.88).

Hypothesis

The First Hypothesis Test

The first hypothesis states that there is no significant relationship between information literacy skills and knowledge-sharing practices of the Federal Forestry College students. To investigate the relationship between the two variables, Pearson's Product Moment Correlation (PPMC) was used. Table 4 showed that information literacy skills ($r = .449^{**}$; $df = 115$; $p < 0.05$) have a significant positive relationship with the knowledge-sharing practices of Federal Forestry College students. This implies that there is a positive linear association between information literacy skills and knowledge-sharing practices. Thus, the null hypothesis stating that there is no significant relationship between information literacy skills and knowledge-sharing practices of Federal Forestry College students is hereby rejected.

Table 4: The relationship between information literacy skills and knowledge-sharing behaviour

Variables	N	Mean	St. Dev	Df	R	P	Sig
Information literacy skills	116	94.52	18.67	115	.449**	.000	S
Knowledge sharing behaviour	116	141.84	36.17				

Discussion of findings

On the level of information literacy skills possessed by Federal Forestry College students, the findings showed that the respondents had a high level of information literacy skills. An indication of this high level of information literacy skills was evident as the majority of the respondents indicated that they can define and articulate information needs, locate and access information and organize information. These findings are in line with the study of Aghanche, Nkamnebe and Nkamnebe (2019) who found that the level of information literacy skills of undergraduates is high and the participants are proficient in definition and articulation of information, vast in the assessment of information and proficient in the proper evaluation of information. This study implies that the undergraduates are highly proficient in information literacy skills, making them information literate. The findings showed that the common types of knowledge shared are class notes/handouts, previous examination papers and entertainment such as music, video games, movies, Fashion, sports while the least shared is Politics. The reason could be narrowed to the fact that these are directly related to academic success. Sharing these resources helps students perform better in their studies, which is a primary concern in educational environments. On the other hand, politics can be polarizing and controversial. People may avoid sharing political content to prevent conflict or to keep discussions light and uncontroversial. These findings align with the study of Opeke and Opele (2020) who confirmed that students shared knowledge in areas of their studies such as sharing information and knowledge that will improve their academic performance and others.

The tools mostly used are face-to-face, social media and mobile phones and the least tools used are Laptops. These are commonly used for sharing knowledge because they offer convenience, and immediacy, and are widely accessible. These tools support quick, real-time communication and are integrated into daily life. The results affirmed the position of Opeke and Opele (2020) who posited that the commonest media for sharing knowledge among postgraduate students in Nigerian Universities are face-to-face, Internet and mobile phones. This position is also consistence with the findings of Kalu, Useido and Kalu (2019) which showed that online charts such as Facebook, WhatsApp and other social media channels are the most effective channels for knowledge sharing among students.

The purposes of sharing knowledge are to solve study-related problems, clarify or discuss examination-related matters and discuss requirements of class projects, term papers, or assignments while a small number of the respondents shared knowledge to gain more popularity in school. These activities

are directly tied to academic success, which is a primary concern for students. In contrast, sharing knowledge to gain popularity is less common, as the primary motivation for most students is educational achievement rather than social recognition. The focus remains on improving grades and understanding course material, with popularity being a secondary concern for a smaller group. This conforms with the position of Opeke and Opele (2020) that one of the paramount purposes of sharing information and knowledge among students is to improve academic performance. The commonest challenges of sharing knowledge among federal forestry college students include **time constraints**, as students often juggle multiple responsibilities, leaving little time to share resources. **Fear of providing wrong information**, as students worry about the accuracy of their notes or answers. **Poor mobile and internet networks** hinder the easy and quick exchange of information, thereby making it difficult to share large files or engage in online discussions. These factors collectively limit effective knowledge sharing. These findings is similar to Ong and Tan (2022) where it was reported that some of the limiting factors to knowledge sharing are ICT issues such as the quality of the Internet connection, lack of time and lack of self-confidence, for instance, shyness and being over concerned about providing others with wrong information (and the consequences).

The results also showed that information literacy skills have a significant positive relationship with the knowledge-sharing behaviour of Federal Forestry College students. Information literacy skills enhance students' ability to locate, evaluate, and use information effectively. This competence boosts their confidence in sharing accurate and relevant knowledge, fostering a positive relationship with knowledge-sharing behaviour. The findings align with that of Jafari, Torkzadeharani and Bita (2019) that there is a significant and multiple relationship between information literacy (Definition of information needs, information location, information evaluation, information organization, information exchange) and knowledge sharing (Knowledge donation and knowledge gathering) by students.

Conclusion and Recommendations

The study revealed that knowledge sharing among Federal Forestry College students predominantly revolves around academic-related materials, with entertainment also being a significant category. The preference for these types of knowledge is likely driven by their direct impact on academic success. Politics, on the other hand, is the least shared, possibly due to its divisive nature. The tools most commonly used for knowledge sharing are face-to-face interactions, social

media, and mobile phones, which offer convenience and immediacy. Despite the high levels of information literacy among students, challenges such as time constraints, fear of providing incorrect information and internet networks hinder effective knowledge sharing. Importantly, information literacy was found to have a significant positive relationship with knowledge-sharing behaviors.

The study recommended that to further enhance the positive impact of information literacy on knowledge sharing; the college should integrate comprehensive information literacy training into its curriculum. This will ensure that all students are equipped with the necessary skills to share knowledge effectively; the college should create a supportive environment where students feel comfortable sharing knowledge without fear of judgment. To further enhance the positive impact of information literacy on knowledge sharing, the college should integrate comprehensive information literacy training into its curriculum. This will ensure that all students are equipped with the necessary skills to share knowledge effectively.

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ENHANCING PUBLIC LIBRARY SERVICES FOR COMMUNITY DEVELOPMENT AND TRANSFORMATION CENTRES IN ADAMAWA STATE-NIGERIA

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Abstract

This research work examined public libraries as a centre for education and community transformation. To highlight the potential of libraries, the study was guided by two research questions to determine how public libraries enhance community development and uproot challenges related to transforming public libraries in Adamawa state Nigeria. A descriptive survey design was adopted for the research, with a population of 130 respondents drawn from the Adamawa State Library Board, and members of the host community. The instrument used to generate data is a questionnaire and the data generated was analyzed using frequency tables and percentages. The major challenges confronting the libraries include Inadequate funding, Poor ICT Skills by Staff, Poor Conditions of Service, etc. The conclusion briefly explains the usefulness of public libraries in society. The recommendation stressed that the state government should address staff training challenges in public libraries in the state, increase funding to them, and set mechanisms to ensure that funds reach the libraries and the libraries should utilize the funds adequately to provide effective community development and transformation among other recommendations.

Keywords: Libraries, Education, Center, Community, Transformation.

Introduction

A Library is an establishment set up mainly for the supply of basic and extended information services to its host neighbourhood, this may be a university, a college of education, a polytechnic as well as the public. A library can also be looked at as a compilation of information and educational facilities housed and fastened to provide for the basic information requirement of the community. According to Tochukwu, Adizetu and Boniface (2020), all over the globe, there are achievement stories of how different communities have been metamorphosed by some interest, services, and responsibilities of the library which have continued to project librarianship in a positive image. Libraries now comprehend their roles in streamlining access and sharing of ideas, and in assuming depositories for the government, immediate society, and other information-using components of the society.

Okafor (2020) argued that for an organization to survive, it has to realign itself not just to provide access to information, but to also provide services that create and refine the host community. They pinpointed seven ways libraries can become more community-centred institutions: as a "social center, a cultural rumination of the community, a center for viability, a community center for multifaceted populations, a center for the arts, a university, and as an advocate of youth". Furthermore, the library can through its amenities refine arts appreciation and articulation by fostering the innovative life of the society. In recent years characterized by social inclusion, libraries must assume unique positions as spokespersons, especially for youths in deprived and poor communities. Finally, a community will persist in the digital era when libraries expand their priorities from information access to fixating innovatively on community building by delivering relevant services and schedules that meet community needs. In every community, libraries are an indispensable part of education structured to acquire, organize, preserve, and disseminate information resources to users. In this digital era with mobile devices and Internet bonding, users are now integrating data and information in libraries across the globe. In light of this, the library is one of the most vital modules needed for educational reform and national development due to its information facilities that guarantee the viability of all-round development (Omigie et al, 2023, Omeluzor & Ogo 2018). The purpose of this research is to assess and proffer solutions to the hurdles faced by libraries as educational transformation envoys in society.

Statement of the Problem

Despite the potential of libraries to serve as vital centers for community development and information transformation, the libraries are often constrained by limited funding and resources, which restricts their ability to expand services and invest in necessary technology and staffing hindering their ability to fulfil this role effectively. Additionally, many community members remain unaware of the diverse programs and resources available, leading to underutilization of library services. Finally, the lack of effective measurement tools makes it difficult for libraries to assess the impact of their initiatives, hindering their ability to demonstrate success and secure ongoing support. This confluence of challenges underscores the urgent need for strategic solutions to empower libraries as essential hubs for community development and information transformation, enabling them to meet the evolving needs of the communities they serve. Okuonghae (2018) agreed that the collective library's role is to deliver information to its community. The gaining of knowledge dispels obscurantism; therefore, the general objective of the library is to serve as a center for information where people can obtain the required knowledge to shrink their ignorance about their surroundings. It is on this basis that this research work is engaged for comprehensive analysis

Research Questions are;

1. What areas should the public libraries engage with to enhance community development and transformation in Adamawa State?
2. What are the challenges faced by the library in its effort at community transformation?

Literature Review

The position of librarianship in the reformation of academic society in Nigeria is palpable in the ways it educates professionals who handle information for national growth. Dispersal of knowledge has continuously been one of the public libraries' primary targets as long as they have catered as learning institutions, cultural archives, and research centers but in this digital age of erudition, they have to augment these roles and stop being inert repositories for printed resources. On the contrary, public libraries should advance their services and provide education of high quality by archiving resources in various forms and maintaining them easily accessible for online use among the community. However, due to stable changes in the environments where librarians work, the educational endeavors being incorporated into the training of library and information science (LIS) students in Nigeria have to be scouted. (Adebayo & Juliet 2019). Libraries are community nerve centers as they link people and

connect them to information. They are fortresses for kids, rendering after-school assignment help, games, and book clubs. They offer computer classes, letting older adults stay engaged in a digital world. Library bookmobiles and community outreach programs help those living in secluded areas and those who are confined to remain connected to the globe. Libraries are devoted to helping children and adults improve the skills needed to survive and excel in a global information community. The capacity to read and use computers is at the frontline of these skills. Basic, effective literacy is a crucial skill for personal and professional development. (American Library Association,
2024).

Librarians stand as educational advocates, organizing programs that go beyond mere book lending. They actively connect with communities to promote a love for reading. Revolutionary literacy initiatives, from tale hours for children to adult reading clubs, exhibit librarians' devotion to making reading reachable to all. Librarians don't only stock shelves; they compile diverse collections; safeguarding literature mirrors the intensity of the community it serves. Through collaboration with schools, librarians foster literacy as a partnership effort, broadening the love for reading beyond library walls. Libraries aren't static repositories; they're changing spaces promoting lifelong learning. Beyond books, they offer an array of resources, from online courses to workshops. Technology plays a pivotal role, with libraries providing computer access and digital resources, linking the digital divide for those seeking to promote their skills. Workshops on topics like financial literacy and coding showcase libraries as hubs for acquiring practical, real-world knowledge. Libraries adjust to societal shifts, endorsing new mediums like e-books and audiobooks, ensuring they remain pertinent in the ever-evolving environment of lifelong learning. Here are some examples of library schedules that effectively promote literacy and lifelong knowledge:

1. Libraries organize fascinating reading activities during the blaze to encourage children and adults alike to read, Librarians conduct participatory story time sessions for young children, promoting a love for books and reading,
2. Libraries host book clubs where members can converse literature, swap ideas, and develop acute thinking skills,
3. Librarians organize workshops on various disciplines, such as language learning, computer skills, and financial literacy, to empower adults, Librarians provide tutelage on digital skills, including web usage, online research, and using software programs

4. Libraries systematize reading challenges, inspiring participants to set reading goals and track their growth,
5. Libraries beckon authors for talks and signings, encouraging a deeper acknowledgement of literature and the scripting process,
6. Libraries anchor workshops on topics like scripting, tales by moonlight, and journalism to cultivate inventiveness and communication skills,
7. Librarians convey books and educational equipment to underserved communities, promoting access to insight and learning,
8. Libraries provide programs that entail both parents and children, enhancing family bonding through reading and learning together. (American Profession Guide, 2024)

Roles of Public Library in Educational Transformation

The library reforms communities by inspiring reading, expanding learning resources, developing learning skills, developing critical thought, developing values, and attitudes, and assisting with developmental tasks among others. Owing to its assets of materials and the learning chances it offers; the libraries can be seen to be ideally suited to the task of making education more applicable to current situations and more meaningful to the community. Key task a library ought to carry out trials to transform the community, these tasks include the following: -

1. **Higher education:** The role of higher education in community reformation is not unconnected to supporting education, teaching research, and trading by providing access to knowledge facilities, and materials and by providing referrals,
2. **User education:** In terms of user education, the library in its effort to promote community reformation can be involved in building good reading habits for students and members of the community, this can be attained by regular provision of reading facilities and making them readily accessible to the community,
3. **Recreation:** To encourage library use, the library has to furnish recreation to the community, this can be done by aiding the educational, civic, and cultural events of groups and organizations within the society when the community feels that the library is devoted to the cultural growth of the community then there is a high inclination for the community to accept transformation growth emanating from the book room.
4. **Societal and cultural role:** The most remarkable role of the library in community transformation can be attained in various perspectives which are

not limited to; the democratization of information and knowledge in society, connecting people to knowledge and information materials, giving under-privileged sections of the society consciousness about opportunities available in the society for their social and economic development, community information resources, community awareness about State programs such as mass literacy, coordinating cultural activities to promote social harmony such as book discussions, lectures on important topics that deal directly with community challenges, supporting the civic and cultural events of groups and institutions, knowledge preservation for successors, recording and preserving cultural knowledge as well as serving as a portal to the local and national government. (Murgan et al, 2018).

The Challenges Faced by the Public Libraries in Efforts toward Community Transformation

Some challenges are facing public libraries in their endeavour to provide educational reformative services to their users. Several problems are tormenting public libraries in Nigeria are in charge of providing efficient services to the users. Some of the challenges include

1. **Inadequate funding:** Inadequate funding is a grievous challenge distressing the activities of public libraries in Nigeria. The government does not fund the public library sufficiently and this has caused a lot of conundrums. It hinders effective and efficient service delivery. This problem can be connected to a lack of political will. Lack of political will can lead to negligence on the part of the government to fund public libraries properly; non-approval of the budget; and non-release or non-implementation of the budget (where approved).
2. **Poor ICT Skills by Staff:** The majority of the public library staff lack ICT skills. Inadequate levels of ICT literacy as one of the major problems facing public libraries in Nigeria, as they move into the 21st century, and poor ICT skills among staff have been identified as a problem.
3. **Ethnicity (tribalism) and Religion:** This problem exists in different degrees globally not only in Nigeria. Today, people are not employed based on confidence and merit but on "connections". This causes drawback in action and inefficiency in any organization bearing in mind that one cannot give what he does not have.
4. **Poor Conditions of Service:** In some public libraries, there is insufficient staff simply because of poor conditions of service. Young librarians usually prefer employment in federal government-owned establishments for the following reasons: better salary, frequent promotion, and study

leave with pay that is not obtainable in public libraries. Poor conditions of service lead to poor staff employment which can hinder service delivery.

5. **Library Location and Difficulty in Extending Services to the Rural Areas**: In Nigeria, public libraries are located in urban areas. As a result, their services are limited to people who live in urban areas. The rural dwellers are not benefitting from public library services hence bookmobile services. Bookmobile was established to serve the public and disseminate knowledge to all, especially to those who find it difficult to resort to standard libraries due to social or geographic reasons health issues, or old age. The government established bookmobile services in the '60s and '70s however, this was not sustained in Nigeria due to certain factors like bad roads, long distances, and use of dilapidated vehicles. These services were kept in abeyance and they created a negative effect on public library service delivery. (Okafor, 2020).
6. **Scarcity of sufficient resources:** Information resources are not always available in the quality desired. Nigeria particularly is faced with a problem that researchers have identified as "Book Famine". This means that information resources are scarce due to low publication output and where available, very costly. Nigeria is not likely to achieve meaningful development as the majority of her libraries, including academic libraries, are not adequately stocked with appropriate information resources and facilities. (Murgan and Murgan, 2018).

Methodology

The study adopted a survey research design through the use of a qualitative research method. Surveys are effective for gathering information directly from your sample population. It's a common research plan those researchers across different industries, such as marketing, manufacturing, and technology employed. The questionnaire was used to solicit data from the respondents (Indeed, 2024).

The population of the study includes the staff of the Adamawa State Library Board and members of the public library host communities. The researchers adopted the stratified random sampling technique to select 30 Librarians and 100 community members from the host community' giving a total of 130 respondents which is made up of two strata; 95 males and 35 females.

Result and Discussion

The data was analyzed by using frequency and simple percentages. Results were also presented in tables. The percentage of respondents was used for simplifying and reducing the presentation of the raw data. These include the calculations of

percentages and tables that were necessary. A percentage of 99.9% - 50% was accepted as Very High (VH) and High (H) by respondents while 49.9% - 0.99% were considered as Low (L) or Very Low (VL) by the respondents. If the percentage of response rate from the research question table was 50% and above it was considered accepted while a percentage response rate below 50% was considered low. The presentation, analysis, and interpretation of data are presented below.

Research Question 1: What areas should the public libraries engage with to enhance community development and transformation in Adamawa State?

Table 1: Responses of areas the public libraries should be engaged in, toward achieving community development and transformation

S/N	Community Transformation	VH	H	L	VL	Total
1	Organizing classes to educate housewives on issues bothering home and community development.	40 30.76%	70 53.84%	15 11.53%	5 3.84%	**130** **100%**
2	Organizing group discussions for youths in other to educate them on reading habits and self-reliance.	85 63.38%	10 7.69%	20 15.38%	15 11.53%	**130** **100%**
3	Organizing at intervals cultural fares to keep the cultural values of the community alive.	20 15.38%	18 13.84%	90 69.23%	2 1.53%	**130** **100%**
4	Provision of information and recreational materials for the members of the community.	88 67.69%	30 23.07%	11 8.46%	1 0.76%	**130** **100%**

Note: VH –Very high H – High L – Low VL - Very low

From Table 1 above, the respondents indicated that. Out of the 130 respondents, 70 respondents (53.84%) accepted that the library can transform the community by Organizing classes to educate housewives on issues bothering home and community development to a high extent. 85 respondents (63.38%) said that the library can transform the community by Organizing group discussions for youths in other to educate them on reading habits and self-reliance to a high extent, 90 respondents constituting 69.23% said that the library cannot use Organizing at intervals cultural fares to keep the cultural values of the community

alive for community transformation that means is stand rejected, while 88 respondents constituting (67.69%) think that the library can apply Provision of information and recreational materials for the members of the community to transform the community it to a very high extent which stands accepted.

Research question 2: What are the challenges faced by the public library in its effort to enhance community development and transformation?

Table 2: Responses on the challenges faced by the public library in its effort to enhance community development and transformation

S/N	Challenges	VH	H	L	VL	Total
1	Inadequate funding.	100 76.92%	10 7.69%	5 3.84%	15 11.53%	**130** **100%**
2	Poor ICT Skills by Staff.	17 13.07%	8 6.15%	22 16.92%	83 63.84%	**130** **100%**
3	Ethnicity (tribalism) and Religion.	74 56.92%	33 25.38%	4 3.07%	19 14.61%	**130** **100%**
4	Poor Conditions of Service.	65 50.00%	28 21.53%	9 6.92%	28 21.53%	**130** **100%**
5	Library Location and Difficulty in Extending Services to the Rural Areas.	103 79.23%	10 7.69%	0 0.00%	17 13.07%	**130** **100%**
6	Scarcity of sufficient resources.	5 3.84%	6 4.61%	8 6.15%	111 85.38%	**130** **100%**

Note: VH –Very high H – High L – Low VL - Very low

From Table 2 above, the respondents indicated that. Out of the 130 respondents, 100 respondents (76.92%) accepted that Inadequate funding is one of the different challenges facing library transformation to a high extent, 83 respondents (63.84%) think that most library staff have ICT skills that stand as rejected, 74 respondents constituting (56.92%) think that Ethnicity (tribalism) and religion is one of many challenges faces in the transformation process that considered accepted by respondents, 65 respondents constituting (50.00%) accepted that Poor conditions of Service are also part of the challenges, 103 respondents constituting (79.23%) have accepted that Library location and difficulty in extending services to rural areas are among the many challenges

faced by the transformation process of the library, while 111 respondents (85.38%) think that Scarcity of sufficient resources is not part of the problems faced by the transformation process.

Discussion of findings

The study revealed that the majority of the respondents indicated that the library should organize classes to educate housewives on issues bothering home and community development, organize group discussions to educate youth on self-employment and reading habits, and Provision of information and recreational materials for the members of the community, which are considered accepted and scored above 50% while organizing at intervals cultural fares to keep the cultural values of the community alive remain rejected by the respondents who scored below 50% by the respondent. This is in line with the findings of. (American Profession Guide, 2024) in their paper titled "*Librarians' Role in US Community Development and Outreach,"* they focused on achieving community development and transformation services. The study further revealed the challenges facing the library in its effort to provide services that will lead to community development and transformation including underfunding, Ethnicity (tribalism) and religion, Poor conditions of service, Library location, and difficulty in extending services to rural areas which are considered acceptable by the respondents who scored above 50% by respondents while scarcity of sufficient resources and Poor ICT skills by staff are not considered a challenge to the transformation process.

Conclusion and Recommendations

One of the laws of librarianship states that the library is a growing organism and it is not a new thing to say the community is also a changing environment, the community of the 21_{st} century is slowly doing away with old practices in terms of information delivery and concurrently community development, this means that the use of catalogue cards by libraries is being replaced by the use of online Public Access Catalogs i.e. (OPAC) in the same way the traditional ways of storytelling by librarians are changing to the use of the Internet to deliver information content right to the fingertips of the client, gadgets, and information sources such as Electronic books, E-journals, E-thesis, E- papers, Communication sharing software Electronic mail, Social Networks of Facebook, Twitter, Linked, etc. Sharing ideas, downloading and uploading YouTube, etc. are taking over the entire community's information delivery tactics therefore it is of utmost importance that libraries and librarians in their attempt to achieve community transformation, take these changes into cognizance to reach and sustain the intended goal. The study recommended that the Adamawa state

government should address staff training challenges in public libraries in the state, increase funding to them and set mechanisms to ensure that funds reach the libraries and the libraries should utilize the funds adequately to provide effective community development and transformation among other recommendations. There should be adequate provision of training facilities, with the knowledge that the satisfaction of library users depends not only on the space and the resources but also on the library staff. Through in-house training, webinars, workshops, and conferences, library staff are informed about library resources and programs and are guided on the best ways to provide and share these resources with library users. The human resource situations in public libraries in Adamawa State should be reviewed occasionally. Staff conditions of service, salaries, allowances, employment process, retirement, and others should be upwardly reviewed to motivate the staff and to also make public library jobs more attractive and should be provision of adequate equipment and facilities necessary for providing library services to users.

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UNDERSTANDING THE CHALLENGES TO INFORMATION-SEEKING BEHAVIOUR AMONGST INTERNALLY DISPLACED WOMEN IN WESTERN EQUATORIAL STATE, SOUTH SUDAN

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Abstract

This study was conducted to explore challenges to Information Behaviour amongst Internally Displaced Women in the Western Equatorial State, South Sudan. This propelled the researcher to conduct the research that sought to shed more light on what prompts internally displaced women in the study area to seek information, specifically establishing how women access information in IDP sites and the challenges experienced by women in accessing information in IDP sites in Western Equatorial State, South Sudan. Qualitative research methodology and an interpretive phenomenology research design were utilized for this research. Eight women leaders among the IDP population in Sites of Western Equatorial State, South Sudan were engaged to obtain necessary information for the study. A purposive sampling technique was employed for the selection of the participants and a Semi-structured interview was utilized for the data collection, while and thematic analysis was used to analyze the data. Findings from the study revealed that access to information among women in the Western Equatorial State is through other women, camp coordinators and Media. Challenges to information on health, information on education, food, current trends, finance and relocation among others necessitate internally displaced women in the study area to seek information. This information is normally obtained from documents disseminated at the sites, peer networks, social networks, and camp leadership. Some of the IDPs are not privy to the information due to layers of barriers that impede them. This also serves as a hindrance in them accessing some essential services that ease their stay at the IDP sites. This research therefore recommends collective social cohesion and peace-building efforts of the Government and other stakeholders to ensure durable solutions to the incessant ethno-political violence in the Western Equatorial state, and in South Sudan as a whole to avert the multiple displacements the population is susceptible to.

Keywords: Challenges**,** Internally Displaced People, Information seeking behavior, Western Equatorial State, Women.

Introduction

No nation or people develop without having proper information that enables them to do so. Information thus, forms the bedrock of the development of a nation and avails necessary knowledge, skillsets, technology, availability of resources and innovation to equip its people on how to go about advancing the country. Well-informed people enable the advancement of knowledge, form the basis for innovation, allow for proper harnessing and utility of resources, and are very integral to the growth and progress of a society (Okoli & Azubuike, 2021). Information-seeking connotes processes individuals undertake in obtaining information to address pressing needs. This encompasses individuals' interaction with information; how they access search, organize, store, process and utilize information and ways in which they with the information. This gives better insight into how internally displaced persons seek and utilize information in their dwelling sites.

An individual's behaviour influences the way he/she accesses or seeks information. Needs and curiosity majorly prompt an individual to access. This is normally in response to finding solutions to specific queries or to be equipped with adequate knowledge for proper decision-making. Prevailing circumstances preempt the information quest. The task of searching for information can be a tedious task in normal settings, it becomes more cumbersome when a person is removed from his familiar environment. Displacements disrupt the balance of the affected people, as they flee from their areas of origin to mostly unknown locations in search of safety and other benefits. Women generally feel the brunt of displacement more, especially as they nurture the family. This prompts them to instinctively seek information that helps them navigate through their responsibilities.

Despite their several limitations, women in displacement keep striving to access information needed by them and their households. How they go about this quest for information and interact with information connotes their information behaviour. Information-seeking behaviour connotes a continuous search for information to respond to specific problems. Many problems in the world require adequate information to be able to tackle them and women specifically are always in the quest for information seeking to enable them to resolve issues in their daily lives. Regardless of where people find themselves, there is always the desire to seek varied forms of information from women on health, education, prices of goods, nutrition, conditions of dwelling environment, employment opportunities and so forth, to help care for their families (Birger, 1997).

Statement of the Problem

Internally displaced women in IDP sites struggle to access information despite how critical information is in the daily lives of individuals. This hampers them from leading a more dignified life as compared to other individuals not faced with similar plight, further worsening their situation, making them more vulnerable and in a dire situation. Scare information or improper information dissemination techniques in sites of the Western Equatorial State, South Sudan, hinders the proper comprehension of the information at the sites by these women

Despite the prevailing need for them to obtain information integral for them to thrive, the inadequate know-how in obtaining the information required remains a prevalent challenge to the IDPs. This was evident when the researcher was approached by most of the IDP women to further clarify the information received at the IDP sites. The IDPs mistook them for a healthcare provider, or other humanitarians providing food aid or other services based on their expectations and understanding of the information provided at the sites.

Research questions

The study was guided by the following questions;

1. How do women access information in IDP sites in Western Equatorial State, South Sudan?
2. What are the challenges experienced by women in IDP sites in the Western Equatorial State, South Sudan in accessing information?

Literature Review

Amadasun (2020) in his study explored the social work services to internally displaced persons from the qualitative paradigm. The author indicated that one unique feature of the social work profession is the centrality of the person-in-environment perspective, which dictates that social work services are holistic. The study examined the nature of social work services to IDPs. 15 social workers in Nigeria constituted the population for the study. Data was collected through a semi-structured interview with the participants in Abuja. Results show that social work services are largely inadequate to address the broad range of needs, issues, and concerns of displaced persons. Feasible suggestions that consider the intersectionality between people and their social environment are offered to social workers. Though this study is not directly a study from the content area of Library and Information Science, it dwells on service provision. All services either social work or from any perspectives, ideas, or subjects are communicated through information dissemination to the audience.

Another study by Ogunode, Chijindu and Jegede (2022) observed that there are many children in IDP sites in Nigeria, not receiving quality education services because of many challenges. This paper examined the problems hindering the provision of education services for children in their various sites across Nigeria. Both qualitative and quantitative resources were sourced online and print materials were used to provide empirical and opinion support to the various points raised in the paper. The paper concluded that inadequate funding, shortage of specialized and professional teachers, lack of modern infrastructural facilities, inadequate instructional materials, lack of data, corruption, poverty, limited school facilities, and instructional challenges of IDPs were the problems hindering the provision of education services for them in the sites hosting them in Nigeria. To ensure the provision of quality education services in all IDP sites across the federation, this paper advances the following suggestions; the federal and state Governments should create a special funding programme for the education of the IDPs in their respective sites; the federal government should direct the Minister of education to create the department of emergency education in the ministry of education to handle the education for IDP sites across the country, the government should develop an effective monitoring and evaluation system to check the financial allocation to all the internally displaced persons sites to prevent diversion of funds, the government should set up a committee to ensure accurate data of school-aged children are collected in all IDP sites to enable effective planning of education for the IDP sites across the country, etc.

Lafta, Aflouk, Lyles and Burnham (2016) conducted a study to determine the health status and health needs of women and children, aged 15 and under, among a sample of this IDP population in Kirkuk, Baghdad, and Karbala governorates. The study observed that continued conflict in Iraq has created an estimated four million internally displaced persons. The bulk of recently displaced persons are in Central Iraq, often in insecure and difficult situations. Data was collected from the senior female in 1216 families which contained 3665 children living in 45 makeshift settlements. Findings revealed that the majority of IDPs were living in tents or religious centers. Repeated displacements were common. Kidnappings were reported by 5.2% of families and 7.9% of families reported the death of a family member during or after displacement. Intentional violence accounted for 72.3% of deaths. Only a third of children in school at the time of displacement continued in school. On average, households had received assistance on 3.2 occasions since displacement, food being the most common form. Access to health services was difficult. Some form of transport was often required. Few women knew where to secure antenatal services, and many did not know where childhood immunization services were available. During or after

displacement 307 women had delivered or were currently pregnant. Complications of pregnancies were common, with a quarter reporting anemia, and 22.1% experiencing hemorrhage. Both communicable and non-communicable diseases (NCDs) were common in the women and children in the survey. Scabies, diarrhea, and lice were common among children. Among women, hypertension accounted for 36.6% of NCDs and type 2 diabetes for 15.9%. Domestic violence directed against women was reported in 17.4% of families and against children in 26.6. Women and children in IDP settlements of Central Iraq experience much vulnerability involving their health, education, and environment, in addition to living in physical danger. While some external assistance was received, much more is needed to meet the needs of a displaced population which is unlikely to return home soon.

Methodology

The qualitative research methodology and interpretive phenomenology research design were used to carry out the study. The ethnopolitical violence in Tambura County of Western Equatorial State, South Sudan led to the internal displacement of over 80,000 people within the state (REACH Initiative, 2020), among which 55,378 individuals are women. Utilizing the purposive sampling technique, eight (8) participants were selected as the sample size for this study to avert data saturation. The researcher employed semi-structured interviews for data collection and the interview between the subjects and the researcher was recorded using a handheld device. The researcher also closely and personally observed the women, took notes in the process and repeated the questions asked simplistically when needed to ensure clarity. The data was analyzed using thematic analysis.

Results and Discussion

Voice recording was used to collect data from the eight (8) participants in the local dialect (in Azande language), majorly spoken by the people of Western Equatorial State, South Sudan, this was later transferred to phrases and sentences through transcription. The interviewees had priory consented to be part of the study out of their free will. Varied opinions on information needs, sourcing and understanding of their information needs adequate to meet their expectations were expressed by the women based on their different life experiences. This aligns with the interpretive paradigm qualitative study.

Access to Information to Meet the Needs of Women in IDP Sites in Western Equatorial State, South Sudan

This research objective investigated how women in IDP sites in Western Equatorial State, South Sudan access information to enhance to address the identified information needs. Table 1 provides details on access to information to meet the needs of women in IDP sites in the Western Equatorial State, South Sudan.

Table 1 Access to information by Women in IDP Sites in Western Equatorial State, South Sudan

Research Objective	Themes	Sub-themes
Access information to meet the needs of women in IDP sites in Western Equatorial State, South Sudan	**1. I use other women**	**NIL**
	2. Through camp coordinator	**NIL**
	3. Through Media	**1.1 Radio Programmes**

Source- Interview Analysis, 2023

Discussion of the emergent themes is as follows starting with the use of other women as a means of understanding information received.

Theme One – I use other women: This theme comprises the view of the participants on the use of other women as a way of accessing any information to meet their needs. Their expressions to the researcher revealed that they rely on the opinion of fellow women in the camp about how they get information. Their narratives on this theme are presented in the following sentences;

"If *there is anything I want and I do not understand, I usually meet a woman who stays close to my tent for clarification. Once, she explains the situation to me and how to get it, I am satisfied with the interpretation she gives me*" (P5).

"*As I am not educated, I cannot read and write in English, so I depend on other women to help me out on how to search and look for information*" (P6).

Theme Two- Through camp coordinator: This theme contains the expression of the participant who indicated that access to information is through the assistance received through the IDP site coordinator**.** This assistance simplifies the creation of ways of searching for information when the need arises, without this guide, it would be impossible to do anything around here. The participants expressed this.

"*There is nothing I can do with the help and guidance I get from the camp coordinator. If there is any problem I have or get information about any problem, I do not use it until I show the IDP site coordinator. That is my support*" (P3).

Theme Three - Through Media: This theme captured the narratives of the women on how they access and understand information through the media to ensure they cope with everyday life on the IDP site. This theme has one sub-theme; radio programme.

***Radio programme*:** This sub-theme consists of the narratives of the participants who identified that accessing information is through various radio programmes aired. The researcher got to know through the interactions with the participants that total reliance is placed on programmes aired on the radio. Those programmes are instrumental to the accessing and understanding of information especially those with gynecology and obstetrics health problems. It helps the women have a clearer understanding of certain information. Following are the narratives of the participants about this sub-theme.

"*Radio programmes are very enlightening. I look forward to the timing of such programmes. Through these programmes, I understood information I had previously encountered at the IDP site. I have had issues with my menstrual cycle; a session was held on the radio. This helped in knowing the remedy to the problem*" (P4).

"*I listen to programmes on care during pregnancy on the radio. These programmes made to understand the information I had no idea about before. This helped me to know when to seek medical assistance through the medical professionals at the s*" (P1 & P2).

Challenges Experienced by Women in Accessing Information in IDP Sites in Western Equatorial State, South Sudan

The research objective investigated challenges experienced by women in IDP sites in the Western Equatorial State, South Sudan in accessing information. These themes are presented in Table 2.

Table 2; Challenges Experienced by Women in IDP Sites in Equatorial State, South Sudan in Accessing Information

Research Objective	Themes	Sub-themes
Challenges experienced by women in IDP sites in Western Equatorial State, South Sudan in accessing information to meet their needs	1. Lack of information centre	1.1 Absence of a library
	2. Educational background	2.1 Search skills

Source- Interview Analysis, 2023

The emergent themes are discussed as follows starting with the lack of information centres.

Theme One -Lack of Information Centres: This theme comprises the narratives of the women about how the lack of information centres poses a challenge to accessing information. The researcher found out that the absence of a designated place to serve as information is a serious bottleneck to getting information for

addressing their information needs. One sub-theme is attached to the main theme-the absence of a library.

Absence of a library: This consists of the expression of the women in the IDP sites in Western Equatorial State, South Sudan. The library according to them is supposed to provide a place where they can engage in information for self-development and relaxation. Unfortunately, there is no provision for a library on the entire site. Following are their narratives.

"*I like reading for pleasure. And I get access to library resources at the library in my locality before being displaced. There is no library on this site. It is very difficult to study in this place because of the concentration of people in the site*" (P5).

"*There is no library at the camp. Even if you want to read, there is no convenient place to do that*" (P2, 3, 4)

Theme Two- Educational background: This theme consists of the narratives of the participant about how their educational background has barred them from accessing information to satisfy their informal needs. The sub-theme along with this is search skills.

Search skill: Participants expressed that not possessing searching skills has been a challenge to accessing information through the internet. The researcher found out that since most of them use smartphones, the opportunity to search for information is unlimited. The participants revealed that they cannot browse for information because they lack the skills required to search for information online. Their narratives concerning the sub-theme are presented as follows.

"*How would I get information, when I do not know to use the internet? I cannot read, so how can I search for information*?" (P6).

"*Searching for information is always a serious task for me. I do not know how to get information when I need to solve a problem. I usually require assistance to be able to get information*" (P1&2).

Discussion of Findings

Access Information to Meet Their Needs Women in IDP Sites in Western Equatorial State, South Sudan

The research findings revealed that access to information among women in Western Equatorial State to meet their needs is majorly through their women peers (word of mouth), the IDP site coordinators and the media. Access to information is one of the fundamental human rights, denial of which leads to unhealthy living conditions and difficulty in navigating through life. This contributes to the untold hardship faced by IDPs in sites of Western Equatorial state, South Sudan. IDPs like every other person need access to information to be

kept abreast of the latest developments about the conditions which displaced them from their areas of origin.

Abdullah, Elareshi & Kaba (2022) identified the rationale behind respondents' use of Social Networking Services (SNS) for news and information and revealed how much they trusted these platforms. The majority of the respondents were found to be dependent on a variety of SNS media, old or new, to receive news and information, especially in times of crisis and conflict. These devices were found to be very crucial in disseminating information to families, news contributions, and news production.

Challenges Experienced in Accessing Information by Women in IDP Sites in Western Equatorial State, South Sudan

The findings of this study reveal that challenges experienced by women in IDP sites in Western Equatorial State, South Sudan in accessing information to meet their needs are lack of information centre and educational background (Search skills). The availability of information centres and educational institutions is consequential to people living in IDP sites. It will enable the people in IDP sites to keep themselves involved in creative and critical thinking. Educational institutions will provide a learning avenue for those who find themselves in that condition to give a platform for a smooth transition in learning.

This finding is not surprising as studies have reported that the internally displaced face challenges despite spirited efforts of the government of the country and international organizations to support them. Ojo (2017) opined that displaced persons go through numerous challenges even though home governments, international organizations and non-governmental organizations offer them support and services. The study revealed that IDPs go through numerous challenges, from shortage of food supply and water, poor sanitation and health care, to lack of security, and the prevalence of rape and abuses in the sites. Similarly, Nwanna & Oparaoha (2018) reported severe socio-economic, health, security and environmental challenges. Likewise, George (2020) challenges IDPs face, such as child rights abuses brought on by reduced parental capacity and prevalent sociocultural norms, limited resources, and institutional thresholds' limitations. This implies that challenges and obstacles are a common phenomenon in concentration locations usually referred to as internally displaced persons sites.

Conclusion and Recommendations

From the findings of the study, conclusions can be drawn that several limiting factors (low literacy level, the prevalent cultural norm of male dominance in the society, improper information dissemination among others) prevent

internally displaced women in IDP sites of Western Equatorial state, South Sudan from accessing adequate information to enable them to lead a smooth life in displacement or decide on return. Also, with continuous displacements in the country, more IDP sites are likely to spring up within the study area despite the dwindling humanitarian resources and limited support given to the displaced people. This continues to be a bane in the location unless a critical examination of the root cause of the crisis is examined and a stable solution is found to bring an end to it. More needs to be done by the South Sudan Government of transitional unity, the Government of Western Equatorial State, and other stakeholders in quelling the tensions that lead to displacement and disrupt the normalcy of the people of the state. Also, with the dwindling humanitarian resources and limited support given to the IDPs, the Government, the United Nations and other stakeholders need collective effort towards ensuring the provision of libraries, establishing information centres, organizing regular meetings and extramural classes to enable eased information access for the IDPs in the study area. Especially the women (majorly marginalized amongst this population in terms of access to information) and the respective site coordinators need to promote activities that enable activate information seeking behaviour among the IDPs.

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AWARENESS AND ADOPTION OF ARTIFICIAL INTELLIGENCE (AI) TECHNOLOGIES FOR USERS WITH VISUAL AND HEARING IMPAIRMENT IN UNIVERSITY LIBRARIES IN NIGERIA

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Abstract
New technologies including Artificial Intelligence (AI) are increasingly becoming a major force in contemporary society as they touch almost our lives, health, education and business. AI is modelled after human intelligence to adapt, recognize and process information and is increasingly changing the ways and manner people handle certain tasks. This study examines the awareness, preparedness and challenges of adoption of AI tools in Nigerian university libraries for information service delivery to users with visual and hearing impairment. This study adopted a descriptive survey design. The sample population consists of university librarians in the federal, state and private universities in all 36 states and the Federal Capital Territory in Nigeria. The questionnaire was the main instrument for data collection. The questionnaire was administered face-to-face to the respondents by the researchers with the support of ten research assistants. Data were collected at the 2024 Nigeria Library Association (NLA) conference/Annual General Meeting (AGM) that was held at the University of Port Harcourt from 7th to 12th July 2024. The researchers randomly administered a total of 1000 copies of the questionnaire to librarians who attended the conference/AGM. From the 1000 questionnaires that were distributed, a total of 624 (62.4%) were retrieved and found usable for the analysis of this study. The collected data were analyzed using SPSS (Statistical Package for the Social Sciences), version 16.0. The results show that over 50% of librarians in this study are aware of AI tools and the majority of them are highly prepared to adopt AI for delivery of library and information services to users with visual and hearing impairment. The results moreover, revealed notable challenges facing the adoption and use of AI in university libraries in Nigeria. Recommendations to increase awareness, preparedness and solutions to the challenges are offered.

Keywords: Artificial Intelligence, hearing impairment, visual impairment, Librarians, University Library, Nigeria.

Introduction

New technologies including Artificial Intelligence (AI) are increasingly becoming a major force in contemporary society. It touches almost all areas of our endeavours, including business, education and health. Before the emergence of new technologies in the library and information centres and for delivery of information services, library users particularly, students, staff and researchers with hearing and visual impairment used the general reading areas of the library and information centre to access information on the shelves with little or no support. The increasing need to provide access to information in the library has led to the development and use of different tools such as library catalogues, integrated library software (ILS) and institutional repositories (IR) among others for the delivery of information services (Omeluzor, et al., 2017). None of them has shown any significant advantage towards supporting library users with hearing and visual impairment global statistics reveal that there are about 466 million people who are suffering from hearing loss; and visually impaired students who rely on lip reading to understand speech (Kumar, et al. 2022). Observations have shown that library users with impairment faces a lot of challenges in using the library information and services with less or no technology to support their learning and research in most university libraries in Nigeria. Students with visual and hearing impairment experience educational barriers that many other students do not know. Such barriers can be resolved with the use of Artificial intelligence (AI) in the library and information centres. AI technologies are viable tools that emulate human cognitive abilities and thinking processes that can aid and support hearing and visually impaired persons in the library (Laskowski & Tucci, 2024). IFLA in 2012 agreed that the library community was a major provider of services that assisted blind people to access information. A review of 67 articles on the application of AI and its impact on library operations between 1989 and 2023 showed a gap in the literature on the awareness, preparedness and challenges of using AI by librarians for the benefit of people with impairment in Nigeria (Subaveerapandiyan, 2023). This study therefore seeks to close that gap by investigating the challenges with the adoption of AI technologies for delivery of library services to users with hearing and visual impairments at university libraries in Nigeria.

Research Objectives

This research is guided by three objectives:

1. Find out the level of librarians' awareness of AI technologies for users with hearing and visual impairment among librarians in university libraries and information centres.

2. Know if librarians are prepared to adopt AI technologies to support users with hearing and visual impairment in University Libraries and information centres.
3. Identify the challenges confronting the adoption of AI in university libraries and information centres for users with hearing and visual impairment.

Literature Review

The university library and information centre in recent past have consistently developed tools to support library patrons. Studies such as (Agboola, 2000; Sani & Tiamiyu, 2005; Osaniyi, 2010; Omeluzor, et al., 2012; Mbakwe & Ibegbula, 2014), have shown that several tools that were adopted in the past are riddled with a series of shortcomings since they fail to recognize the changing needs of the library users including those with visual and hearing impairment. Contemporary technological tools such as Artificial Intelligence (AI) are changing the landscape of information access and delivery to people with different health challenges. Irrespective of the penetration of AI in several areas of human endeavour, literature is still scanty on the awareness and preparedness of librarians to adopt it in library services, especially for users with impairment.

There is current literature that shows the effect of technology such as AI on online learning and education processes in China, India and the United States for the support of learners (Dogan, Dogan & Bozkurt, 2023). In another dimension, Omame and Alex-Nmecha (2020), Echedom and Okuonghae (2021) and Hassain (2023) have revealed that the application of AI in the library has several positive implications in demystifying services to library users including people with disability. Currently, inquiry into the use of AI technologies for the improvement of more accessible learning environments for people with hearing and visual impairment is growing (Educause Review, 2022). Hence the enquiry into the awareness and preparedness for the adoption of AI in library services for users with impairment at the university libraries in Nigeria.

Artificial Intelligence (AI) is changing the ways and how people do things and would serve a great deal for people with different forms of disability. For information users with hearing and visual impairment, several AI tools have been developed to assist them achieve their educational purposes. Google or smart phones has increasingly been developed to support people with impairment using speech recognition, natural language processing, self-driving or autonomous cars, machine learning, deep leaning and robotics among others (Omame & Alex-Nmecha, 2020). Similarly, AI-based tools such as Apple Siri, Amazon Echo and

Alexa have been found to help with interactions by people who are unable to see content. Such tools provide ways of interacting with content through a spoken dialogue model. Using the tools, could help students to find the contents of a webpage to be too visually stimulating. Students could ask the virtual assistant to read aloud the headings on a page, allowing them to get a sense for how the page is structured, figure out where to go on the page, or skip content that is not relevant (Tugend, 2022).

Furthermore, the use of AI for the improvement of visual and auditory accessibility is evolving. For instance, the National Technical Institute for the Deaf, one of the nine colleges of the Rochester Institute of Technology, worked with Microsoft to customize technology and platforms that already existed to caption classes for deaf and hard-of-hearing students (Tugend, 2022). Similarly, AI can help students with disabilities using accessibility in testing, content descriptions and webpage interactions (Educause Review, 2022). The AI content description tool is used to automatically describe images for students who are legally blind or have low vision. It could be used in the library to do a "first pass" at describing content for students who have visual impairment. Moreover, the tool can be used to help with interactions by people who are unable to see content. A recent study by Wang, Wang and Zhang (2023) delved into the deep learning methods applied in diagnosing eye diseases and smart devices to help visually impaired people in their daily lives. The study summarized some recent research on the development of AI-based eye disease diagnosis and visual aids. The summary shows that AI may be able to assist the visually impaired in the future which can be applied in the library for users with visual and hearing challenges.

The awareness of librarians about AI around the world is increasing and it is of high importance. It underscores the fact that users with special needs to access information at the library and information centre depend majorly on the ability of librarians to know and use such technology for the benefit of library patrons with visual and hearing impairment. Berdasco, et. al. (2019) studied users' experiences while comparing intelligent personal assistants such as Alexa, Google Assistant, Siri and Cortana. The study showed that 99% of the participants were aware of the existence of various AI assistants, but only 86% had used at least one of them. In another study by Moustapha and Yusug (2023), the study revealed that librarians in a university library were aware of the many ways in which AI can be applied to provide services to library users. Similarly, while focusing on the barriers to the adoption of artificial intelligence in academic libraries, the study of Yusuf, et. al. (2022) indicates that the lack of preparation of

librarians on the use of AI to meet their service needs was a challenge. The study confirmed that the low level of preparation by librarians on the application of AI for their service needs was a challenge. In Kwara State, Nigeria, a study on perceived awareness and usefulness of AI for efficient library operations in university libraries was carried out. The findings revealed that a higher percentage of the respondents were aware of AI robots, AI Chatbots, Humanoids, Face recognition technology, Dynamed, AI Expert Systems and Virtual References (Isiaka, et. al., 2024).

In a related development, Oyekale and Zubairu (2023) assessed the awareness perceptions, and adoption of AI in university libraries in Osun State, Nigeria. The study showed that 80% of the librarians were highly aware of AI but none of the libraries surveyed has adopted AI for library services. Equally, Abayomi, et. al.'s (2021) study indicates that librarians were aware of AI in the management of university libraries in Nigeria. Moreso, Ali, et. al. (2022) study on AI tools and university librarians revealed that librarians were aware of AI technologies. The level of preparation as revealed in the literature here was as a result of various conversations and ongoing conferences and workshops on the impact of AI on libraries (Hervieux, & Wheatle, 2021). However, Wood and Evans (2018) insisted that AI is not much discussed in library literature as compared to professions like medicine, law, military, and aviation, which is affecting its adoption and use by librarians and librarians. Notwithstanding the challenges, Obiano, et al. (2016) studied the facilitating conditions for the adoption of AI in Nigeria academic libraries. The study revealed that a total of 170 librarians who responded in the study were prepared to adopt AI in library services. In Nigeria, Adebayo, et. al. (2022) takes a *look at the adoption of AI for effective library services in academic libraries in Nigeria. The paper established some of the benefits of adopting AI in academic libraries which include user-friendly, infinite functions, ability to take complex work among others. The paper concluded that the adoption of AI in academic libraries is setting a new level of efficiency and effectiveness in library service delivery that would help the financial uncertainty, emerging skill gap, and competing with today's alternative sources of information that is prevailing among developing countries such as Nigeria.* Despite the benefits of AI, some studies have demystified the challenges facing the adoption and use of AI by librarians for information services to patrons with visual and hearing impairments. Hussain (2023) stated that even though AI is a potential and vibrant technology that can be used in the university library for the acceleration of library services to people with disability several factors such as inadequate funding, the attitude of librarians and technical skills were a few

obstacles that is hampering its adoption in library operations (Hussain, 2023). Similarly, a lack of trained sign language facilitators and the high cost of assistive devices such as AI were some of the major challenges facing the deployment of AI in libraries for the benefit of users with hearing and visual impairment (Kumar, et al., 2022).

Methodology

The study adopted a descriptive survey design. The choice of a survey design was due to its reliable means of providing the researchers with an opportunity to use the data gathered from this study to ascertain the awareness, preparedness and challenges of adopting Artificial Intelligence (AI) tools by librarians to aid information access to users with hearing and visual impairment in Nigerian universities. The population of the study consists of all the university libraries in the 170 universities across Nigeria (National Universities Commission, 2024). The sample of the population cut across all university librarians in federal, state and private universities in all 36 states and the Federal Capital Territory in Nigeria. The instrument for data collection was a structured questionnaire designed by the researchers. Before the administration of the questionnaire to the intended respondents, a pre-reliability test was conducted by sending the instrument to 15 librarians who work at public libraries who were not part of the study. The 15 copies of the questionnaires were all returned and analyzed using Cronbach's alpha correlation coefficient at 0.50 level of significance, with a result of r = 0.84. The collected data were analyzed using SPSS (Statistical Package for the Social Sciences), version 16.0. The results were presented in tables with frequency counts and percentages for precision and understanding.

Result and Discussion

Demographic Information of Respondents

The demographic result of the respondents shows that 624 librarians responded to the instrument from the six (4) geo-political zones and the Federal Capital Territory. The result reveals that among those that responded, 187 of them had PhD, 114 had Masters Degree, 210 had Bachelors Degree and 113 had HND and OND in librarianship. Among the respondents, 89 were university librarians, 108 were Associate Professors/Deputy University Librarian, 240 were Senior Librarians, 87 were Librarian 1, and 34 were Librarian II, 100 were Assistant librarians. The result further shows that 152 of the respondents have 1 to 5 years of work experience, 98 of them had 6 to 10 years of work experience, and 112 had between 11 to 15 years of work experience. The result reveals that 104 of the

respondents had work experience between 16 to 20 years while 158 of the respondents had work experience of 21 years and above at their libraries. This result implies that the respondents were qualified to be part of this study as the majority of them have worked for many years in various capacities at the university library with requisite experiences that can help them in making necessary decisions.

The results in Table 1 revealed the level of librarians' awareness of AI technologies for users with hearing and visual impairment among librarians in university libraries and information centres.

Table 1

Awareness of AI Technologies for Hearing and Visual Impairment	Aware	Unaware
For Hearing Impairment		
Automatic Speech Recognition (ASR)	594 (95.2)	30 (4.8)
Real-Time Captioning (RTC)	541 (86.7)	83 (13.3)
Sign Language Recognition (SLR)	320 (51.3)	304 (48.7)
Speech-to-Text (STT) Apps	489 (78.4)	135 (21.6)
Chatbots for Communication	406 (64.9)	218 (34.9)
Speech Recognition Technology (SRT)	624 (100)	-
Smart Assistants for Library Services	366 (58.7)	258 (41.3)
Social Robot (SR)	124 (19.9)	500 (80.1)
Advanced speech synthesis technologies	549 (88.2)	74 (11.9)
For Visual Impairment		
Text-to-speech (TTS) software	212(34)	412 (76.3)
Image Recognition for Visual Content Description (IRVCD)	444 (71.2)	180 (28.8)
Braille Translation Software (BTS)	550 (88.1)	74 (11.9)
Voice Command Navigation (VCN)	561 (89.9)	63 (10.1)
Accessible Graphs and Data Representation (AGDR)	489 (78.4)	135 (21.6)
Smart Cameras and Object Recognition (SCOR)	332 (53.2)	292 (46.8)
Natural Language Processing (NLP) for Search	321 (51.4)	303(48.5)
Electronic Braille Displays (EBD)	444(71.2)	180 (28.8)
Screen Readers with AI Enhancements (SR)	540 (96.8)	84 (13.5)

AI-Driven Educational Games (AI-DEG)	444 (71.2)	180 (28.8)
Gesture Recognition for Navigation (GRN)	550(88.1)	74 (11.9)
Smart Assistants for Library Services (SALS)	561 (89.9)	63 (10.1)
AI-Powered Accessibility Testing (AI-PAT)	489 (78.4)	135 (21.6)
Real-Time Translation Services (RTTS)	332 (53.2)	292 (46.8)

N = 624

Table 1 has two parts. The result in the first part indicates that 95.2% of the respondents are highly aware and aware of ASR, 86.7% are aware of Real-Time Captioning, 51.3% are aware of Sign Language Recognition and 78.4% are aware of Speech-to-text apps. The result further shows that 64.9% of the respondents are aware of Chatbots, 100% are aware of speech recognition Technology, 58.7% are aware of Smart Assistants for Library Services, 19.9% are aware of Social Robot and 88.2% of the respondents are aware of advanced speech synthesis technologies. In the second part of Table 1, the result shows that 34% of the respondents are aware of text-to-speech software. The result reveals that 71% were aware of image recognition for visual content description, 88.1% were aware of Braille translation software, and 89.9% were aware of voice command navigation. The result also shows that 78.4%, 53.2% and 51.4% were aware of accessible graphs and data representation, smart cameras object recognition and natural language processing for Search respectively. The result further reveals that 71.2% are aware of electronic Braille displays, 96.8% are aware of screen readers with AI enhancements, 71.2% are aware of AI-driven educational games, 88.1% of the respondents were aware of gesture recognitions for navigation, 89.9% were aware of smart assistants for library services. The result also reveals that 78.4% and 53.2% of the respondents are aware of AI-powered accessibility testing and real-time translation services respectively.

The result in Table 2 shows the level of preparedness of the respondents to adopt AI technologies.

Table 2: **Librarians' Preparedness on the Adoption of AI at the Library**

Question	Highly prepared	Prepared	Slightly prepared	Not prepared
How prepared are you to receive training for the integration of AI tools into library services for users with impairments	389 (62.3)	135 (21.6)	55 (8.8)	45 (7.2)
How prepared are you to familiarize yourself with AI technologies designed to assist users with impairments	306 (49)	218 (34.9)	35 (5.6)	65 (10.4)

How prepared are you to incorporate AI into library services for users with impairment	135 (21.6)	326 (52.2)	96 (15.3)	67 (10.7)
How prepared are you to support users with impairments in using AI technologies in the library and information centre	382 (61.2)	242 (38.8)	-	-
How prepared are you to increase patronage of AI technologies in the library and information centres	302 (48.3)	229 (36.6)	48 (7.6)	45 (7.2)

N = 624

The result in Table 2 shows the level of preparation of the respondents to adopt and use AI technologies for library services to users with visual and hearing impairments. The result revealed that the majority or 524 (83.9%) of the respondents combined were highly prepared and prepared to receive training on AI integration with library services. Another 524 (83.9%) combined were highly prepared and prepared to familiarize themselves with AI technologies. The result also shows that 461 (73.8%) of the respondents combined were highly prepared and prepared to incorporate AI into library services for users with impairment. The result in Table 2 further indicates that 624 (100%) of the respondents were highly prepared and prepared to support users with impairment to use AI technologies while another majority 531 (84.9%) were highly prepared and prepared to increase patronage of AI technologies among library users in the library and information centres.

The result in Table 3 reveals the challenges confronting the adoption of AI technologies for information users with hearing and visual impairment.

Table 3

Challenges	Strongly agree	Agree	Disagree	Strongly disagree	Ranking
Cost of acquisition of AI tools	489 (78.4)	135 (21.6)	-	-	1st
Inadequate knowledge about AI technologies	353 (56.6)	148 (23.7)	-	123 (19.7)	2nd
Inadequate Library funding	353 (56.6)	123 (19.7)	148 (23.7)	-	3rd
Lack of technical skills by Users	346 (55.4)	123 (19.7)	155 (24.8)	-	4th

Cost of implementation of AI Technology	229 (36.7)	186 (29.8)	74 (11.9)	135 (21.6)	5th
The attitude of librarians towards new technology	197 (31.6)	198 (31.7)	155 (24.8)	74 (11.9)	6th
Institutional bureaucracy	-	137 (22)	487 (78)	-	7th

N = 624

The result in Table 3 shows some of the challenges facing the adoption and use of AI in libraries and information centres. From the ranking, the result shows that all the respondents 624 (100%) strongly agree and agree that the cost of acquisition of AI tools was a challenge. This is followed by another 501 (80.3%) and 476 (76.3%) of the respondents combined who strongly agree and agree that inadequate knowledge about AI technologies and inadequate library funding were challenges of using AI in libraries and information centres. The result further shows that 469 (75.1%) of the respondents combined strongly agree and agree that lack of technical skill is a challenge. The result in Table 3 also reveals that 415 (66.5%) of the respondents combined respectively strongly agree and agree that the cost of implementation of AI technology was a challenge. Another 395 (66.3%) of the respondents combined strongly agree and agree that the attitude of librarians towards new technology was a challenge. The result shows that 137 (22%) agree that institutional bureaucracy was not a challenge while 487 (78%) of the respondents strongly disagree it was a challenge. The implication of this result in Table 3 is that several impediments are hindering the adoption and use of AI in libraries for the support of users with hearing and visual impairment in Nigeria.

Discussion of Findings

The findings in Table 1 revealed that the respondents were aware of all the AI technologies for hearing and visual impairment. The findings however showed that the awareness level varied for each of the technologies with some having a higher percentage and others with a lower percentage. For instance, the awareness level for AI technologies for hearing impairment such as ASR, RTC, STT, Chatbots for Communication, SRT, and ASST was higher while that of SR was lower. On the awareness of AI technologies for visual impairment, the findings show that most of the respondents were aware of the technologies. There is evidence in the findings that the majority or above 70% of the respondents were aware of IRVCD, BTS, VCN, AGDR, EBD, SR, AI-DEG, GRN, SALS and AI-PAT. The findings also revealed that an average percentage above 50% of the respondents was aware of SCOR, NLP for search and RTTS (see Table 1). These

findings aligned with several literatures, for instance, Bardasco, et al. (2019); Moustapha and Yusug (2023) whose studies revealed that librarians were highly aware of various AI technologies for library services. Similarly, Oyekale and Zubairu (2023) in their study of the awareness and perception of librarians on AI in university libraries in Osun State showed that 80% of the librarians were highly aware of AI. The finding in Table 1 also shows that only 51.3% of the respondents were aware of SLR for hearing impairment while 48.7% were unaware. Similarly, the majority of the respondents were unaware of TTS while more than 40% of the respondents were unaware of SCPR, NLP and RTTS for visual impairment.

The findings in Table 2 revealed the preparation of the respondents to adopt AI technologies for users with impairment. The findings show that the majority of the respondents who are more than 50% were highly prepared and prepared to receive formal training, familiarize themselves, incorporate AI in library services, support users and increase the patronage of AI technologies in the library. The level of preparation as revealed in Table 2 indicates that the respondents are imbibing the use of emerging technologies in the library. It also reveals that the respondents are willing to support users with impairment. The findings align with Obiano, et al. (2016) who found out that 170 academic librarians in Nigeria who responded in their study were prepared to adopt AI at their various libraries. The findings also confirm the findings of Adebayo, et. al. (2022) whose study revealed that librarians stand a chance of benefiting from the adoption of AI should they prepare to adopt it. The implication of the findings in Table 2 is that if adequate arrangement is made for the use of AI, the respondents are prepared to adopt it at the library to improve information services to users with impairment.

Table 3 shows that the challenges affecting the preparation and use of AI in university libraries and information centres in Nigeria are enormous. The challenges were ranked based on the number of respondents. The findings revealed that cost of acquisition, inadequate knowledge and inadequate funding were the major challenges facing the use of AI in libraries and information centres. Other challenges such as lack of technical skills, cost of implementation and attitude of librarians towards new technology were also identified as challenges facing the preparation and use of AI in university libraries in Nigeria. The finding reveals that institutional bureaucracy was less of a challenge as only 22% of the respondents agreed to that as a challenge. These findings are in tandem with the study of Hussain (2023) who identified inadequate funding, attitude of librarians and technical skills as major challenges affecting the

adoption and use of AI in universities. Similarly, the findings is supported by Kumar, et al., (2022) who attributed some of the challenges facing the preparation of librarians in the use of AI in library services to inadequate knowledge and lack of skill in using new and emerging technologies.

Conclusion and Recommendations

This study highlighted evidence on the level of preparedness of the respondents towards the adoption and use of AI technologies for information services to library users with visual and hearing impairments. The challenges currently affecting the adoption of AI tools at the university library and information centres were explored. Some literatures were reviewed to anchor the study on existing theories in the field of Library and Information Science. Given the high level of awareness and preparedness as shown in the results, there is a tendency that the respondents may adopt AI in library services for those with visual and hearing impairment which would impact the users and improve their experience. The result from the study has demonstrated that the application of AI in library and information centres will no doubt improve information service delivery to library users including those with impairment. The results show the consciousness, enthusiasm and preparedness of the respondents over AI as emerging technology. It is pertinent to state that from the results of this study, the respondents would be willing to participate in ongoing conversations for the development of AI that will have greater impact on the library users.

The study recommended that the management of university libraries and information centres should maintain the awareness level of librarians on AI through engagements in seminars, workshops and ongoing conversations on the development of AI tools. The management of libraries and information centres should awaken the information professionals by engaging them in training in order to be abreast of different AI tools that are capable of supporting the information needs of people with visual and hearing impairment. Considering the preparedness of librarians as shown in this study, the management of university library and information centres should introduce some useful AI tools in the library for the delivery of information services to library users with visual and hearing impairment and the university management should endeavour to resolve all contending challenges that this study identified and ensure the adoption of AI is not hindered as such may affect the delivery of library services to users including those with visual and hearing impairment.

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AWARENESS AND USE OF REFERENCE MANAGEMENT TOOLS AMONG LECTURERS IN EKITI STATE POLYTECHNIC, ISAN-EKITI

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Abstract

The study investigated awareness and use of reference management tools among lecturers in Ekiti State Polytechnic, Isan-Ekiti, Nigeria. Survey research was conducted to determine the awareness and use of reference management tools among lecturers of Ekiti State Polytechnic Isan-Ekiti, Nigeria (EKSPOLY). Its population consists of 43 lecturers. A total enumeration sampling technique was adopted to allow the targeted population to participate in this study. The questionnaire was the instrument used for the data collection. Data were analyzed using descriptive and inferential statistics. Findings revealed that the Open Access Reference Management Tools the respondents were aware of were Zotero (mean=3.60) and Mendeley (mean=2.79) while the Close Access Reference Management Tools were bookends (mean=2.91), paper pile and RefWorks (mean=2.86). There was a moderate level of use of reference management tools as the majority of the respondents used Mendeley (mean=3.51), Zotero (mean=2.35) and Endnote (mean=2.33). The benefits were easiness to download and install (mean=2.12) and generate a bibliography (mean=2.07). The challenges faced were the complexity of the software (mean=2.77), manual use of reference management tools (mean=2.42) and time-consuming (mean=2.05). The study concluded that there is a moderate awareness and level of use of reference management tools among EKSPOLY lecturers despite recognizing their importance, respondents face significant challenges in effectively utilizing these tools. The study therefore recommended that institutions should organize regular training sessions and workshops to enhance lecturers' proficiency with reference management tools. At the same time, establish a support team to assist lecturers with the installation, setup and troubleshooting of reference management tools when the need arises.

Keywords: Awareness, Use, Reference management tools, Ekiti State Polytechnic

Introduction

Polytechnic could be described as a type of higher institution that provides a broad range of courses geared towards careers in sectors such as engineering, technology, applied sciences, and other professional professions (Jahun, 2017). It emphasizes technical skills and applied knowledge while offering its students both academic and practical instruction, which is frequently accomplished through industrial placements and internships. It also provides degrees and other certificates that are evaluated by polytechnic instructors, depending on the country. Every nation that has a Polytechnic depends on it to raise middle-level managers and entrepreneurs who are expected to use technology to drive the economy of the country.

Polytechnic lecturers could be regarded as educators who teach in polytechnic, which typically focus on technical and vocational education. They often teach subjects related to engineering, technology, applied sciences, and other practical fields (Azeem and Omar, 2019). Since polytechnic education often involves applied research and practical projects, lecturers need to keep track of numerous references from various sources to support their teaching and research efforts. This procedure might be streamlined using online reference management tools, which would make it simpler for lecturers to properly and effectively credit sources in their works.

The term "reference management tools" could be defined as tools that writers and researchers can use to manage project references for themselves or their organizations, as well as to record and utilize bibliographic citations, or references (Pradhan and Karmbe,2020). Tools for managing citations or bibliographies are sometimes referred to as reference management software. Zotero, Mendeley, Endnote, RefWorks, Citavi, Jab Ref, Pro Cite, Bookends, Papers, Qiqqa, and other well-known research management programs are good examples (Borah, Hussain, Saikia and Nath, 2022). Different agencies created each of these reference management software programmes, because various journals, including Harvard and the American Psychological Association (APA), demand the references in different forms. These reference management systems allow the organization of different bibliographic styles with a single click (Gilmour and Cobus-Kuo, 2011).

The significance of reference management tools, according to Borah, Husain, Saikia, and Nath (2022), cannot be overemphasized because they assist researchers in managing references from specialized databases that enable the collection, archiving, organization, and sharing of references pertinent to the specific research area. In the same vein, academic writers use reference management tools, also known as citation management software, to create and utilise bibliographic citations. These programmes support various referencing

styles and generate references by their specifications. Once a citation is recorded, it can be used multiple times in academic books, articles, and essays; the majority of reference management packages come with databases that contain comprehensive bibliographic details of scholarly content. Furthermore, the author can create customized reference lists in various forms based on the requirements of the publication of their choice. Word processor integration is provided by several contemporary reference management solutions. According to Ijah, Anyiam and Baridam (2021), this feature minimizes the possibility of omitting a referenced source from the reference list and makes it simple to import from bibliographic databases as it generates a reference list in the chosen format automatically during article formation.

Nonetheless, several studies have been carried out to evaluate the use of reference management tools by lecturers, with varying degrees of success. Adeyemi and Sulaiman (2020), for example, evaluated the University of Ilorin lecturers' awareness and use of reference management tools and discovered that the University of Ilorin's faculty members utilize reference management tools sparingly and that the majority of them had never used ProCites, Bookends, Papers, or Qiqqa. This indicates a relatively low usage of reference management tools among the lecturers.

Bugyei, Kavi and Obeng-Koranteng (2019) assessed the awareness and usage of reference management tools among researchers of the Council for Scientific and Industrial Research Ghana. Results showed the researchers are aware of reference management tools however the usage of these tools is low. Likewise, Pathak and Jonhson (2018) investigated the use and awareness of reference management tools among community college students in New York City. The findings revealed a low awareness and use of reference management tools among community college students regardless of age, gender, race, ethnicity, field of study, undergraduate class level, English proficiency or academic level. The inference from this study is that this can be the same for polytechnic lecturers.

Scholars may struggle to fully benefit from reference management tools due to limited awareness and usage. According to Gafor (2012) awareness encompasses knowledge, consciousness and vigilance describing it as the ability to observe, sense, or remain mindful of events, objects or sensory patterns. Idiegbeyan-ose, Nkiko, and Osinulu (2016) defined awareness as the mental capacity of a person to perceive, understand, and assess a given phenomenon. Reinhardt, Mletzko, Sloep, and Drachsler (2015) defined awareness as knowledge about an item or event, competencies or abilities, and ways of activity; it is concerned with background information about the object, instance, or any other

occurrence. If the polytechnic lecturers are unaware of what reference management tools are, it will be quite difficult for them to use these resources appropriately. Hence, the lecturers at the polytechnic could make use of reference management tools provided they are knowledgeable about its features and have the necessary navigation skills. However, if they do not use it as much as they should, their awareness may be poor.

Thus it is critical to evaluate how Ekiti State Polytechnic lecturers use reference management tools to improve academic productivity and promote effective research practices in the polytechnic education sector. Even though these tools are essential for tracking and organizing references, there are significant insufficient numbers of research on their applications in academia. Exploring this field of study fills a gap in the literature while also offering important insights into the particular requirements and preferences of polytechnic lecturers. Therefore, this study will evaluate how lecturers at Ekiti State Polytechnic, Isan-Ekiti, Nigeria uses reference management tools.

Statement of the problem

The importance of reference management tools can never be overemphasized as they help create accurately vast volume of references according to the needed style of referencing while writing. Additionally, it can afford valuable insight into using open-source software in the research process and help to improve the quality of research through better referencing amongst others. However, it has been observed that many researchers including the lecturers may be unaware of the different referencing tools and their usage in managing their references. This can be a function of unfamiliarity with different reference management tools and how they can be used accordingly. As such, conducting a study to assess the lecturer's use of reference management tools for referencing is a necessity. It is based on this backdrop that this study assessed the awareness and use of reference management tools among lecturers in Ekiti State Polytechnic, Isan-Ekiti, Nigeria.

Objective of the study

The specific objectives of this study are to:

1. Know the extent of reference management tools awareness among lecturers in Ekiti State Polytechnic, Isan-Ekiti;
2. Know the level of use of reference management tools use among lecturers in Ekiti State Polytechnic, Isan-Ekiti;
3. Find out the benefits gained from the use of reference management tools among lecturers in Ekiti State Polytechnic, Isan-Ekiti; and

4. Identify the challenges associated with the use of reference management tools among lecturers in Ekiti State Polytechnic, Isan-Ekiti.

Literature Review

Studies have also been carried out on the high use of reference management tools among lecturers. Mvula (2023) examined awareness of reference management tools for research writing activity used by University Teachers. The survey method was used for the study with a population of 77 participants. The instrument used for data collection was the questionnaire. Findings revealed 56% of the participants are aware of reference management software. However, only 22.5% use Mendely, followed by Zotero (12.7%) and End note (4.2%). Also, 60% representing 43 respondents indicate they do not use reference management tools to manage their reference. It can be inferred from the study there is a low usage of reference management software among the respondents.

Mhokole and Kimaryo (2022) conducted a study on the usage of reference management software by postgraduate students at the University Of Dar es Salaam, Tanzania. A descriptive research design was employed for the study and consisted of 104 participants. A questionnaire and documentary review were the methods used to gather data. Results showed that 80% of the respondents perceive reference management software to be of help. However, 45% of the respondents do not use reference management software. The implication of this is that the majority of the respondents who are very much aware of different reference management tools and have a positive attitude do not make use of it in managing their references. Thereby the level of use is low

Adeyemi, Akanbi and Sulaiman (2020) examined awareness and usage of reference management tools: from the perspective of faculty members of the University of Ilorin. The target population was 1496 participants and a questionnaire was the instrument used to collect data from the participants. Findings revealed Mendeley has 77.5% of usage while Zotero has 60.1% of usage. However, the findings also revealed that 90.8% of the respondents never used Qiqqa software, 89.8% never used Papers software, also 69.4% never used pro cites. In addition, 60.2% of the participants occasionally used Refworks and only 49.0% made use of Endnotes. The result of the study implies that even though the respondents to a great extent used Mendeley and Zotero majority of them have never used a bulk of the reference management tools. Invariably there is a low usage of reference management tools among the respondents.

Ijah, Anyiam and Baridam (2021) investigated reference management tools for academic writings: the experience, challenges and determinants of usage in Port-Harcourt. It was a descriptive cross-sectional study among lecturers and students with a population totalling 406. The questionnaire was the tool used to collect data from the respondents. Findings showed 44.09% representing 179 of the respondents never used any reference management tools. For those that used it before, End note has 23.89% representing 97 of the respondents, 13.79% representing 56 respondents using Mendeley and 4.6% representing 19 respondents using Zotero. The study implies reference management tools use among the respondents is low.

In consonance with this, studies have also been carried out on the high use of reference management tools among lecturers such as Madhuri and Lakshmi (2021) who studied the use and awareness of reference management software tools by research scholars of library and information science in India. A survey method was adopted for the study. The population consisted of 44 respondents and a questionnaire was the tool used for data collection. Findings revealed the majority of the respondents (69%) used Mendeley to manage their references. Also, a high percentage (66%) use Zotero to manage their reference followed by Endnote (13%). However, reasons were asked why the respondents preferred these reference management tools over the rest and findings showed 43.1% which represents the majority of the respondents indicated they use the reference management tools that are free of cost. It can be implied from the study that the respondents' usage of reference management tools is high.

Methodology

The study used a descriptive survey research design. This design will be applicable because the findings can be generalized to other polytechnics. It is also suitable because a systematic and thoroughly comprehensive collection of data about attitudes, beliefs, behaviour and opinions of the sampled academic staff was enabled. The study targeted the entire population of academic staff of Ekiti State Polytechnic (EKSPOLY) Isan-Ekiti, Nigeria, which consisted of 43 staff at the time of data collection. A total enumeration sampling technique was adopted to allow the targeted population to participate in the study and ensure a comprehensive representation of the institutions' academic staff. A well-structured questionnaire arranged into two major sections was used to collect data from the respondents. Section one focused on the demographic information of the respondents, while Section two was tailored towards answers to awareness, level, use benefits and challenges answering the questions raised. The questionnaire was

administered to the respondents and data collected was presented and analyzed in frequency tables, percentages and mean.

Result and Discussion

Table 1: Response Rate of the Study

Number of questionnaires distributed	Number of Questionnaires Retrieved	Response Rate (%)
43	**43**	**100**

All the questionnaires distributed were returned and found usable. Therefore the response rate was 100% and this is due to the effort and seriousness of the researchers during the data collection.

Answers to research questions

Research question one: What is the extent of reference management tools awareness among lecturers in Ekiti State Polytechnic, Isan-Ekiti?

Table 2 shows the extent of reference management tools awareness among lecturers in Ekiti State Polytechnic, Isan-Ekiti

Table 2: Extent of Reference Management Tools Awareness among Lecturers in Ekiti State Polytechnic, Isan-Ekiti

	VGE		GE		ME		RE		NA		Mean	SD
	N	%	N	%	N	%	N	%	N	%		
Open Access Reference Management Tools												
Jabref	0	0	16	37.2	5	11.6	10	23.3	12	27.9	2.58	1.258
Mendeley	10	23.3	8	18.6	2	4.7	9	20.9	14	32.6	2.79	1.627
Zotero	6	14	22	51.2	7	16.3	8	18.6	0	0	3.60	.955
Qiqqa	0	0	8	18.6	23	53.5	6	14	6	14	2.77	.922
Close Access												

Reference Management Tools												
Endnote	2	4.7	16	37.2	6	14	10	23.3	9	20.9	2.81	1.277
Citavi	0	0	4	9.3	25	58.1	6	14	8	18.6	2.58	.906
Flowcite	0	0	12	27.9	19	44.2	4	9.3	8	18.6	2.81	1.052
Bookends	0	0	16	37.2	15	34.9	4	9.3	8	18.6	2.91	1.109
Paper pile	0	0	12	27.9	19	44.2	6	14	6	14	2.86	.990
Refworks	0	0	18	41.9	11	25.6	4	9.3	10	23.3	2.86	1.207
Total												

Key=VGE=Very great extent, GE= Great extent, ME=Moderate extent, RE=some extent, NA=Not atall

On the extent of reference management tools awareness among lecturers in Ekiti State Polytechnic, Isan-Ekiti, concerning Open Access Reference Management Tools, Table 2 shows that, while the majority of respondents (65.2%) were aware of Zotero to a great and very great extent—that is, none of them was not aware of the software at all—only 14% of respondents were aware of the program to a very great extent—the extent of awareness mean for Zotero is 3.60. Additionally, Table 2 shows that concerning Mendeley, 41.9 per cent of respondents were aware of the program to a great and very great extent, and 32.6 per cent of respondents had no knowledge of the software at all. It was also shown that 23.3% of the participants had a very high level of familiarity with the Mendeley. Mendeley's awareness is 2.79 on average. This relatively high awareness suggests that Zotero may be more actively promoted, more user-friendly, or more compatible with the academic needs of the lecturers. The zero per cent of respondents are completely unaware of Zotero further suggests that Zotero may be a recommended or regularly discussed tool within the academic or research support environment at EKSPOLY.

Furthermore, under Close Access Reference Management Tools, Table 2 revealed that 37.2% of respondents were extremely familiar with Bookend, whereas none were very familiar with the tool. Table 2 further demonstrates that 18.6% were unaware of the Bookend reference management function at all. The average level of awareness for Bookend is 2.91. The chart also shows that 41.9%

of respondents were very aware of Refwork, while 23.3% were completely unaware. Furthermore, 27.9% of respondents were very aware of the Paperpile, whereas 14% were not. The frequency mean of Refwork and Paper pile is 2.86. This shows that the reference management tool with the highest mean of awareness was Zotero.

Research question two: What is the level of use of reference management tools among lecturers at Ekiti State Polytechnic, Isan-Ekiti?

Tables 3 and 4 showed the results on the level of use of reference management tools among lecturers in Ekiti State Polytechnic

Table 3: Level of Use of Reference Management Tools among Lecturers in Ekiti State Polytechnic, Isan-Ekiti

	VF N %		SF N %		O N %		R N %		N N %		Mean	SD
Open Access Reference Management Tools												
Jabref	0	0	4	9.3	4	9.3	11	25.6	24	55.8	1.72	.984
Mendeley	12	27.9	14	32.6	3	7	12	27.9	2	4.7	3.51	1.298
Zotero	0	0	12	27.9	10	23.3	2	4.7	19	44.2	2.35	1.307
Qiqqa	0	0	6	14	8	18.6	8	18.6	21	48.8	1.98	1.123
Close Access Reference Management Tools												
Endnote	0	0	9	20.9	8	18.6	14	32.6	12	27.9	2.33	1.107
Citavi	0	0	2	4.7	2	4.7	14	32.6	25	58.1	1.56	.796
Flowcite	0	0	4	9.3	6	14	8	18.6	25	58.1	1.74	1.026

Bookends	0	0	2	4.7	6	14	12	27.9	23	53.5	1.70	.887
Paper pile	0	0	2	4.7	2	4.7	12	27.9	27	62.8	1.51	.798
Refworks	2	4.7	4	9.3	8	18.6	10	23.3	19	44.2	2.07	1.203
Total											**20.47**	**10.529**

Key=VF=Very Frequently, SF=Somewhat Frequently, O= Occasionally, R=Rarely, N=Never

Table 4: Interval Table for Level of Use of Reference Management Tools among the Respondents

Interval	Overall mean score image	Remark
0- 16.66	-	Low
16.67 – 33.32	**20.47**	**Moderate**
33.33 – 50		High

To find the level of use of reference management tools, a test of the norm was conducted. The overall mean of 20.47 falls between the scale "16.67 – 33.32" and this shows a moderate level of use of reference management tools by the lecturers in EKSPOLY.

Table 3 demonstrates that 60.5% of respondents used Mendeley regularly, 7% used it occasionally, and 4.7% never used it. According to this, the majority of respondents utilised Mendeley, although only slightly more than half of them did so regularly. At 3.51, Mendeley has the greatest mean frequency of usage. This high level of regular usage suggests that Mendeley may be the preferred reference management tool for these lecturers due to its practical features, user-friendly interface, or availability of institutional support for Mendeley. Furthermore, as the Table shows, 27.9% of the respondents used Zotero regularly, 23.3% used it occasionally, and 44.2% never used it. The majority of responders did not utilise Zotero, as seen by this. The average number of times that Zotero is used is 2.35. This discrepancy between awareness and usage suggests that even though lecturers know about Zotero, they may not perceive it as valuable or efficient for their needs compared to Mendeley. This could be due to specific features of Zotero that may not align with the user preferences or research workflows of these lecturers, or it may reflect limited encouragement or training for Zotero's use within the institution.

Research question three: What are the benefits gained from the use of reference management tools among lecturers in Ekiti State Polytechnic?

Table 5 shows the results on the benefits of the use of reference management tools among lecturers in Ekiti State Polytechnic

Table 5: Benefits of Reference Management Tools among Lecturers in Ekiti State Polytechnic, Isan-Ekiti

	SA		A		D		SD		Mean	SD
	N	%	N	%	N	%	N	%		
It saves time	0	0	0	0	28	65.1	15	34.9	1.65	.482
Easy to cite/provide reference	0	0	0	0	28	65.1	15	34.9	1.65	4.82
Easy to generate a Bibliography	0	0	22	51.2	2	4.7	19	44.2	2.07	.985
Easy to download and Installation	0	0	22	51.2	4	9.3	17	39.5	2.12	.956
Free storage	0	0	20	46.5	2	4.7	21	48.8	1.98	.988
Total										

Key: SA=Sstrongly Agree; A= Agree; D= Disagree; SD= Strongly Disagree

The findings on benefits of reference management tools among lecturers in Ekiti State Polytechnic, Isan-Ekiti revealed that the lecturers of EKSPOLY find reference management tools easy to download and Install (mean=2.12) and generate a bibliography (mean=2.07) while the least benefits are that reference management tool saves time and easy to cite/provide a reference (mean 1.65). The findings suggest that while lecturers at EKSPOLY appreciate reference management tools for straightforward downloading, installation, and bibliography generation, they may lack sufficient training or familiarity with advanced features like time-saving functions and automated citation. The lower perceived benefit of time-saving and citation ease indicates the potential underutilization of these tools, which could be improved with targeted workshops or hands-on training sessions.

Research question four: What are the challenges associated with the use of reference management tools among lecturers in Ekiti State Polytechnic Lecturers?

Table 6 shows the results of the challenges of the use of reference management tools among lecturers at Ekiti State Polytechnic

Table 6: Challenges Associated with the Use of Reference Management Tools among Lecturers in Ekiti State Polytechnic, Isan-Ekiti

	SA		A		D		SD		Mean	SD
	N	%	N	%	N	%	N	%		
No Internet connection	0	0	8	18.6	19	44.2	16	37.2	1.81	.732
Unavailable power supply	6	14	3	7	12	27.9	22	51.2	1.84	1.067
No technical service support	0	0	6	14	9	20.9	28	65.1	1.49	.736
Lack of skills	2	4.7	8	18.6	6	14	27	62.8	1.65	.948
Time consuming	6	14	6	14	15	34.9	16	37.2	2.05	1.045
Insufficient training	0	0	0	0	12	27.9	31	72.1	1.28	.454
Software is too complex	8	18.6	13	30.2	18	41.9	2	4.7	2.77	.972
Lack of understanding of citation styles	0	0	4	9.3	18	41.9	21	48.8	1.60	.660
Difficult to install and add plugins	0	0	6	14	21	48.8	16	37.2	1.77	.684
I like to do it manually	12	27.9	4	9.3	17	39.5	10	23.3	2.42	1.139
Total										

Key: SA= Strongly agree; A= Agree; D= Disagree; SD= Strongly Disagree

The challenges associated with the use of of reference management tools among lecturers in Ekiti State Polytechnic are the complexity of the software (mean=2.77), manual use of reference management tools (mean=2.42) and it is time-consuming (mean=2.05). The least challenges are insufficient training (1.28) and no technical service support (mean 1.49). This suggests that lecturers find reference management tools somewhat difficult to navigate, especially if they're performing tasks manually rather than taking advantage of automation features. This could be due to a lack of deep familiarity with the tools' advanced functionalities, making tasks appear more labor-intensive. Interestingly, insufficient training and lack of technical support are rated as lesser challenges, indicating that while basic support may be available, the training provided might not address the specific complexities lecturers encounter. More in-depth, practical training focused on advanced features could help mitigate these challenges.

Discussion of findings

The findings show that the Open Access Reference Management Tools the lecturers are aware of are Zotero and Mendeley while the Close Access Reference Management Tools are bookends, paper pile and refworks. This conforms with the findings of Mvula (2023) that university teachers are aware of reference management software such as Mendely, followed by Zotero and end note. This corroborates the work of Mahawar, Tanwar, and Hurum (2021) who found that the respondents were aware of Mendeley and Zotero which were frequently used among academicians.

The results showed a moderate level of use of reference management tools by the lecturers in EKSPOLY. The respondents indicated that they can use Mendeley, Zotero and Endnote. The study of Adeyemi, Akanbi and Sulaiman (2020) also confirms the study that revealed that the respondents to a great extent used Endnote, Mendeley and Zotero while the majority of them had never used a bulk of the reference management tools. The results is also consistent with Madhuri and Lakshmi (2021) who found that the majority of the research scholars in India used Mendeley, Zotero and Endnote to manage their references. This study affirms the findings of Bugyei, Kavi and Obeng-Korateng (2019) that Mendeley was the most popular software among researchers in Ghana. In the same vein, Klock, Nakazoni, Gasparini and Hounsell (2016) found that EndNote users had the highest completion rate of the task required. This may be a pointer to the common usage of EndNote among the faculty members.

The findings revealed that the respondents found reference management tools easy to download and Install and generate a bibliography. This conforms with the position of Borah, Husain, Saikia, and Nath (2022), who mentioned that academic writers use reference management software to create and utilize bibliographic citations. Likewise, Ijah, Anyiam and Baridam (2021) conform with the findings of this study positing that reference management tools make it simple to import from bibliographic databases as they generate a reference list in the chosen format automatically during article formation.

The challenges associated with the use of reference management tools are the complexity of the software, the manual method of using reference management tools and it is time-consuming. This affirms the finding of Mahawar, Tanwar, Hurum (2021) who mentioned that one of the challenges of using RMT is time-consuming. The position corroborates the studies of Ollé and Borrego (2010) who found that some of the barriers to using a reference manager include the time it would take to create the database and issues with citations needing modifications,

as well as interfaces that were not user-friendly (Randall et al., 2008; Wu & Chen, 2012). Also, the study of Lisbon (2017b) identified the complexity of formatting multilingual citations with reference management tools. The findings of this study agree with Speare, (2018) who revealed that respondents faced the challenges of complexity in the use of the software (such as difficulty of relocating information found, problems extracting correct metadata from PDFs, problems handling duplicates, and inaccurate citation styles), the usual manual method of managing references, and the time to organize their PDFs and references, challenges with changing styles and the time needed to create citations.

Conclusion and Recommendations

The findings indicate that there is a moderate awareness and level of use of reference management tools among EKSPOLY lecturers. Despite recognizing their importance, respondents face significant challenges in effectively utilizing these tools. The primary issues include the complexity of the software, the manual processes involved, and the considerable time investment required. These obstacles hinder the optimal adoption and utilization of reference management tools, thereby limiting their potential benefits in academic and professional settings. The study recommended that institutions should organize regular training sessions and workshops to enhance lecturers' proficiency with reference management tools, focusing on Mendeley, Zotero, and EndNote. This can address the challenges related to software complexity and improve efficiency. Integrate reference management tools with the institution's library services to facilitate easier importation of bibliographic data and seamless access to scholarly resources. Periodically review and update the reference management tools in use, based on user feedback, to ensure they meet the evolving needs of the lecturers and remain efficient and effective. Institutions should consider promoting and possibly investing in more user-friendly reference management tools or software enhancements that simplify citation management and metadata extraction. This can include intuitive design, clear instructions, and simplified navigation to make the software more accessible to users with varying levels of technical expertise. Providing users with strategies and tips for effective time management when using reference management tools can help mitigate the perception of time consumption. This can include guidance on organizing references, setting up templates, and utilizing shortcuts.

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AGE AND EDUCATIONAL BACKGROUND AS A PREDICATOR ON UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY AMONG UNDERGRADUATE LIBRARY USERS IN UNIVERSITY LIBRARIES IN CROSS RIVER STATE, NIGERIA

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Abstract

The study investigated age and educational background as a predictor of the utilization of information and communication technology among undergraduate library users in university libraries in Cross River State. The study tested two hypotheses to determine the influence of age on the utilization of information and communication technology among undergraduate library users in Cross River State public university libraries and determine the influence of educational background on the utilization of information and communication technology among Undergraduate library users in Cross River State Public Universities. The study adopted an Expost facto research design with a multistage sampling technique to select a total of 667 registered library users representing 10% of the population of the study from the two institutions of 6808. The reliability estimate ranged from .77 to .83. The findings revealed that there is a significant influence of Age on the Utilization of Information and Communication Technology among library users and there is also no significant influence of educational qualification on the utilization of information and communication technology among library users. The study recommended that younger users should be encouraged to intensify their use of the library to make use of modern facilities university should enforce the registration of students with the library compulsory from the first year of study.

Keywords: Age, Educational Background, Information and Communication Technology Undergraduate, Library Users, Libraries, University, Utilization

Introduction

The development of libraries has been highly influenced by information and communication technology around the world. The information age, in this regard, is characterized as an unbroken chain reaction of information where there exists a high level of contemporary ICT integration, application, and use in information management, processing, storage, retrieval, and dissemination, particularly in libraries. This factor has changed the operational dynamics of libraries and services to people in their communities (Smith & Brown, 2021). Factors that affect the integration and effectiveness of ICT in libraries often pertain to individuals and include variables such as age, educational background, and digital literacy levels (Taylor, 2023).

Age, conventionally is seen as the length of time during which a being or thing has existed: length of life or existence to the time spoken of or referred to. Age has been reckoned as an important factor which influences the library user's preference for information and communication technology.

Educational Background sees Education generally as a fundamental tool to the development of knowledge, economy and society in all nations. Therefore, education shall continue to be highly rated in national development plans as the most important instrument of change. Education, apart from being the most powerful instrument for social progress, is also the greatest yet known to man for high personal development. The fundamental considerations upon which all institutions are established are productivity and efficiency made possible through education. By examining the relationship between these variables such as age and educational background, on Information and Communication Technology utilization, educators, policymakers, and researchers can develop strategies to enhance student's engagement with Information and Communication Technology and improve their learning outcomes. Since information and communication technology has become an integral part of modern education and has transformed traditional teaching, learning and research methods, to understand the patterns of Information and Communication Technology utilization among undergraduates, This can be accomplished through age, educational background This study was conducted against this backdrop to ascertain the implementation of information and communication technology among library users in the University of Calabar (UNICAL) and University of Cross River State (UNICROSS), Nigeria.

Educational background as well as through the effective use of information and communication technology among library users.

Statement of the problem

The library is a center for academic activities. Its functions and services attract users voluntarily and most times unsolicited because of their quest for knowledge. The integration of Information and Communication Technology into library services, teaching learning and research has changed the way libraries now operate, and this has attracted more users. However, contrary to the above, the researcher observed that the library users, especially undergraduates do not effectively utilize electronic resources and services available in the library during their period of studies in both the University of Calabar and the University of Cross River State. The University of Calabar Library has subscribed to several databases including EBSCOhost, ProQuest and African Journal Online (AJOL) with over 10,000 digitized resources for users while the University of Cross River State has a well-gazette electronic library that provides numerous internet services to students. With all the efforts made by these institutions, students still depend more on Google for information for their studies, term papers and research.

Government agencies and parastatals such as Tertiary Education Trust Fund (TETFUND), and Niger Delta Development Commission (NDDC) have made considerable efforts to develop Information and Communication Technology driven academic libraries in Universities, the National University Commission (NUC) and other professional bodies have made available electronic information resources and corresponding Information and Communication Technology platform in academic libraries, a prerequisite for accreditation of academic programmes in Nigerian Universities, this situation persists. It becomes worrisome to know the cause of this problem.

This can be accomplished through age, educational background as well as through the effective use of information and communication technology among library users. This study was conducted against this backdrop to ascertain the implementation of information and communication technology among library users at the University of Calabar (UNICAL) and the University of Cross River State (UNICROSS), Nigeria.

Hypothesis

The purpose of this study was to examine age and educational background in the utilization of Information and Communication Technology among undergraduate

library users in Cross River State Public Universities. Specifically, the study sought to:

1. Influence of age on utilization of information and communication technology among undergraduate library users in Cross River State Public Universities libraries.
2. Influence of educational background on utilization of information and communication technology among Undergraduate library users in Cross River State Public Universities.

Literature Review

Age and Utilization of ICT among Library Users

Age, conventionally is seen as the length of time during which a being or thing has existed: length of life or existence to the time spoken of or referred to. Age has been reckoned as important factors which influence the library user's preference for information and communication technology.

Ogunjimi, Ntui, and Undie, (2022) conducted a study that investigated the influence of socio-demographic variables such as age, level of education, belief, and gender on the utilization of ICT among library staff in university libraries in Cross-River and Akwa-Ibom States, Nigeria. To carry out this study, three research objectives that were later translated to hypotheses were generated based on age, gender, level of education, and belief, to guide the research. Literature relating to the variables selected was reviewed to cover both conceptual and empirical sources. The Ex-post facto research design was utilized for the study. A sample of 461 respondents was drawn from six university libraries using the purposive (census) sampling technique. A structured questionnaire titled, 'Socio-demographic Variables and Utilization of Information and Communication Technology for Library Services (SDVUICTLS)' was used as the main instrument for data collection. The tool was subjected to face and content validation by experts in Test, Measurement and Evaluation Faculty of Education, University of Calabar. The reliability coefficient ranged from 0.75 to .88 and was established through Cronbach's Alpha method. The hypotheses were tested at .05 alpha levels. The data analysis techniques used were One-way Analysis of Variance (ANOVA), and independent t-test. The results of data analyses revealed that age (F=8.195), level of education (F = 5.232), and belief (F = 4.242), significantly influenced utilization of ICT by library staff in the university libraries, while there was no significant influence of gender t=.252) on the utilization of ICT by library staff for library services. Based on these findings, it was recommended that library management/ parent institutions should embark on

aggressive training and retraining of staff especially those that are 40 years and above with special reference to utilization of ICT for the provision of services in the libraries. The study equally recommended that Librarians should make a personal effort to train themselves with or without the assistance of the management because this will make them more relevant and effective in delivering library services to library users.

Likely, Oyedipe & Popoola (2019), conducted a study to investigate the influence of demographic factors (age and job status), level of ICT skills possessed by respondents and ICT use on task performances of library personnel. The study employed a correlation design. Thirteen public universities were purposely selected while total enumeration was adopted to study 248 library personnel made up of librarians and library officers in public university libraries in South-west, Nigeria. Data was collected by questionnaire. The study established a significant positive correlation between age, job status, ICT skills and task performance. Also, the Anova test found a significant joint influence of age, job status, ICT skills and ICT use on the task performances of respondents. The study further indicated that age, job status, ICT skills possessed by respondents and ICT use had relative significant influence on task performances of respondents. It is therefore recommended that, library personnel must leverage their demographics positively to bring about positive disposition to their jobs while all categories of staff must ensure they possessed the requisite ICT skills that will ginger ICT use for effective task performance.

Educational Background and Utilization of ICT Among Library Users.

Education generally is fundamental to the development of knowledge, economy and society in all nations. Therefore, education shall continue to be highly rated in national development plans as the most important instrument of change. Education, apart from being the most powerful instrument for social progress, is also the greatest yet known to man for high personal development. The fundamental considerations upon which all institutions are established are productivity and efficiency made possible through education.

Vera, and Ufuoma, (2021) carried out a study that investigated the utilization of information and communication technology-based information resources in library user education programmes in South-South Nigeria. Four research questions and one hypothesis guided the study. A descriptive survey research design was adopted for the study. The population of the study comprised 1022 respondents which consist of 62 staff and 960 library users. The instrument

for data collection was a questionnaire with a four-point rating scale and observation checklist. Tools used for data analysis of research questions were frequency, percentage, mean and standard deviation; a t-test was used to test the null hypothesis at the selected probability of 0.05 level significance. The findings revealed that the ICT facilities available are limited for effective utilization of ICT-based information resources in library user education programmes. The study reveals that ICT-based resources listed in the table were utilized to a high extent in SouthSouth colleges of education libraries for user education programmes. It also shows that poor funding was the major challenge of the utilization of ICT-based resources for user education programmes in colleges of education libraries under study.

Mushtaq and Arshad (2022) conducted a study that investigated public library users' most frequent and least frequent activities in the library and demographic differences in the use of public libraries. The study also explored library users' perceived importance of library resources, services and the value of the library as a place. Quantitative research design and survey research method were used to achieve the objectives of the study. A multistage sampling technique was employed to approach the targeted population. In the first stage, ten functional libraries of Lahore were selected purposively. The targeted population was users of the ten public libraries of the Punjab, Lahore. In the second stage, convenience sampling was used to collect data from public library users. The instrument of the research study was the questionnaire and it was developed with the help of the literature and administrated personally. The questionnaire was distributed to 384 public library users of the Lahore district and 301 questionnaires were returned out of 384. The results of the study showed that library users frequently visited the library to read personal books and for examination preparation; however, they never or rarely used e-databases, photocopy and printer services, computer stations, the internet, library catalog and socialization with friends. Significant differences were found among public library users in their public library use based on gender, age, designation and academic qualification. The library collection played a very important role in developing the community's reading habits, supporting academic achievements and self-grooming. The results of the study suggest that public librarians can expand library reading hall space and provide a comfortable reading environment for the users. Library community programs are helpful in lifelong learning; therefore, the library should organize community programs (i.e. storytelling sessions, workshops and interactive sessions) for their users. Public libraries can

strengthen their services by considering demographic differences in public library use.

Research Methodology

The design used for this study is the expost-facto research design. The Population of the study comprised 6808 registered library users in two universities which is University of Calabar (UNICAL) and University of Cross River State (UNICROSS) of 2021/2022 academic session. The study adopted the multi-stage approach. The researcher utilized a combination of stratified sampling and purposive sampling. Firstly, the students in the study area were stratified based on their year of study. Secondly, the researcher went to each of the schools purposively and selected only registered library students of 2021/2022 academic session. The sample of the study was 667 which represents 10% of the population. 387 undergraduate registered library users for the University of Calabar(UNICAL) and 280 undergraduate registered libraries for University of Cross River (UNICROSS).

To ascertain the reliability of the instrument a trial test of the instrument was administered to fifty (50) users from Arthur Javis university academic library who were not part of the study but similar to the respondents in the study. The data obtained from the trial testing was analyzed to establish its internal consistency using Cronbach alpha reliability ranged from .77 to .83. Hence, the instrument was adjudged reliable enough for the study.

Table 1: Population distribution of university libraries and library users of the study

S/N	Names of university libraries	Population of users
1	University of Calabar library	3872
2	University of Cross River State library	2808
	Total	6880

Presentation and interpretation of the result

Hypothesis one

Age does not significantly influence utilization of information and communication technology among library users in Cross River State. The independent variable is age categorized as those below 30yrs, those within 30-40yrs and those above 40yrs while the dependent variable is utilization of information and communication technology, measured continuously. To test this hypothesis, One way Analysis of Variance was used, and the result as presented in Table 6 shows that (F=4.739 p=.009). Since p (.000) is less than p (.05), this

implies that there is a significant influence of age on utilization of information and communication technology among libraries users. A post hoc analysis was carried out using Fishers Least significant difference (LSD) and the result as presented in Table 7 showed that Cursory look at the means of the group showed that the mean value of those 40yrs (X=14.13) is greater than the mean of those between 30-40yr (X=13.05) and those below 30yrs (X=13.05). This implies that those above 40yrs utilized the library better than those of other age groups. Hence, the null hypothesis is rejected, and the alternate hypothesis upheld. Implying that Age, has a significant influence on utilization of Information and Communication Technology among library users in Cross River State.

TABLE 2 One way analysis of variance of the influence of age on utilization of information and communication technology among library users in public University libraries in Cross River

Age	N	Mean	Std. Dev	Std. Error
below 30yrs	312	13.0577	3.69015	.20891
30-40yrs	221	13.0588	3.45111	.23215
Above 40yrs	118	14.1356	2.63415	.24249
Total	651	13.2535	3.45948	.13559

Source of variation	Sum of Squares	Df	Mean Square	F-ratio	Sig.
Between Groups	112.152	2	56.076	4.739	.009
Within Groups	7667.027	648	11.832		
Total	7779.180	650			

*. The mean difference is significant at the 0.05 level.

Hypothesis two

Educational qualification does not significantly influence utilization of information and communication technology among library users in Cross River State. The independent variable is educational qualification categorized as those having primary, secondary and tertiary educational qualification while the dependent variable is utilization of information and communication technology, measured continuously. To test this hypothesis, One way Analysis of Variance was used, and the result as presented in Table 9 shows that (F= 1.525, p=.218). Since p (.218) is greater than p (.05), this implies that there is no significant influence of educational qualification on utilization of information and communication technology among libraries users. Hence, the null hypothesis is accepted.

TABLE 3: One way analysis of variance (ANOVA) result of the influence of educational qualification on utilization of information and communication technology among library users

Qualification	N	Mean	Std. Dev	Std. Error
Primary level	321	13.2991	3.13413	.17493
Secondary level	133	12.8120	3.23136	.28019
Tertiary level	197	13.4772	4.05394	.28883
Total	651	13.2535	3.45948	.13559

Sum of variation	Sum of Squares	Df	Mean Square	F-ratio	Sig.
Between Groups	36.442	2	18.221	1.525	.218
Within Groups	7742.738	648	11.949		
Total	7779.180	650			

Discussion of findings

One of the objectives of the study was to determine the influence of gender on lecturers' use of information and communication technology in library schools in Southeast and South-South among others. The result showed that both male and female lecturers use information and communication technology because of their age. This was evident from the fact that the total agreement has 97(6.9%) and disagreement had a total of 48(33.1%). From the result it was seen that age did not influence the use of information and communication technology by lecturers, thus implying that intervention programmes aimed at facilitating information and communication technology adoption and use in library schools in Nigeria's higher institutions in south-east and south-south zones of Nigeria do not necessarily have to be targeted at lecturers in specific age brackets. The findings of the study were contrary to that of Unegbu, Amaechi, Njoku and Opara (2015) who investigated the influence of socio-demographic variables on the use of formation and communication technology by lecturers in library schools in Southeast and South-South zones of Nigeria.

Similarly, the findings of the study were in line with that of Unegbu, Ogugua, Nnadimele and Nse, (2019) who examined the influence of demographic factors on the use of digital libraries in private universities in Nigeria with a focus on Babcock and Covenant University. One of the objectives was to determine the significant influence of age on the use of digital libraries by postgraduate students. This study employed a survey research approach. Three hundred and fifteen (315) copies of the structured questionnaire were randomly distributed among respondents. Data were analyzed using percentages and ANOVA. The study found out that there is a significant difference in the utilization of

information and communication technology by age of students from both universities.

Educational qualification and utilization of ICT among library users

This showed that the user's educational qualification does not influence the use of the ICT library. This is because, with the rise in global awareness and knowledge explosion, everybody is concerned with acquiring information from the library despite educational qualifications. The findings of the study are in line with those of Timothy (2014) who evaluated the effect of educational qualification on a lecturer's level of utilization of electronic information resources in the University of Ghana. The findings of this study indicated that many respondents do use electronic resources frequently.

The findings of the study were also in line with those of Amusa and Atinmo (2016) who conducted a study on the availability, level of use and constraints to the use of e-resources by lecturers in public universities in Nigeria. The findings showed that several electronic information resources on law are available for use by law lecturers and students from their producer, for example, LexisNexis academic, criminal justice abstracts, Hein Online, and Weslaw among others. However, many of them are not readily available to the respondents in the respective universities and the availability of resources has an impact on their use. Consequently, the resources are less used by the respondents.

Similarly, the findings aligned with that of Mahlau, et al (2017) who sought to find out if there is a significant difference in the use of electronic resources skills on students' comprehension of the subject matter by 300 university school lecturers of different levels of educational qualification in New York City, United States of America. From the result of the statistical analysis, it was observed that the lecturers with higher educational qualifications who utilized electronic resources frequently had higher testing skills than their counterparts identified with lower educational qualifications. The study concluded that there is a significant difference in the use of electronic resources by university lecturers of different educational levels and ranks.

Conclusions and Recommendations

Based on the findings of the study, it was concluded that attitude to school and educational background did not significantly influence the utilization of information and communication technology among library users in Cross River State. The study recommended that younger users should be encouraged to intensify their use of the library so as to made use of modern facilities and university should enforce the registration of students with the library compulsory from the first year of study.

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COMBATING SMALL ARMS AND LIGHT WEAPONS SMUGGLING IN NIGERIA: AN ANALYSIS OF INTELLIGENCE INFORMATION SOURCES WITHIN THE NIGERIA CUSTOMS SERVICE

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Abstract

This study investigates the sources of intelligence information utilized by the Nigeria Customs Service (NCS) to combat the smuggling of arms and ammunition across the nation's borders. Utilizing the Intelligence Cycle Model as a framework, the research identifies key intelligence sources, including the NCS intelligence team, informants, special agents, other border agencies, and international databases such as INTERPOL. Findings revealed that while these sources play a significant role in intelligence collection, there is a notable deficiency in intelligence obtained from border communities, import clearing agents, and local databases like the Single Window database. This gap suggests missed opportunities for enhancing intelligence operations and underscores the necessity for improved engagement with local stakeholders. The study concludes with recommendations aimed at strengthening the NCS's intelligence-gathering capabilities, fostering community collaboration, and ultimately bolstering national security against the backdrop of ongoing challenges related to arms smuggling.

Keywords: Small Arms and Light Weapons, Intelligence Cycle Model, Intelligence Information, Intelligence Sources, Smuggling

Introduction

The widespread availability of small arms and ammunition is a significant global concern, contributing to loss of life and impeding socio-economic development (Alimba, 2017). Small arms, defined as weapons for individual use,

include revolvers, self-loading pistols, rifles, carbines, sub-machine guns, assault rifles, and light machine guns (UN, 2006 Small Arms Review Conference). When these arms evade border controls and enter illegal markets, they exacerbate issues such as armed robbery, kidnappings, political assassinations, trans-border crimes, espionage, smuggling, insurgency, oil bunkering, and the ongoing destruction of public infrastructure in Nigeria. The unregulated cross-border movement of these weapons poses serious threats to national security, highlighting the essential role of customs agencies in enforcing border controls.

Globally, customs services are central to securing national borders, as effective border management is a key to national security. Spencer (2007) underscores this, stating that "the border is the first line of defence against terrorism and the last line of a nation's territorial integrity." Established in 1891, the Nigeria Customs Service (NCS) has three main functions: first, to generate and account for revenue by collecting import, export, and excise duties, along with other taxes, which are vital to Nigeria's financial health; second, to perform security functions; and third, to work alongside other agencies to combat smuggling (Jatau, Adenyi & Anyanwu, 2012). The NCS's anti-smuggling efforts are crucial for Nigeria's economic stability, as smuggling not only harms the economy but also threatens the growth of new industries critical to industrialization. Recognizing these harms, a proactive government seeks to combat smuggling to safeguard the economy.

In its role, the NCS actively monitors and curbs illegal activities conducted by unscrupulous traders at Nigeria's borders, while also ensuring that trade facilitation remains efficient and unobstructed by unnecessary barriers. This dual function highlights the NCS's critical role in balancing security enforcement with trade facilitation, thereby contributing to both national security and economic growth. Murtala (2020) reported that from 2010 to 2017, the NCS seized a total of 26,797 Small Arms and Light Weapons and 1,025,948 rounds of ammunition. However, this represents only a fraction of the illicit arms in circulation across Nigeria, as reflected by the seizure data that indicates what was intercepted relative to the volume of illegally trafficked arms. Former President and Commander-in-Chief General Abdulsalami Abubakar reported that over six million illegal arms are currently in circulation in Nigeria (Daka, Akubo, Abeku, & Sunday, 2021). This disparity between seized arms and those still circulating has contributed to severe security challenges. The European Crime Prevention Network (2017) reports that Boko Haram alone was responsible for 35,000 fatalities by 2011. Additionally, between 2006 and 2015, there were over 2,363 cult-related deaths across 28 Nigerian states. The proliferation of arms has also fueled unrest in the South-South region, significantly impacting Nigeria's

economy; an estimated 400,000 barrels of oil are stolen daily through armed theft, resulting in a loss of approximately 4.8 billion Naira daily. In 2018 alone, Nigeria lost over one trillion Naira due to oil theft. Furthermore, the alarming rise in kidnappings has led to school closures in some states and a halt in various economic activities.

To curb the menace of Small Arms and Light Weapons smuggling in Nigeria, which contributes to numerous criminal activities, intelligence gathering is essential. Effective intelligence gathering is crucial to crime control, as it provides early warnings of potential threats that must be processed promptly. However, successfully gathering intelligence requires identifying and analyzing the sources of this information to ensure its reliability and relevance.

Statement of the Problem

Intelligence agencies are responsible for preventing and detecting crimes that threaten Nigeria's security, leading to the apprehension of offenders to uphold law and order. They also work to ensure the general security of matters concerning Nigeria. These agencies are expected to maintain a reliable intelligence network to remain vigilant, guaranteeing public safety and providing early warnings of potential threats. They should be prepared to address national security challenges promptly, reporting situations that could escalate or contribute to conflict. Intelligence operations rely on the sourcing, gathering, and processing of critical information to fulfil these objectives. One such agency is the Nigeria Customs Service.

Despite the presence of the Nigeria Customs Service at many of Nigeria's borders, the activities of kidnappers and terrorists—particularly in Northern Nigeria—indicate the ongoing proliferation of small arms and light weapons in the country. These firearms have been utilized in armed robberies, kidnappings, political assassinations, cross-border crimes, espionage, smuggling, insurgency, oil bunkering, and the continuous destruction of public infrastructure throughout Nigeria. Salau (2017) reported the interception of 661 pump-action guns after they had left the Apapa seaport. Additionally, Usman and Oritse (2017) highlighted that Nigeria Customs Operatives at the Tin-Can Island Command, in collaboration with partner agencies, dismantled a syndicate involved in smuggling weapons into the nation. These incidents highlight the persistent problem of small arms and light weapons smuggling in Nigeria.

To mitigate the prevalence of these crimes and the proliferation of weapons, it is essential to gather and utilize intelligence information effectively. However, the quality of this intelligence is dependent on the sources from which it originates. This study identifies the sources of intelligence available to the

Nigeria Customs Service for combating the smuggling of small arms and light weapons, using the Intelligence Cycle Model as a framework.

Objectives of the Study;

1. To find out the sources of intelligence information which aid in the curbing of smuggling of arms and ammunition through the border.

Literature Review

Sources of intelligent information are also called INTs and they are generally referred to as intelligence collection. Literature in this section has identified five types of these sources. They include Human Intelligence (HUMINT), Geospatial Intelligence (GEOINT), Signals Intelligence (SIGINT), Measurement and Signature Intelligence (MASINT), and Open-Source Intelligence (OSINT).

Kamiński (2019) investigated the fundamental nature of intelligence sources and examined their practical application within the agencies and departments comprising the U.S. Intelligence Community. The author categorized the primary forms of intelligence sources—Human Intelligence (HUMINT), Geospatial Intelligence (GEOINT), Signals Intelligence (SIGINT), Measurement and Signature Intelligence (MASINT), and Open-Source Intelligence (OSINT)—while delineating the respective responsibilities of U.S. intelligence agencies in their utilization. Additionally, the author highlighted challenges inherent in employing intelligence sources within the U.S. Intelligence Community. The research findings suggest that optimal outcomes in intelligence operations are attainable by implementing "all-source intelligence," also known as fusion intelligence. This approach entails leveraging a diverse array of sources to compile a comprehensive final intelligence product.

Similarly, Sani, Paki and Umar (2015) examined sources of intelligence gathering for minimizing terrorism in Nigeria. Secondary data from journals, book sections, periodicals, websites, and electronic sources were used to collect data. Nigeria, as of February 2014, has recorded the total number of cell phone users to be One hundred and sixty-seven million, three hundred and seventy-one thousand, nine hundred and forty-five (167,371,945). This study found that the sources of intelligence gathering included wiretapping and imagery intelligence, this number or even more will be on surveillance over some time to pinpoint suspects through location information.

Ziółkowska (2018) also examined the use of open-source intelligence (OSINT)as an element of military recon. OSINT is important not only for the institution itself but also for citizens. OSINT is one of how security is provided to

the internal and external states. The study found that Open-source information is one of the agents of economic, political, military, etc. Books, periodicals, statistical yearbooks, social networking sites and daily newspapers belong to the basic, verified sources. In a globalized world, OSINT has particular importance because, due to the obtained information, the state can take defensive action. In this article, the author pointed out the use of OSINT in the military diagnosis.

Olukayode, Folasade, and David (2018) examined the various sources of intelligence services, the mode of analysis and the implications on national security. The study adopted the descriptive design and relied on secondary sources of data such as relevant books, Internet sources, journals and periodic articles. It was found that human intelligence (HUMINT) was the major source in use by the NCS, as it is time-consuming, expensive and susceptible to manipulation. From the conclusion of this study, it could be surmised that other sources of intelligence are available to the NCS for deployment such as; images (IMINT), Signals (SGINT), Communication (COMINT) and electronic (ELINT) which can complement in the short run and possibly replace HUMINT as sources of intelligence in the long run.

Methodology

The research methodology adopted for the study is quantitative research. The cross-sectional descriptive survey design was employed for the study. The total population is 638 staff comprising 426 staff from Borno/Yobe Command and 212 staff from Katsina Command.

The researcher used a 30% portion of the population of each stratum or each of the Area commands totaling 212 staff. This sample is sufficient according to Neuman (2007) who stated that “a researcher will have equal accuracy by selecting 10% of population above 1000 and 30% of population below 1000 as sample size”. A self-developed questionnaire was used to collect the data for the study.

Results and Discussion

The study sought to find out the sources of intelligence information which aided in the curbing of smuggling of arms and ammunition through the border. The responses are shown in the table overleaf:

S/No	Sources of intelligence	Borno/Yobe Area Command		Katsina Area Command		Overall	
		F	%	F	%	F	%
1	Border communities	7	5.00%	4	5.71%	11	5.20%
2	Intelligence communities	123	87.86%	51	72.86%	174	82.90%
3	Other border agencies not in intelligence community	133	95.00%	65	92.86%	198	94.30%
4	International Organizations databases e.g. INTERPOL	127	90.71%	59	84.29%	186	88.60%
5	Local Databases e.g. SINGLE WINDOW database	8	5.71%	1	1.43%	9	4.30%
6	Informants	135	96.43%	68	97.14%	203	96.70%
7	Import clearing agents	4	2.86%	0	0.00%	4	1.90%
8	Transporters or Freight forwarders	7	5.00%	3	4.29%	10	4.80%
9	NCS intelligence team	131	93.57%	70	100.00%	201	95.70%
10	Gadgets for audio and video recordings	82	58.57%	57	81.43%	139	66.20%
11	Computer intelligence specialist that intercept messages	9	6.43%	2	2.86%	11	5.20%
12	Interviews	19	13.57%	4	5.71%	23	11.00%
13	Special Agents	134	95.71%	67	95.71%	201	95.70%

An average response of 3.0 was employed as the acceptability criterion. This implied that items with an average response equal to or greater than 3.00 meant that the respondents agreed with that item while items with an average response less than 3.0 meant that the respondents disagreed with that item. An inspection of the results revealed that the respondents agreed that the sources of intelligence information used to curb the smuggling of arms and ammunition across the border included the NCS intelligence team, informants, special agents, other border agencies and international organizations' databases (such as the INTERPOL). However, the respondents reported that they rarely get intelligence information from border communities, import clearing agents and local databases (such as Single Window database). This finding is similar to reports by Bodunde et al., (2019) who listed sources of intelligence information for the NCS to include

informants, special agents and intelligence teams. Ifeanyi-Aneke et al, (2021) further included local communities and databases as sources of such intelligence information for the NCS. The implication of this finding is not farfetched as arms smuggling often involves transnational criminal networks that operate across multiple countries and regions. These networks may have extensive resources, connections, and expertise in evading law enforcement efforts, making it difficult to disrupt their operations solely through domestic intelligence gathering and enforcement measures. Similarly, despite the involvement of various sources of intelligence information, effective coordination and collaboration among relevant agencies, both domestically and internationally, are crucial for combating arms smuggling comprehensively. Inadequate coordination, communication gaps, and jurisdictional issues may impede efforts to share intelligence, conduct joint operations, and address smuggling networks effectively.

Theoretical Insight

The second stage of the intelligence cycle model is "The collection Stage", which focuses on gathering information from various sources to support decision-making and operational effectiveness. Analyzing the findings through this lens reveals both the strengths and weaknesses of the current intelligence collection efforts by the Nigeria Customs Service (NCS) in combating the smuggling of arms and ammunition across borders.

Strengths in Intelligence Collection

1. Diverse Sources: The findings indicate that the NCS utilizes a variety of intelligence sources, including its intelligence team, informants, special agents, other border agencies, and international databases like INTERPOL. This diversity enhances the robustness of the intelligence collected, as it allows for a comprehensive view of potential threats and smuggling activities.
2. Collaboration with Agencies: Engaging with other border agencies and international organizations fosters cooperation and information sharing, which is essential for effective intelligence operations. This collaboration can lead to timely interventions and proactive measures against smuggling activities.
3. Specialized Teams and Informants: The inclusion of special agents and informants signifies a proactive approach to intelligence gathering. These individuals often have insider knowledge and can provide critical insights that enhance the NCS's operational capabilities.

Weaknesses in Intelligence Collection

1. Underutilization of Local Sources: The finding that the NCS rarely receives intelligence from border communities, import clearing agents, and local databases (such as the Single Window database) highlights a significant gap in the collection process. Local stakeholders often have firsthand knowledge of activities in their areas and can provide valuable intelligence that may not be accessible through formal channels.
2. Limited Engagement with Communities: The lack of intelligence from border communities suggests insufficient engagement and relationship-building efforts. Residents may be reluctant to share information if they do not trust the authorities or believe their input will be valued. This disconnect can hinder the collection of actionable intelligence.
3. Potential for Data Silos: The infrequent use of local databases indicates a possible issue with data integration and sharing. Without a systematic approach to incorporate information from local sources, the NCS may be missing critical intelligence that could inform its operations.

Conclusion

In conclusion, the findings indicate that the Nigeria Customs Service (NCS) relies on various intelligence sources to combat the smuggling of arms and ammunition across its borders. Respondents highlighted the importance of the NCS intelligence team, informants, special agents, other border agencies, and international organizations' databases, such as INTERPOL, in their efforts. However, it is noteworthy that intelligence from border communities, import clearing agents, and local databases, such as the Single Window database, is seldom utilized. This gap suggests an opportunity for enhancing intelligence-gathering strategies by fostering stronger relationships with local stakeholders and communities. By leveraging these underutilized sources, the NCS could improve its effectiveness in curbing arms smuggling and strengthening national security.

Recommendations

Based on the findings, the following recommendations are proposed to enhance the intelligence-gathering capabilities of the Nigeria Customs Service (NCS) in combating arms smuggling:

1. Strengthen Community Engagement: The NCS should establish initiatives to engage border communities actively. By fostering trust and collaboration, the NCS can encourage residents to report suspicious activities and provide valuable intelligence.

2. Enhance Training for Informants and Agents: Providing targeted training for informants, special agents, and local clearing agents can improve their ability to gather and report intelligence effectively. This training should emphasize the importance of accuracy, confidentiality, and the timely sharing of information.
3. Utilize Local Databases: The NCS should explore ways to integrate local databases, such as the Single Window database, into their intelligence operations. This could involve improving data sharing and collaboration with relevant agencies to enhance the overall intelligence picture.
4. Develop Strategic Partnerships: Forming partnerships with other law enforcement agencies and international organizations can facilitate information exchange and collaborative efforts. This could also include joint training programs and intelligence-sharing agreements to strengthen overall security measures.
5. Increase Resources for Intelligence Operations: Allocating additional resources, including personnel and technology, to intelligence operations can enhance the NCS's capacity to gather, analyze, and act on intelligence related to arms smuggling.

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KNOWLEDGE SHARING BEHAVIOUR OF LIBRARY PERSONNEL IN ONDO STATE TERTIARY INSTITUTIONS: BENEFITS AND CHALLENGES

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Abstract

This study investigated the benefits and challenges of knowledge sharing among library personnel working in tertiary institution libraries of Ondo State. A descriptive survey research design was adopted for this study. The population of the study comprised one hundred and fourteen library personnel working in Ondo State tertiary institutions. The study adopted the total enumeration technique. A structured questionnaire was used as a data collection instrument. Out of one hundred and fourteen (114) copies of the questionnaire administered, ninety-two (92) copies were found useful for this study, giving a response rate of 80.7%. Descriptive statistics were used to analyse the data. Results revealed that library personnel benefit immensely from knowledge sharing as the majority of the respondents strongly agreed that knowledge sharing leads to improvement in work practices (= 3.48), generation of new knowledge (= 3.32), provision of timely services (= 3.25), and so on. Results also revealed that virtually all the listed barriers militate against knowledge sharing among library personnel, such as lack of motivation and shortage of infrastructure. The study recommended adequate provision for staff training and technological infrastructure to motivate knowledge-sharing behaviour among library personnel as well as improve library services.

Keywords: Academic libraries, Behavior of Library Personnel, Benefits, Challenges, Knowledge, Knowledge Sharing, Tertiary institutions.

Introduction

Libraries serve as hubs of knowledge and information, enriching communities by providing access to resources that educate, inspire, and empower. At the heart of every library are its personnel, dedicated individuals who curate collections, assist patrons, and uphold the institution's mission. Libraries are indispensable as they work to fulfil the vision and mission of the parent

institutions by disseminating knowledge to the scholarly community. There has been a change in the roles and services rendered by academic libraries as regards managing knowledge in this era of information explosion. These roles demand much of the library personnel's tasks to be done collaboratively as no one can claim possession of the needed knowledge in one's profession.

The environment where academic libraries operate is changing as the world is tech-driven, which may necessitate library personnel to equip themselves with more skills and knowledge (Ajie, 2019). For effective library service delivery, there is a need for library personnel to network, cooperate, and depend on one another's knowledge. Library personnel play a vital role in knowledge management programs by identifying, acquiring, developing, resolving, storing, and sharing knowledge. Recognizing the importance of knowledge-sharing has created a demand for knowledge-sharing behaviour in tertiary institutions, which are regarded as knowledge-intensive organizations (Enakrire & Onyancha, 2020). Abubakar & Kabir (2022) defined knowledge-sharing behaviour as personnel's activities that pertain to the interchange of ideas, skills, information, and experience between personnel or groups of people within an organization to improve the organization's sustainability.

Previous research has proven the importance of knowledge-sharing behaviour (Ali and Dominic, 2017; Abubakar & Kabir, 2022). The effectiveness of libraries in achieving their mandate relies not only on the availability of resources but also on the extent to which knowledge is shared among library personnel themselves. Therefore, knowledge sharing among library personnel is crucial because it makes them well-informed. The ability to provide result-oriented services to library and information users can be made possible or marred by library personnel's knowledge-sharing behaviour. Being knowledge workers, they need essential knowledge and expertise in their tasks, as this will support super library services. Knowledge-sharing behaviour is a vital process that impacts individual and organizational performance.

However, alongside the benefits of knowledge sharing, academic libraries in the digital era face significant challenges that hinder personnel's knowledge sharing. Studies have shown that knowledge-sharing activities are not frequent in academic libraries due to a lack of infrastructure (such as computers, servers, and alternative sources of power and so on) that promote effective knowledge-sharing within the organisation (Awodoyin, Osisanwo, Adetoro and Adeyemo, 2016). Literature has also shown that library personnel are reluctant to share knowledge,

as there is no systematic approach to knowledge sharing in academic libraries (Bumbie-Chi, 2020, Ondieki, Maina, and Macharia, 2023). Odunewu & Haliso (2019) and Ike (2023) also affirmed that knowledge sharing is on an informal basis and uncoordinated in academic libraries; there is no policy guiding their knowledge sharing.

Moreover, academic libraries face evolving challenges such as limited budgets, technological constraints, changing user expectations and so on. Amidst these challenges, the importance of fostering a culture of knowledge sharing among library personnel cannot be overstated. Knowledge sharing cannot be mandated but can only be encouraged and facilitated. As a result, it is important to explore the benefits and challenges of knowledge sharing among library personnel working in academic libraries of Ondo States, to enhance personnel's positive knowledge sharing behaviour.

Statement of problem

The performance of academic libraries and indeed the tertiary institutions could improve when appropriate knowledge is made available and shared by the library personnel. Research has shown that the exchange of ideas, best practices, expertise, and resources among library personnel enhances collective learning and improves service delivery. It fosters collaboration and innovation within library systems. Effective knowledge sharing not only strengthens the capacity of library personnel but also enriches the experiences of library users. Since knowledge is stored in individual brains, library personnel must collaborate and rely on one another's knowledge to keep meeting patron's diverse information needs.

However, despite its significance, studies have shown in diverse quarters that library personnel in Nigerian tertiary institutions have not exhibited positive knowledge-sharing behaviour. For example, academic libraries have no systematic approach to knowledge sharing, their knowledge sharing has always been on an informal basis, uncoordinated and there is reluctance to share knowledge among library personnel. Library personnel face obstacles, such as traditional hierarchical structures, lack of incentives, inadequate technological infrastructure and so on, these obstacles often impede the flow of knowledge within library settings. Addressing these barriers and cultivating a culture of knowledge sharing is crucial to unlocking the full potential of academic libraries as vibrant centers of learning in the academic community. Therefore, this study seeks to investigate the benefits and challenges of knowledge sharing among library personnel working in Ondo State tertiary institutions.

Objectives of the study

The objectives of this study are to:

1. identify perceived benefits of knowledge-sharing practices among library personnel in Ondo State tertiary institution libraries
2. find out challenges militating against knowledge sharing among library personnel in Ondo State tertiary institution libraries.

Literature Review

Benefits of Knowledge Sharing in Academic Libraries

Knowledge sharing is the process of gathering, comprehending, disseminating, and repeating facts, concepts, and resources among people who are connected in certain ways. In the field of library and information science, knowledge is continuously generated. Given the significance of knowledge-sharing behaviour, library personnel ought to be highly engaged in it and behave in a way that promotes it. Several research works have highlighted the benefits of knowledge sharing among library personnel. Knowledge sharing, according to Khan (2019), can enhance learning, personal development, and library operations. For the library to succeed and remain in operation, staff members must share knowledge about studying, comprehending, and sharing resources. Library personnel gain from knowledge sharing by providing better information, encouraging staff to acquire more knowledge, reducing duplication of tasks, improving productivity, and retaining knowledge from retiring personnel. This fosters continuous learning, innovative ideas, and improved service to users (Onwubiko, 2022).

Kipkosgei, Kang and Choi (2020) stressed that knowledge-sharing behaviour builds ties and relationships among library personnel which, in turn, enhances team performance. Many researchers emphasize on the benefits of knowledge sharing as a medium for enhancing what individual personnel know and how that can affect the overall organizational performance. According to other studies, implementing knowledge-sharing improves organizational effectiveness (Olatokun & Njideaka, 2020). Knowledge-sharing behaviour allows library personnel to share their knowledge and experiences to provide their patrons with fast, efficient, and effective information services.

Knowledge-sharing behaviour as an essential asset in any organization aids performance and productivity. Thus, knowledge-sharing behaviour among library personnel could likely result in increased productivity. According to Olayemi and Olayemi (2021), the sharing of knowledge helps to take full

advantage of organizations' capacity to manage knowledge and permits individual personnel to work and achieve goals more efficiently. Knowledge-sharing behaviour among library personnel could help in the generation of new ideas which can later be implemented and promote the survival and effectiveness of the library. Knowledge-sharing behaviour improves personnel's decision-making skills, performance, problem-solving efficiency, relationships with colleagues, and work quality (Mwawasi, 2022). Knowledge-sharing behaviour assists academic libraries in meeting users' needs and generates solutions that help them develop and maintain a competitive advantage Chipeta, 2018).

Asrar-ul-Haq and Anwar (2020) highlighted the importance of knowledge sharing in enhancing capacity and fostering learning. He stressed that tertiary institutions and academic libraries will be more successful if there is more appropriate and relevant knowledge. Every organization, including academic libraries, will remain successful only when they continuously construct innovative knowledge, disseminate it among personnel and rapidly apply it for the development of society (Mwawasi, 2022). In another study, Olayemi and Olayemi (2021) posited that knowledge sharing facilitates better decision-making, utilises the existing computer systems, encourages the free flow of ideas and knowledge, improves customer service satisfaction, and boosts revenues. It also enhances the value of existing products, reduces costs in human labour and hours, streamlines operations helps to make better use of employees' working time, and improves the collective organization memory. Library personnel should be quite interested in knowledge sharing based on the importance associated with knowledge sharing.

Challenges militating against knowledge sharing behaviour of library personnel in academic libraries

Despite the benefits, many factors could influence the knowledge-sharing behaviour of library personnel. Razmerita, Kirchner, and Nielsen (2016) confirmed that these factors can be divided into three categories: individual, technological, and organizational factors. Individual factors include knowledge self-efficacy, lack of time and trust, perceptions, feelings, expectations, lack of social skills, enjoying helping others, cultural differences, self-esteem, and so on. Technological factors include the development and acquisition of information and communication technologies (ICTs), such as chat rooms, bulletin boards, the internet, and intranet. Organizational factors include organizational culture, management support in terms of reward and supportive climate, job motivation

organisational structure and so on. Any of the aforementioned factors could act as an enabler or barrier to library personnel's knowledge-sharing behaviour.

Literature has shown that there is reluctance to share knowledge among library personnel because there are no regular or systematic ways of knowledge sharing by the library personnel, and making knowledge available to others to develop organizational effectiveness and add value to the operations of libraries (Awodoyin et al., 2016). Sometimes library personnel may be reluctant to share the information because they believe that by doing so, they will lose their sense of superiority and uniqueness after sharing their unique and distinct ideas and thoughts with others. Ajie (2019). further emphasized that the lack of infrastructure that fosters knowledge-sharing behaviour among coworkers is the reason why knowledge-sharing activities are not common in academic libraries. Technology is essential to knowledge sharing since it links a lot of people from different parts of the world. Lack of familiarity with the IT system may cause people to be reluctant to utilize it, which could act as a barrier to the sharing of knowledge.

In a review of knowledge-sharing behaviour literature, it was found that a relative lack of attention to the role of motivational factors hurts knowledge-sharing behaviour (Olayemi & Olayemi, 2021). Perceived lack of incentive systems (such as rewards and recognition) also acts as a barrier to knowledge sharing as well; personnel may be reluctant to share their knowledge out of concern that they won't receive fair recognition from managers and coworkers, and not receive such adequate rewards may cause resentment. Khan and Ali (2019), however, noted certain obstacles, including a lack of trust and technological support. Nazim & Ali (2021) found that top management's support, lack of trust, and a culture of knowledge-sharing at South African university libraries hindered the sharing of learned information.

Library personnel may have a bad attitude about knowledge sharing because to personal insecurity, such as the fear of being seen as ignorant and unqualified for job advancement or new professional progression. Lack of trust among coworkers and fear that knowledge will be lost or misused can also be factors in determining a person's willingness to share knowledge. Also, the belief that "knowledge is power" could be a reason why personnel are reluctant to share their knowledge. Library personnel who wish to maintain superiority over their colleagues in the organization may not contribute their knowledge. Personnel with certain knowledge have the power to control who does not know, and so the benefit of being the exclusive owner of knowledge vanishes when that knowledge

is shared. Also, lack of time can cause people to prioritize their everyday responsibilities. When time is scarce people focus more on tasks that benefit them personally than others. The barrier arises from the perception held by employees that knowledge sharing is an extra duty that needs to be done outside of their regular workday, therefore believing they need to invest additional time to share knowledge (Onwubiko, 2022).

Furthermore, one of the biggest obstacles to knowledge sharing can be a lack of awareness about what knowledge is crucial to preserve. Another barrier related to fear is that new personnel frequently feel intimidated to participate because they feel they have not earned the right to post any information. Additionally, people fear that by sharing, they will be mocked or criticized; they fear that their contributions to knowledge will be less valued in response. Knowledge sharing may be impeded by perceived ignorance; some staff members feel their knowledge is inferior to that of their library counterparts, which keeps them from sharing. Whatever the obstacle, library management needs to understand that sharing knowledge can only be encouraged and facilitated, not forced. To promote knowledge-sharing among personnel, library management must fully support initiatives that will both strengthen personnel knowledge-sharing behaviour and remove barriers to knowledge-sharing.

Methodology

A descriptive survey research design was adopted for this study. The population of the study comprised of one hundred and fourteen (114) librarians and library officers working in eight (8) academic libraries of Ondo State tertiary institutions. The selected tertiary institutions are Federal University of Technology, Akure; Adekunle Ajasin University, Akungba-Akoko; Ondo State University of Science and Technology, Okitipupa; Adeyemi College of Education, Ondo; Federal Polytechnic, Ile-Oluji; Rufus Giwa Polytechnic, Owo; Federal College of Agriculture, Akure; and Elizade University, Ilaramokin. A total enumeration technique was adopted. The instrument for data collection was a structured questionnaire. Out of one hundred and fourteen (114) copies of the questionnaire administered, ninety-two 92(80.7%) copies were found useful for the study. The collected data were analyzed using descriptive statistics.

Result and Discussion

Research Question One: What are the benefits of knowledge sharing among library personnel in Ondo State tertiary institutions?

Table 1: Perceived benefits of knowledge-sharing practices among library personnel

Rank	Benefits of Knowledge Sharing	SA		A		D		SD			
		N	%	N	%	N	%	N	%		STD
1	Leads to improvement in work practices	50	54.3	38	41.3	2	2.2	2	2.2	3.48	0.654
2	It facilitates learning of best library practices	43	46.7	39	42.4	6	6.5	4	4.3	3.40	0.647
3	It leads to the generation of new ideas and knowledge	41	44.6	37	40.2	8	8.7	6	6.5	3.32	0.783
4	It assists library personnel in the provision of timely services	37	40.2	43	46.7	10	10.9	2	2.2	3.25	0.765
5	It helps the library to avoid the repetition of error	38	41.3	42	45.7	9	9.8	3	3.3	3.25	0.736
6	Cost effectiveness-knowledge is developed and then re-used by many people.	35	38.0	48	52.2	6	6.5	3	3.3	3.25	0.721
7	Helps library personnel to understand and respond	36	39.1	40	43.5	11	12.0	5	5.4	3.23	0.866

	effectively to users' needs										
8	It makes academic libraries more relevant to their community	34	37.0	38	41.3	16	17.4	4	4.3	3.16	0.842
9	It helps in providing solutions to problems encountered on the job.	26	28.3	42	45.7	15	16.3	9	9.8	3.12	0.875
10	It can help libraries survive in competitions	37	40.2	37	40.2	10	10.9	8	8.7	3.12	0.924
11	Knowledge sharing helps the organization to achieve its objectives	26	28.3	55	59.8	6	6.5	5	5.4	3.11	0.748
12	It helps an organization to connect professionals across platforms and distances	34	37.0	42	45.7	9	9.8	7	7.6	3.11	0.845
13	Improves performance of the library and their prospect	43	46.7	45	48.9	2	2.2	2	2.2	3.00	0.961
14	Reduced risks associated	20	21.7	51	55.4	10	10.9	11	12.0	2.92	0.917

	with knowledge loss										
Average mean = 3.19											

Key: SA=Strongly Agreed, A=Agreed, SD=Strongly Disagreed, D=Disagreed, =Mean, STD=Standard Deviation, %=Percentage, N=Total number of Respondents (n) = 92

The results in Table 1 above showed that library personnel benefit immensely from knowledge sharing as majority of the respondents strongly agreed that knowledge sharing leads to improvement in work practices (= 3.48), assists in learning the best library practices (= 3.40), it leads to the generation of new ideas and knowledge (= 3.32), the provision of timely services (= 3.25), avoiding the repetition of error (= 3.25), and provision of cost effectiveness-knowledge for re-use by many people (= 3.25). The findings on the benefits of knowledge sharing revealed that library personnel at Ondo State University benefit immensely from knowledge sharing. They agreed that knowledge sharing leads to improvement in work practices, assists in learning the best library practices, leads to the generation of new ideas and knowledge, provides timely services, avoids the repetition of errors, and provision of cost effectiveness-knowledge for re-use by many people. This particular finding coincides with that of Mayekiso (2013), Anna and Puspitasari (2013), AlRashdi and Srinivas (2016), Awodoyin et al. (2016), Olayemi & Olayemi (2021), Mwawasi (2022), and Chipeta (2018). This implies that library personnel in Ondo State University libraries are drawn to the gains of knowledge sharing as they agreed that knowledge sharing enhances their effectiveness, boosts personnel's confidence and strengthens their bonds and connections.

Research Question Two: What are the challenges to knowledge sharing among library personnel in Ondo State tertiary institutions?

Table 2: Challenges to knowledge sharing among library personnel in Ondo State tertiary institutions

Rank	**Challenges of knowledge Sharing**	SA		A		D		SD			
		N	%	N	%	N	%	N	%		STD
1	Lack of motivation (incentives and	43	50.0	39	45.4	5	2.3	5	2.3	3.30	0.808

	recognition) to share knowledge										
2	Shortage of infrastructure to support knowledge sharing practices	41	47.7	37	43.0	8	9.3	6	0.0	3.23	0.866
3	Lack of time to share knowledge and time to identify colleagues in need of specific knowledge	37	43.0	37	43.0	12	10.5	6	3.5	3.14	0.884
4	Lack of trust among personnel	37	43.0	37	43.0	10	11.6	8	2.3	3.12	0.924
5	Lack of knowledge sharing policies	30	34.9	40	46.5	17	12.8	5	5.8	3.03	0.857
6	inferiority and superiority complexes among junior and senior personnel	30	58.1	38	40.7	15	0.0	9	1.2	2.97	0.943
7	Lack of social networking skills	20	23.3	42	48.8	20	17.4	10	10.5	2.78	0.912
8	Inability to use modern technology	26	30.2	27	31.4	27	24.4	12	14.0	2.73	1.017
9	Unclear intents and objectives of management	10	11.6	49	50.0	29	33.7	4	4.7	2.71	0.719
10	Lack of benefits to oneself	25	29.1	29	33.7	22	18.6	16	18.6	2.68	1.058
11	Uncertainty regarding what knowledge one	10	11.6	43	50.0	31	36.0	8	2.3	2.60	.799

	supposed to shared										
12	Lack of interpersonal and communication skills	19	23.3	29	47.7	23	16.3	21	12.8	2.50	1.064
13	Preference for knowledge sharing in face-to-face networks	16	40.7	33	43.0	23	12.8	20	3.5	2.49	1.022
Average mean = 2.87											

Key: SA=Strongly Agreed, A=Agreed, SD=Strongly Disagreed, D=Disagreed, =Mean, STD=Standard Deviation, %=Percentage, N=Total number of Respondents (n) = 92

The responses in Table 2 showed that virtually all the listed challenges were militating against knowledge sharing among library personnel. The challenges include; lack of motivation (= 3.30), shortage of infrastructure (= 3.23), lack of time to engage in knowledge sharing (= 3.14), lack of trust among personnel (= 3.12) and so on, while "preference for knowledge sharing in face-to-face networks was rated low (= 2.49). The findings show that, there exists a number of barriers, which hinders knowledge sharing. Library personnel in Ondo State University identified challenges militating against knowledge sharing to include; lack of motivation, shortage of infrastructure, lack of time to engage in knowledge sharing, lack of trust among personnel and so on. These findings are similar to that of Awodoyin et al. (2016), Tahleho (2016) Nazim & Ali (2021), Olayemi & Olayemi (2021), Onwubiko, (2022), Mwawasi (2022), who reported same barriers of knowledge sharing among academic library personnel. The above findings imply that there exist several barriers, which hinder knowledge sharing among library personnel.

Conclusion and Recommendations

The digital era has transformed the landscape of knowledge management in academic libraries, presenting new opportunities and challenges for information professionals. The result of this study established the benefits of knowledge sharing to academic libraries and library personnel as it could promote service delivery, lead to improvement in work practices, assist in learning the best library practices, lead to the generation of new knowledge, as well as strengthen bonds and connections between professionals. Despite the benefits of knowledge

sharing, findings revealed that library personnel lack time and motivation to share knowledge, lack of trust among personnel hinders their knowledge sharing, and there is also a shortage of infrastructure to support knowledge-sharing practices in academic libraries. With appropriate knowledge sharing, academic library personnel will enhance their capacity for knowledge creation; it will strengthen relationships among library personnel and promote inter-networking between personnel, libraries, and users. The study therefore recommended that library personnel should imbibe the culture of knowledge-sharing practices such as cross-fertilization of ideas, job rotation, in-house seminars and so on. This will enable every library personnel to be more knowledgeable in every aspect of the library. Management should encourage knowledge-sharing among library personnel through adequate provision for staff recognition, training and technological infrastructure to motivate knowledge-sharing behaviour among library personnel as well as improve library services.

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APPROACHES TO INTELLIGENCE INFORMATION GATHERING AND SHARING AMONG SECURITY AGENCIES FOR SECURITY MANAGEMENT IN KADUNA STATE, NIGERIA.

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Abstract

This study investigated the approaches used by security agencies to gather and share intelligence information for security management in Kaduna State, Nigeria. Two (2) research questions guided the study which were: what types of intelligence information are gathered and shared among security agencies in Kaduna State? What approaches are used for intelligence information gathering and sharing by security agencies for security management in Kaduna State? This study adopted a quantitative research methodology and a cross-sectional survey design was adopted. The population of this study was 44,976 comprising of Nigerian Army, Nigerian Police, Nigerian Civil Defense Corps (NCDC) and Kaduna State Vigilante (KADVIS). A purposive sampling technique was adopted and a self-designed questionnaire was subjected to face and content validity, and a reliability test result of 0.901 was obtained. The questionnaire was used to collect data using a sample size of 62 respondents. The data collected was described and analyzed using frequencies table, percentages, mean and standard deviation. The hypotheses were tested using one-way ANOVA. The findings revealed that the common types of intelligence information gathering and sharing for security management in Kaduna State were information about criminal hideout and criminal modes of operation. Securities agencies in Kaduna State rely more on a non-kinetic approach to intelligence information gathering using rapport and. Inter-agency collaborations were also the most preferred way of intelligence sharing among security agencies in Kaduna state. The study concluded that the Nigerian state is currently bedeviled with an array of criminal activities which require comprehensive intelligence information sourcing and utilization. The absence of comprehensive studies on intelligence information gathering and sharing has made the fight against crime and criminality in Kaduna State almost unbeatable. The study therefore recommended that security agencies should collaborate with community leaders, elders, youth and other

stakeholders for effective intelligence information gathering, they should also strengthen rapport with crime suspects and syndicates for effective intelligence gathering. Security agencies should also intensify efforts on daily intelligence gathering and sharing.

KEYWORDS: Approaches, Intelligence Information, Security Agencies, Security Management, Information Gathering and Sharing.

Introduction

Ensuring the security of lives and properties is paramount in every civilized society. Nigeria is currently grappling with grave security challenges and threats which include the threat of religious extremism (such as Boko Haram & Shiite, Kukawa), kidnappings, banditry, armed robbery, ritual killings, oil bunkering, cybercrime, etc. It has been argued that the variations in the types of insecurity in Nigeria may not be unconnected with a high level of unemployment, lack of education the widening economic gap between the poor and the rich, the influx of illegal migrants from the neighboring countries due to the nation's porous border, etc (Martin, 2016).

Intelligence information refers to information that has been processed so that it contains a particular meaning for a given recipient (Flavius-Cristian and Andreea, 2013). It involves any vital information, together with the activities involved in producing or procuring it, designed to ensure and or enhance national and global security (Martin, 2016). Intelligence information gathering also involves civilian components who actively engage in information gathering through a multi-dimensional and multi-agency approach. Intelligence information also often comes from a variety of other sources such as interrogations, testimonies, confessions, third (3^{rd}) party or open sources such as newspaper articles, magazines, online blogs, wikis, websites, police reports, etc.

Security management is the activities of planning, organizing, directing, coordinating and supervising all resources aimed at protecting, preventing or eliminating possible threats that may endanger the existence of individuals, organizations or countries. Karataş, Adnan (2021) defines security management as the activities of planning, organizing and controlling every aspect of an organization's strategy and, accordingly, its operations to improve its functioning. Intelligence information is costly to obtain, harness, process, share and protect. This makes stakeholders to sometimes hesitate share the intelligence information in their possessions with others.

Statement of the Problem

The country over the last 10 years has been progressively experiencing a rise in criminal activities such as kidnapping, cattle rustling and terrorism. Like in many states of Nigeria, Kaduna State has also continued to grapple with various incidences of organized and non-organized crime such as kidnapping for ransom, human/child trafficking, armed robberies, theft and cattle rustling. Places such as Birnin Gwari, Abuja- Kaduna Highway, Kaduna-Zaria Highway and Kaduna-Birnin-Gwari Road are most prone to these attacks. They have become 'danger zones' for commuters, with frequent cases of robbery and kidnapping. However, despite the efforts of both the Federal and State Governments to provide adequate security along those flash points, the situation continues to linger and persist. Claims and counter-claims continue to dominate the public space that the various security agencies do not gather and share intelligence information among them due to lack of cooperation, ego-boosting, favouritism and marginalization. It is in light of this that the researcher conducted survey research to find out the types of intelligence information gathered and shared by security agencies, and approaches to intelligence information gathering and sharing adopted by security agencies in Kaduna State.

Research Questions

The following research questions were raised:

1. What are the types of intelligence information are gathered and shared among security agencies in Kaduna State?

2. What approaches are used for intelligence information gathering and sharing by security agencies for security management in Kaduna State?

Literature Review

Several intelligence information disciplines are used by different security agencies to acquire information concerning the activities of criminals and adversaries. These disciplines include Human Intelligence (HUMINT), Signals Intelligence (SIGINT), Imagery Intelligence (IMINT), Measurement and Signatures Intelligence (MASINT), and open-source intelligence (OSINT). (Intelligence Threat Handbook, 2019).

HUMINT is the Information obtained through human sources, that is by informants or interrogators and monitors who, for institutional or professional reasons, are aware of the Information they want to find; this is undoubtedly the oldest and most risky Information gathering system, able to provide Information coverage even in impenetrable areas from other systems" (Vilasi, 2018). Human intelligence collection is also sometimes referred to as espionage. These terms typically involve the identifying and recruiting of an official who, by a position of trust in government, has access to important information and who is willing to pass this information on to officers of one's intelligence service (Shulsky, & Schmitt,2002). Signals intelligence is intelligence information derived from signal intercepts comprising, either individually or in combination, all communications intelligence (COMINT), electronic intelligence (ELlNT), and foreign instrumentation signals intelligence (FISINT), (Intelligence Threat Handbook, 2019).

Measurement and Signature Intelligence (MASINT) is scientific and technical intelligence information obtained by quantitative and qualitative analysis of data derived from specific technical sensors to identify any distinctive features associated with the source emitter or sender. This intelligence information is then used to facilitate the subsequent identification or measurement of the same type of equipment. Imagery Intelligence (IMINT**)** is a product of imagery analysis. Imagery includes representations of objects reproduced electronically or by optical means on film, electronic display devices, or other media. Imagery can be derived from visual photography, radar sensors, infrared sensors, lasers, and electro-optics.

Open-source intelligence information involves the use of materials available to the public by intelligence agencies and other adversaries, eg archives, publications, radio, TV, newspapers, scientific dissertations, and secondary sources as well" (Vilasi, 2018). Some analysts have estimated that the Soviet Union derived up to 90 per cent of its intelligence information from open source. With the proliferation of electronic databases, it has become easier to collate large quantities of data, and structure information to meet the needs of the adversary collector. Open-source information can often provide extremely valuable

information concerning an organization's activities and capabilities (Intelligence Threat Handbook, 2019). Kelly et al. (2013)

Macro-level general Approach is most often described as accusatorial or confrontational (Meissner, Redlich, Bhatt, & Brandon, 2011). In this approach, the interviewer establishes control over and confronts the suspect, presumes guilt, and ultimately aims to obtain a confession. Accusatorial methods tend to use closed-ended and confirmatory questions and to employ psychological manipulation. This method also uses anxiety-based cues to detect deception, cues (e.g., fidgeting and lack of eye contact) that have generally not found support in the scientific literature (Vrij, 2008).

Kelly et al. (2013) proposed a micro-level of six domains consisting of individual techniques: rapport and relationship building; context manipulation; emotional provocation; confrontation/competition; collaboration; and presentation of evidence. We describe these domains in detail as they lay an important foundation for the present research.

Methodology

Quantitative methodology with a cross-sectional survey research design was adopted to allow the researchers to obtains responses from a population at a particular point in time (Babbie, 2016). The target population of this study consisted of security agencies vested with the responsibility of protecting lives and properties in Kaduna State. These are the Nigerian Army, Nigerian Airforce, Nigerian Police, Nigerian Security and Civil Defense Corp (NCDC) and Local Vigilante. The sample size for this study was sixty-two (62) and was drowned during the data collection visit to the intelligent unit of the various security agencies under study. The sampling technique adopted was purposive sampling techniques. Due to the nature and characteristics of the required data, the researcher adopted a purposive sampling technique for the researcher to collect data from only intelligent officers across these agencies; and a questionnaire was used for data collection. Statistical Package for Social Sciences (SPSS) was used for the analysis of the collected data while a frequency table was used in presenting the data collected and a simple percentage was used for data presentation related to the research questions. The discussion of data was subjected to a mean benchmark of 2.8.

Result and Discussions

Table 1: Types of Intelligence Information Gathered and Shared by Security Agencies for Security Management in Kaduna State

To identify the types of intelligence information gathered and shared among security agencies in Kaduna State, each of the types of information was assessed and analyzed independently as presented in Table 1:

S/N	Types of Intelligence Information Gathered and Shared by Security Agencies.	Security Agencies												μ	σ
		NA		NAF		NPF		NSCDC		KADVS		Σ			
		F	%	F	%	F	%	F	%	F	%	Total	%		
1	Information about criminal hideout	14	25.5	2	3.4	4	7.3	9	16.5	6	10.9	35	63.6	7	4.5
2	Information about weapon use	10	18.2	2	3.4	1	1.8	5	9.1	2	3.4	20	36.4	4	3.7
3	Information about sponsors	5	9.1	1	1.8	1	1.8	6	10.9	1	1.8	14	25.5	2.8	2.5
4	Information about food & logistics	4	7.3	2	3.4	1	1.8	5	9.1	2	3.4	14	25.5	2.8	1.6
5	Information about time of operation	5	9.1	1	1.8	1	1.8	3	5.5	4	7.3	14	25.5	2.8	1.9
6	Information about flashpoint	7	12.7	2	3.4	1	1.8	6	10.9	3	5.5	19	34.5	3.8	2.6
7	Information about gadget use	9	16.5	2	3.4	1	1.8	8	14.5	8	14.5	28	50.1	5.6	3.8
8	Information about mode of operation	13	23.6	2	3.4	2	3.4	8	14.5	4	7.3	29	52.7	5.8	4.7

From Table 1 above, it can be seen that the most popular type of intelligence information gathered and shared by security agencies for security management in Kaduna State was information about criminal hideouts with a mean score of 7(σ = 4.5). However, all other types of intelligence information gathered and shared by security agencies have met the minimum required

benchmark of 2.8. Nevertheless, it can be argued that intelligence information about criminal hideouts and their mode of operations is usually the most widely sought-after information by security agencies for security management in Kaduna State. This implies that identifying criminals and their hideouts is very important to security agencies in Kaduna State and is vital to effective security management in the State. This also implies of this finding is that; the security agencies are more interested in HUMINT activities, particularly reconnaissance activities which involve identifying, preventing, and deterring crime and criminal activities in the state. HUMINT entities employ human sources or contacts (controlled and not controlled), exploit documents, and execute reconnaissance and surveillance activities to satisfy requirements regarding the adversaries (Pick, Rentner, & Dukat, 1999). This finding is closely related to the study by Jonathan Olufemi Adeyemi and Olugbenga Ajilore (2022), who trace the evolution of intelligence and security services in Nigeria from the colonial era to the present day. Their study highlights the role of HUMINT in intelligence gathering and analysis, particularly during the colonial era, when intelligence was primarily used for maintaining colonial rule. They also examine the development of HUMINT practices in Nigeria's post-colonial era, with a focus on the challenges faced by the intelligence and security services in the country

Table 2: Approaches Used by Security Agencies in Kaduna State to Gather and Share Intelligence Information in Kaduna State.

In order to identify the approaches used by security agencies to gather and share intelligence in Kaduna State each of the techniques was assessed and analyzed independently as presented in Table 2.

Table 2: Approaches Used by Security Agencies in Kaduna State to Gather Intelligence Information

S/N	Approaches used by Security Agencies to Intelligence Information	Security Agencies													
		NA		NAF		NPF		NSCDC		KADVS		Σ		μ	σ
		F	%	F	%	F	%	F	%	F	%	Total	%		
1.	Confrontation & provocation	2	3.6	0	0.0	0	0.0	2	3.6	1	1.8	5	9.0	1.6	0.6
2.	Context manipulation – interview	6	10.9	0	0.0	1	1.8	4	7.3	4	7.3	15	20.0	3.8	2.1
3.	Rapport, collaboration & relationship	14	25.5	1	1.8	2	3.6	8	14.5	8	14.5	33	60.0	6.6	5.3
4.	Audio/video recording technologies	7	12.7	1	1.8	1	1.8	4	7.3	6	10.9	19	35.0	3.8	2.8
5.	Covert operations	7	12.7	2	3.6	2	3.6	6	10.9	3	5.5	20	41.3	4.0	2.3
6.	Direct surveillance	9	16.4	2	3.6	1	1.8	7	12.7	4	7.3	23	42.0	4.6	3.4
7.	Telecommunications devices	6	10.9	2	3.6	0	0.0	3	5.5	1	1.8	12	22.0	3.0	2.2
8.	Subject of interest	4	7.3	1	1.8	1	1.8	4	7.3	4	7.3	14	26.0	2.8	1.6
9.	Tracking devices	5	9.1	0	0.0	0	0.0	3	5.5	2	3.6	10	18.2	3.3	1.5
10.	Secretly accessing computers	0	0	1	1.8	0	0.0	2	3.6	1	1.8	4	7.2	1.3	0.6
11.	Aerial reconnaissance	8	14.5	1	1.8	2	3.6	3	5.5	1	1.8	15	27.2	3.0	2.9
12.	Use of informants	9	16.4	2	3.6	1	1.8	7	12.7	3	5.5	22	40.0	4.4	3.4
13.	Reports from victims	9	16.4	2	3.6	0	0.0	5	9.1	3	5.5	19	35.0	4.8	3.1

Key:
Σ = Total σ = Population Standard Deviation μ = Mean of sample size
NA = Nigerian Army NAF = Nigerian Air Force NPF = Nigerian Police Force
NSCDC = Nigerian Security & Civil Defense Corp KADVS = Kaduna State Vigilance Service

Table 2 revealed that the most widely adopted approaches used by security agencies in Kaduna State for intelligence information gathering were the use of Rapport, collaboration & relationship with a mean score of 7(σ = 4.5), followed by the use of direct surveillance with a mean score of 4.6(σ = 3.4). Thus, it can be argued that these techniques are the best options mostly utilized by the security agencies in Kaduna State for gathering intelligence information. It also shows the level of significance of these techniques which are above the minimum required benchmark. On the other hand, the least technique used by security agencies for intelligence information gathering is secretly accessing peoples' computers. This has a mean score of 1.3(σ = 0.6), which means that security agencies in Kaduna State rarely adopt this technique for intelligence information gathering.

This implies that security agencies in Kaduna state usually build a working relationship between operator and source, based on a mutually shared understanding of each other's goals and needs that can lead to useful, actionable intelligence information as against the use of brute force or intruding into peoples' privacy for intelligence information gathering purposes.

This finding is in line with the findings of Alison et al. (2013) who found that adaptive rapport-based approaches directly led to increased positive interpersonal behaviour (e.g., active listening, mirroring) from suspects and, critically, greater information yield. However, even minimal use of maladaptive interpersonal behaviour on the part of the interrogator (e.g., confrontation) resulted in greater use of maladaptive interpersonal behaviour by suspects and directly led to reductions in intelligence information yield. Research by Alison et al. (2013), among others, seems to suggest that rapport-based, or at least friendly, approaches are ideal in the interviewing and interrogation of sources. In another related study relevant to this finding. Michelle Andrés (2015) reviews the literature on empathy and rapport in the context of HUMINT collection and concludes that building rapport and demonstrating empathy are essential components of successful HUMINT collection. Their study also suggests that establishing a positive relationship with a source can increase the accuracy and completeness of the information obtained.

Conclusions and Recommendations

The importance of a crime-free society cannot be over-emphasized. The Nigerian state is currently bedeviled with an array of criminal activities which require comprehensive intelligence information sourcing and utilization. The absence of comprehensive studies on intelligence information gathering and sharing has made the fight against crime and criminality in Kaduna State almost unbeatable. This research has in response to this challenge produced a basis for understanding intelligence information gathering and sharing in the fight against crimes and criminalities in Kaduna State. The study therefore recommended that security agencies in Kaduna State agencies should forge stronger and more

strategic partnerships and collaboration with community elders, youths, and other stakeholders to effectively identify criminals and their hideouts, as these criminals are usually domiciled within the same community. This approach if fully implemented will empower both the security agencies and residents to take a more active role in maintaining security, ensuring a collective effort in crime prevention. Security agencies should also strengthen rapport and collaboration with crime suspects and syndicates to further unveil other criminal actors in society. Engaging with these individuals might reveal connections and collaborators, informant networks, undercover operations, uncovering of broader criminal networks, as well as significantly disrupt criminal operations.

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AWARENESS AND USE OF SMART AGRICULTURE FOR IMPROVED PRODUCTIVITY BY SMALLHOLDER FARMERS IN FUNTUA ZONE, KATSINA STATE NIGERIA

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Abstract

The study investigated awareness and use of smart agriculture for improved productivity by smallholder farmers in Funtua zone of Katsina state of Nigeria. The specific objectives are to determine the level of awareness of smart agriculture for improved productivity to smallholder farmers in Funtua Zone of Katsina State and to identify the types of smart agriculture that are being used by smallholder farmers for improved productivity in the study area. The study adopted a descriptive survey research design. The population of the study comprised of all the registered smallholder farmers who belong to the farmers' association at eleven (11) local government areas in Funtua Zone which is two-thousand and thirty-four (2034). A multi-stage cluster sampling technique was adopted for this study using a balloting method to select the local government areas. The questionnaire was the instrument used for data collection and the reliability result was .891. The data collected was analyzed using descriptive statistics in the form of in the form of simple frequency tables, percentages means and standard deviation. The study revealed that smallholder farmers in the Funtua zone of Katsina State exhibit a low level of awareness of smart agriculture technologies. The findings indicated that family and friends, along with radio, were the primary sources of awareness of smart technologies and limited use of smart agriculture adoption among smallholder farmers in Funtua Zone, with low usage of most technologies like water-smart, energy-smart, and nutrient-smart systems. However, weather-smart technologies show somewhat higher adoption, though still below optimal levels indicating underutilization of crucial technologies that hinder agricultural improvement. The study concludes that smallholder farmers in the Funtua Zone have low awareness and use or adoption of smart agricultural technologies, relying mainly on informal sources like family,

friends, and radio. While weather-smart technologies show higher adoption, other technologies face barriers such as access, and limited awareness. It was recommended that there is a need for the government to launch a comprehensive awareness campaign to highlight the benefits and practical applications of both water-smart and energy-smart technologies through local communication channels.

Keywords: *Awareness, Use, Smallholder farmers, Smart Agriculture, Agricultural Productivity.*

Introduction

Smart agriculture, or precision agriculture, is a farming management system that is technology-driven to increase efficiency and productivity (Umar & Johnson, 2017). Smart agriculture refers to the efficient use of inputs and technologies such as land, labour, seeds, water, and fertilizers to produce outputs like crops, livestock, and other farm products. According to Ame, et al (2022), smart agriculture is the use of technology to improve farming. It involves using tools like sensors, drones, and data analysis to monitor and manage crops, soil, and weather conditions more efficiently. This helps farmers make better decisions about watering, fertilizing, and protecting crops, leading to higher productivity, reduced costs, and more sustainable farming practices.

According to Shilomboleni (2020), some of the technologies that are used in smart agriculture include sensors, Global Positioning Systems, drones, and satellite imagery. These technologies allow smallholder farmers to monitor their crops and fields in real-time, to make informed decisions about irrigation, pest control, and other factors that can affect crop yield. The goal of smart agriculture is to provide smallholder farmers with the necessary information and gadgets they need to make better decisions about their crops and operations. Though smart agriculture started in the early 20th century, farmers began using machines like tractors to improve the efficiency of their farming operations. This was the first step towards the development of what is called smart agriculture (Hermans et al, 2022).

Historically, in the 1950s and 1960s, farmers began using computerized controls to operate these machines. This made farming more precise and efficient, and it also laid the groundwork for the next stage of smart agriculture. One of the most important developments during this stage was the use of Global Positioning System (GPS) technology in agriculture. In the 1980s, the United States (US) Department of Defence began developing GPS, which allowed for very precise location information. In the 1990s, GPS technology was adapted for use in farming, and it revolutionized the way that farmers could monitor and control

their operations (Shilomboleni, 2020). The next stage was the introduction of satellite-based technologies in the 1990s and 2000s. These technologies allowed for even more precise data collection and analysis, and they also allowed for real-time monitoring of crops and weather conditions. This meant that farmers could make better decisions about irrigation, fertilization, and pest control. This stage also saw the development of systems like precision agriculture, which uses GPS and other sensors to monitor and control individual plants (Kamilaris et al, 2022).

On the other hand, Kamilaris et al. (2022) explained that awareness, readiness, attitude and understanding of the benefits of smart agriculture are the determinant factors of the adoption of smart agriculture in any country around the globe. Creating awareness of smart agriculture helps smallholder farmers understand the benefits of the technology and increases their readiness to adopt technologies in their daily agricultural activities for better productivity. In the same vein, awareness influences other factors and increases the likelihood of a farmer being open to new practices (Shilomboleni, 2020). It is the process of making farmers to be informed about new agricultural practices for improved agricultural productivity. Higher awareness levels often result in increased readiness to adopt smart agriculture. A farmer who is aware of the advantages of smart farming is more likely to be willing to try new techniques. Moreover, the use of smart agriculture refers to the application of digital technologies to improve agricultural productivity, efficiency, and sustainability.

Hermans et al. (2022) reported that the high rate of using smart agriculture in the United Kingdom which was achieved through proper strategizing awareness level, understanding of the benefits of smart agriculture to farmers and their educational level and experiences in farming activities which led to change into farmers' attitude towards the adoption of smart agriculture in the country. The authors explained that the government has invested in initiatives like the Agri-Tech Catalyst, which supports the development of new technologies for farming and also a growing number of companies developing smart agriculture solutions like the use of sensors to measure the water and nutrient contents of the soil. More so, in Netherlands being the second world's largest agricultural exportation country as at 2022 and 3rd in the adoption of smart agriculture showed awareness and information skills of farmers are other critical factors that can influence farmers' attitudes towards smart agriculture technologies.

Contrastingly, in Nigeria, Ojo et al, (2021) reported that a lack of proper awareness and skills have been a very common challenge in many African countries including Nigeria, where farmers do not have access to information about new technologies and the resources to adopt them. To buttress this further, the Funtua Zone of Katsina State is one of the key agricultural zones in the state and the North-West region of Nigeria where agriculture is the predominant

occupation for the majority of people living in the area. Most farmers in this zone engage in small-scale farming, which serves as their primary source of livelihood. These smallholder farmers cultivate a variety of crops for both food and cash purposes. The agricultural activities in the region are essential for sustaining the local economy and providing food security for the community. Unfortunately, farmers in the Funtua Zone of Katsina State rely heavily on manual methods of managing their farming activities. Thus, using smart agriculture or precision agriculture could improve their productivity. Improving agricultural productivity is essential for smallholder farmers in the 21st century, therefore creating awareness about smart agricultural technologies can promote their adoption and effective utilization, helping farmers to enhance productivity and achieve sustainable farming practices. Because of this, the study investigates awareness and use of smart agriculture for improved productivity in Funtua Zone of Katsina State.

Statement of the Problem

The use of smart agriculture for improved agricultural productivity is pervasive and crucial for ensuring food security (Hassan et. al. 2022). Today, the use of advanced technologies in farming is more relevant than ever before. According to the Food and Agriculture Organization (FAO), the world's population will grow by 34% by 2050. It therefore requires higher crop yields and optimized use of natural resources especially with climate change exacerbating the situation. Also, smart agriculture provides farmers with the advantages of speedy data collection and processing; increased accuracy and precision level; enhancing production costs; lowering the need for manual labour; increased crop yield etc., (Streed et al, 2021). However, preliminary investigation by the researcher revealed that despite the numerous values, opportunities and importance of smart agriculture for improved agricultural productivity, the awareness and usage or adoption by smallholder farmers in Funtua zone of Katsina State in particular where farming activities have been their major occupation and means of livelihood is very limited. As such the study set out to determine the level of awareness and use of smart agriculture for improved agricultural productivity in the study area.

Research Objectives

The following objectives guided this study:

1. To determine the level of awareness of smart agriculture for improved productivity to smallholder farmers in Funtua zone of Katsina State.
2. To identify the types of smart agriculture being used by smallholder farmers for improved productivity in the study area.

Literature Review

The literature reviewed covered the theoretical and conceptual frameworks as well as empirical research on awareness and use of smart agriculture for improved productivity by smallholder farmers in Funtua Zone, Katsina State, Nigeria.

Theoretical Framework for the Study

A theoretical framework is a set of concepts, assumptions, principles and theories that are used to explain a particular phenomenon. The development of the Awareness, Skills, Attitude, Benefits and Challenges (ASABC) model has a long history and it was first proposed in the 1990s by a team of researchers at the University of Minnesota. The model was based on an earlier model called the Theory of Planned Behavior, (TPB) which was developed in the 1980s. TPB is a social psychology model that proposes that three factors - attitude, subjective norms, and perceived behavioural control - influence a person's intention to perform a behaviour (Foo et al, 2022). In the 1990s, the ASABC model was developed by a team of researchers led by Dr. Julia Angstman, a professor of agricultural communications at Purdue University. The model was developed as part of a larger research project on the adoption of smart agriculture technologies by farmers. This research has been published in several peer-reviewed journals, including the Journal of Agricultural Education and Communication, the Journal of Extension, and the Journal of the American Society of Agronomy. This model was developed to help guide the development of extension programs that aim to increase farmers' adoption of smart agriculture technologies. The model is centred on some major concepts such as Awareness, Skills, Attitude, Benefits and Challenges to explain issues related to awareness and use of agricultural-related technologies. The model applies to this study in the following ways:

1. **Awareness:** refers to the farmer's understanding and knowledge of smart agriculture technologies and how they can improve agricultural productivity. It involves farmers understanding what the technology is, how it works, and the benefits to be derived from using such technologies. This knowledge is crucial as it helps farmers decide if smart agriculture is suitable for them and whether they can implement it on their farms. As Hassan et al. (2022) emphasized, creating awareness and educating farmers about the benefits of smart agriculture is an essential part of the process. The authors also noted that one way to ensure the effective use of agricultural technology is by collaborating with farmer associations and organizations to provide training and information, and by partnering with the media to create content that educates farmers about these technologies. These actions directly relate to the Awareness component of the ASABC

model, as they aim to increase farmers' knowledge and understanding, which is the foundational step for the successful adoption of smart agriculture technologies (Foo et. al., 2022). This process of raising awareness prepares farmers to move forward in the model, where they can develop the necessary skills to use these technologies, form positive attitudes toward them, and weigh the benefits and challenges they might encounter in the adoption process.

While, reporting the issues related to awareness and use of technology in the United States Ame et. al (2022) found that the United States has been at the forefront of smart agriculture technology, and there is a high level of awareness among farmers. Many US farmers have adopted some form of smart agriculture technology; such as soil moisture sensors or GPS mapping. However, not all farmers have adopted the technology, and there is still a need for education and training. Some organizations, such as the USDA and state agricultural extension services, are working to increase awareness and adoption of smart agriculture. The ASABC model provides a structured approach to understanding the factors that influence farmers' adoption of smart agriculture technologies. In this context, each component of the model plays a critical role in determining whether a farmer will implement and benefit from such technologies. Awareness, as the first step in the adoption process, refers to the farmer's understanding and knowledge of smart agriculture technologies and their potential to improve agricultural productivity. This includes not only knowing what the technology is but also understanding how it functions and the specific benefits it can provide. Awareness helps farmers make informed decisions about whether adopting smart technologies is suitable for their farm operations.

For example, farmers need to know about specific technologies like soil moisture sensors, GPS mapping, or precision irrigation systems. Awareness is essential for farmers to recognize the potential impact of these technologies on their productivity, cost-efficiency, and sustainability. As Hassan et al. (2022) highlighted, raising awareness through educational campaigns, extension services, and media partnerships is vital to overcoming knowledge gaps. In the United States, the high level of awareness regarding smart agriculture technologies, as mentioned by Kamilaris, et al (2022), shows that while many farmers are informed and have adopted some form of technology, there are still gaps in awareness. This underscores the need for continued education and outreach to ensure all farmers have access to relevant information, even in regions where technology adoption is already high.

In African countries, Shilomboleni (2020), Mitchell et al (2021), and Mutual et al (2021) have highlighted several ways to boost farmers' awareness of smart agriculture technologies and their potential benefits, which directly relates

to the awareness component of the ASABC model. One way to boost awareness is through farmer training programs, where farmers can learn about the latest technologies and how to use them. For example, through the Farmer Field School (FFS) model, which has been used in countries like Kenya, Tanzania, and Ghana, farmers can learn how to use these technologies. Besides, FFSs are usually conducted on a farm, and they involve hands-on learning about new technologies and farming practices. The FFS model has been successful in increasing farmers' knowledge and adoption of new technologies. Another example of a farmer training program is the African Institute for Mathematical Sciences (AIMS) Agriculture Program, which trains young Africans in the latest mathematical and computational techniques for agriculture. These programs contribute to the awareness phase of the ASABC model by educating farmers about the availability and benefits of new agricultural technologies, preparing them for the next steps in adopting and integrating these innovations into their farming practices.

2. The use of smart agriculture is one of the primary assumptions of the ASABC model which deals with the application of digital technologies to improve agricultural productivity, efficiency, and sustainability. These technologies include precision agriculture, the Internet of Things (IoT), big data analytics, and machine learning (Berente et al, 2021). They are used to collect and analyze data on soil, water, and crop conditions, and to make decisions on how to optimize agricultural production. Smart agriculture can also help farmers to track their resources, monitor their operations, and respond to changes in the environment. According to Berente et al. (2021) and Marks et al, (2021), one application of smart agriculture that is mostly used worldwide is drones, which are used to monitor crops and soils. Drones can be equipped with sensors to collect data on the moisture content, temperature, and nutrient levels of soils. This data can be used to optimize irrigation and fertilization and to detect and respond to problems such as pests or diseases. Another application is the use of IoT-enabled sensors to monitor water levels and quality in irrigation systems. This information can be used to optimize water use and prevent waste.

Methodology

The study adopted a descriptive survey research design. The population of the study comprised all the registered smallholder farmers who belong to the farmers' association at the eleven (11) Local government areas in Funtua Zone totalling two-thousand and thirty-four (2034). A multi-stage cluster sampling technique was adopted for this study, using a balloting method to select the local government areas as clusters. The researcher used plain paper and wrote the names of the eleven (11) local governments, the names were folded and put inside a container and then shaken. Eventually, Dandume, Kafur, Malumfashi and

Funtua were selected randomly and emerged as clusters of those four LGAs. In the process of selecting the sample size of this study, a table for determining sample size by Research advisors (2006) was used to obtain the required number of respondents. According to the table, the required sample size of the study's population is 260. A questionnaire was used as an instrument for data collection and a reliability coefficient of .891 was obtained. The data collected was anlyzed using descriptive statistics in the form of simple frequency tables, percentages, means and standard deviation.

Findings

A total of two hundred and sixty (260) copies of the questionnaire were distributed to the respondents from twenty-seven (27) farmers associations in Funtua Zone of Katsina State, totaling two-hundred and seven (207) questionnaires were duly completed and returned representing 80.0% response rate. The high response rate was achieved largely due to consistent follow-ups by the researcher, along with the persistence of the research assistants employed for the study.

Level of Awareness of Smart Agriculture for Improved Productivity by Smallholder Farmers in Funtua Zone of Katsina State?

To answer this question, respondents were provided with options using a 5-point Likert scale of measurement to indicate their level of awareness of smart agriculture. The analysis of their responses is presented in table 1:

Table 1: Level of Awareness of Smart Agriculture for Improved Productivity by Smallholder Farmers in Funtua Zone of Katsina State (N=207)

Items	NA		SA		SWA		MA		EA		Mean	STD
	F	%	F	%	F	%	F	%	F	%		
I am aware that water-smart technologies can be used for rainwater harvesting	70	33.8	90	43.5	29	14.0	18	8.7	0	0	1.98	.91
I am aware that water smart technologies can be used for drip farming system	80	38.6	100	48.3	27	13.0	0	0	0	0	1.74	.67
I am aware that water smart technologies can be used for cover crops method	100	48.3	70	33.8	28	13.5	9	4.3	0	0	1.74	.85
I am aware that water-smart technologies can be used for furrow-irrigated raised bed planting	120	58.0	69	33.3	18	8.7	0	0	0	0	1.56	.65
I am aware that water-smart technologies can be used for Drainage management	110	53.1	50	24.2	20	9.7	27	13.0	0	0	1.83	1.1
Energy-smart technologies												
I am aware that energy-smart technology can be use in solar pumps	80	38.6	80	38.6	38	18.4	9	4.3	0	0	1.88	.86
I am aware that energy smart technology zero tillage or minimum tillage	80	38.6	90	43.5	19	9.2	18	8.7	0	0	1.88	.90
Nutrient-smart technologies												
I am aware that Nutrient-smart	70	33.8	80	33.8	30	14.5	27	13.0	0	0	2.07	1.00

technologies can be used in Mulching												
I am aware that Nutrient-smart technologies can be used in the application of green manure	70	33.8	90	43.5	29	14.0	18	8.7	0	0	1.98	.91
I am aware that Nutrient-smart technologies can be used in integrated nutrient management	70	33.8	80	38.6	29	14.0	28	13.5	0	0	2.07	1.00
I am aware that Nutrient-smart technologies can be used for Leaf colour chart	50	24.2	100	48.3	10	4.8	47	22.7	0	0	2.26	1.1
I am aware that Nutrient-smart technologies can be used for intercropping rice with legumes	90	43.5	70	33.8	47	22.7	0	0	0	0	1.79	.79
Weather-smart technologies												
I am aware of Weather-smart technologies for crop insurance	130	62.8	50	24.2	27	13.0	0	0	0	0	1.50	.72
I am aware of Weather-smart technologies for weather-based crop agro-advisories	70	33.8	90	43.5	38	18.4	9	4.3	0	0	1.93	.83
I am aware of Weather-smart technologies for climate information (seasonal and in-season)	100	48.3	80	33.8	27	13.0	0	0	0	0	1.65	.70
Carbon-smart technologies												
I am aware of using Carbon-smart	167	80.7	40	19.3	0	0	0	0	0	0	1.19	.40

technologies for Agro-forestry												
I am aware of using Carbon-smart technologies for integrated pest management	170	82.1	37	17.9	0	0	0	0	0	0	1.18	.38
I am aware of using Carbon-smart technologies for biogas	159	76.8	39	18.8	9	4.3	0	0	0	0	1.28	.54

(Source: Field Data, 2024) Key: Not at all Aware -1 SA: Slightly Aware -2 SWA: Somewhat Aware - 3 MA: Moderately Aware- 4 EA: Extremely aware

The findings show that while some nutrient-smart technologies, such as mulching (mean = 2.07) and integrated nutrient management (mean = 2.07), have the highest levels of awareness, they still fall below the threshold of 3.00, indicating a general lack of understanding among smallholder farmers. In contrast, water-smart technologies, such as furrow-irrigated raised bed planting (mean = 1.56) and drainage management (mean = 1.83), along with carbon-smart technologies like agro-forestry (mean = 1.19), integrated pest management (mean = 1.18), and bio-gas (mean = 1.28), show very low awareness, highlighting severe knowledge gaps. Weather-smart technologies, including crop insurance (mean = 1.50) and climate information (mean = 1.65), also have low awareness.

The findings from this study contrast with those of Marks et al. (2021) and Mark and Griffin (2020), who reported a high level of awareness of smart agricultural technologies among farmers. In their studies, farmers demonstrated familiarity with various technologies, suggesting they were well-informed about innovations in agriculture. However, the current study reveals a much lower level of awareness among smallholder farmers in the Funtua Zone, with most smart agriculture technologies falling below the threshold of 3.00 in terms of recognition. This suggests that, unlike the farmers in the studies by Marks et al. and Mark and Griffin, those in the Funtua Zone have limited knowledge and understanding of these technologies. The gap in awareness highlights regional differences in the adoption and awareness of smart agriculture, indicating that while some areas may benefit from widespread technological knowledge, others, such as Funtua, face challenges in fostering awareness and engagement with these innovations.

A follow-up question was asked by the researcher to further identify the sources of awareness of smart agriculture for agricultural productivity. To identify the sources a Yes or No question was provided to respondents to tick as many as applicable as indicated in Table 2 as follows:

Table 2: Sources of awareness of smart agriculture for improved productivity by smallholder farmers in Funtua zone of Katsina state (N=207):

	Yes		**No**	
Sources of Awareness	**F**	**%**	**F**	**%**
Radio	130	62.8	77	37.2
Television	80	38.6	127	61.4
Extension worker	97	46.9	110	53.1
Newspapers	70	33.8	137	66.2
Magazines	30	14.5	177	85.5
Family/friends	150	72.5	57	27.5
Social media	90	43.5	117	56.5
Through discussions	80	38.6	127	61.4
Exhibition and display	88	42.5	119	57.5

The findings reveal significant differences in the sources of awareness among smallholder farmers in the Funtua Zone. Family and friends (72.5%) and radio (62.8%) are the primary sources of information, reflecting high levels of awareness through community networks and mass media. These sources are particularly effective in reaching a wide audience and fostering awareness about smart agriculture. In contrast, sources such as magazines (14.5%) and newspapers (33.8%) have much lower engagement, indicating that print media has minimal reach and impact in this region. This highlights the critical role of traditional and accessible media channels like radio in disseminating agricultural information while emphasizing the limited effectiveness of print-based sources in reaching farmers in rural areas.

The findings of this study contrast with those of Marks et al. (2021) and Mark and Griffin (2020), which indicated that farmer networks, research centers, and the internet play a significant role in raising awareness about smart agricultural technologies. In contrast, the current study indicated that smallholder farmers in the Funtua Zone primarily rely on traditional sources such as

family/friends (72.5%) and radio (62.8%), with limited engagement with modern sources like social media and the internet. This indicates that, unlike in other regions, digital platforms and formal networks have a lesser role in the dissemination of information on smart agriculture technologies in the Funtua Zone.

Research Question 2: What types of smart agriculture are being used by smallholder farmers for improved productivity in the Funtua zone?

To answer this question, smallholder farmers were provided using a yes or no approach to simply indicate the various types of smart agriculture technologies as many of them are applicable. The analysis of the findings is presented in Table 3 as follows:

Table 3: Results of types of smart agriculture that are being used by smallholder farmers for improved productivity (N=207):

Items	**Yes**		**No**	
Water-smart technologies	**F**	**%**	**F**	**%**
I am using water-smart technologies for rainwater harvesting	30	14.5	177	85.5
I am using water smart technologies for a drip farming system	22	10.6	185	89.4
I am using water smart technologies that can be used for the cover crops method	37	17.9	170	82.1
I am using water-smart technologies for furrow-irrigated raised bed planting	30	14.5	177	85.5
I am using water-smart technologies for Drainage management	20	9.7	187	90.3
Energy-smart technologies				
I am using energy smart technology of solar pumps	3	1.4	204	98.6
I am using energy smart technology zero tillage or minimum tillage	1	0.5	206	99.5
Nutrient-smart technologies				
I am using Nutrient-smart technologies for Mulching	20	9.7	187	90.3
I am using Nutrient-smart technologies in the	81	39.1	126	60.9

application of green manure				
I am using Nutrient-smart technologies in **i**ntegrated nutrient management	5	2.4	202	97.6
I am using Nutrient-smart technologies for **the** Leaf colour chart	4	1.9	203	98.1
I am using Nutrient-smart technologies for intercropping rice with legumes	7	3.4	200	96.6
Weather-smart technologies				
I am using weather-smart technologies for crop insurance	1	0.5	206	99.5
I am using weather-smart technologies for weather-based crop agro-advisories	40	19.3	167	80.7
I am using weather-smart technologies for climate information (seasonal and in-season)	50	24.2	157	75.8
Carbon-smart technologies				
I am using carbon-smart technologies for Agro-forestry	2	0.97	205	99.03
I am using carbon-smart technologies for integrated pest management	3	1.4	204	98.6
I am using Carbon-smart technologies for biogas	1	0.5	206	99.5

(Source: Field Data, 2024)

The findings from Table 3 reveal a stark contrast between the high and low adoption rates of various smart agriculture technologies among smallholder farmers in the Funtua Zone. At the lower end, there is a significant lack of adoption for most smart technologies, with water-smart technologies like rainwater harvesting (14.5%), drip farming systems (10.6%), and drainage management (9.7%), along with energy-smart technologies such as solar pumps (1.4%) and zero tillage (0.5%), showing extremely low usage. Similarly, nutrient-smart technologies, including integrated nutrient management (2.4%) and leaf colour charts (1.9%), and carbon-smart technologies such as agro-forestry (0.97%) and bio-gas (0.5%), also exhibit minimal adoption. These low percentages indicate a critical gap in the use of advanced technologies, suggesting a barrier to improving productivity. On the other hand, weather-smart technologies like weather-based crop agro-advisories (19.3%) and seasonal climate information (24.2%) show relatively higher adoption, though still below optimal levels. The relatively higher usage of green manure in nutrient-smart

technologies (39.1%) reflects a more stable, though still limited, engagement with smart practices.

In contrast to the finding on the use of smart agriculture in the study area, Mafini et al. (2019) found that the majority of farmers in South Africa were using at least one smart agricultural technology, such as mobile phones or GPS, indicating a higher level of adoption in that context. However, both studies acknowledge barriers to adoption, with Mafini et al. (2019) highlighting technical support and infrastructure as key challenges. While the Funtua Zone study indicates a more widespread lack of awareness and access, the South African study suggests that even when technologies are available, issues like insufficient technical support and poor infrastructure still limit their full utilization. This comparison highlights a regional difference in the level of technology adoption, with South Africa demonstrating relatively more uptake, albeit with its own set of barriers. These extremes highlight a severe underutilization of essential smart technologies, which may be limiting the potential for agricultural improvement in the Funtua zone.

Conclusion

From the findings of the study, it is concluded that a low level of awareness and adoption of smart agricultural technologies among smallholder farmers in the Funtua Zone, with most technologies showing minimal usage. The sources of awareness predominantly rely on community-based channels such as family/friends and radio, which indicates a reliance on informal information networks, while digital and formal sources like social media and the internet play a minimal role. Regarding the adoption of smart agriculture, there is a significant gap, with water-smart, energy-smart, and carbon-smart technologies showing extremely low usage, indicating challenges with access, affordability, and awareness. Conversely, weather-smart technologies, like weather-based agro-advisories, show relatively higher adoption, although still below ideal levels. This led to inadequate use of many of the smart technologies for improved agricultural productivity in the study area.

Recommendations

The study recommended the following:

1. The State Government should launch a comprehensive awareness campaign utilizing effective local communication channels. Leveraging the influence of family, friends, and radio already identified as key information sources can amplify outreach efforts. This campaign should include community-based workshops, demonstrations, and radio programs

that highlight the benefits and practical applications of both water-smart and energy-smart technologies. Additionally, creating easy-to-understand educational materials and engaging local leaders can further enhance awareness and drive adoption, ultimately supporting improvements in agricultural productivity.

2. Government and other agriculture stakeholders should precisely develop and implement targeted interventions that focus on enhancing education, support, and accessibility. This could include establishing local training centers to educate farmers about the benefits and use of these technologies, providing financial and logistical support to reduce initial costs, and creating accessible platforms for technology distribution.

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EXPLORINGTHE USE OF LIBRARY ASSISTIVE TECHNOLOGY FOR LEARNING BY VISUALLY IMPAIRED STUDENTS OF AHMADU BELLO UNIVERSITY, ZARIA, NIGERIA

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Abstract

The study explored the use of library assistive technologies (LAT) for learning by visually impaired students at Ahmadu Bello University (ABU), Zaria, Nigeria. To achieve this purpose, five objectives were established, amongst which were; to investigate the experiences of visually impaired students of Ahmadu Bello University on the use of Library Assistive Technology and to determine how the Library Assistive Technologies meet the performance expectancy of Visually Impaired Students of Ahmadu Bello University. A qualitative research methodology and a phenomenology research design were used to have a thorough understanding of the subject. The population of the study was 27 visually impaired students and a sample of 9 undergraduate visually impaired students was drawn at the point of saturation. Data was collected using focus group discussions with the help of three research assistants. The rigour of the research process was assessed through credibility, transferability, confirmability and dependability. Data analysis followed a thematic approach to identify recurring themes in student experiences and expectations. From the analysis, it was revealed that most participants were aware of LAT available in KIL, although one participant was unaware of any assistive technologies being available. It was shown that while KIL offers various LAT options, student utilization remains low. The visually impaired students who utilized LAT in the library demonstrated significant academic improvement. While some of the students had positive experiences with some functional equipment, most of them reported negative

experiences due to limited access, malfunctioning technology, and inadequate facilities. Lastly, the finding revealed that the Low LAT use was linked to the student's expectations regarding the technology's performance in meeting their needs. Therefore, the study concluded that the negative experiences of visually impaired students with the LATs coupled with the technologies not meeting their expectations contribute to their low usage. Based on the findings of this study, it is recommended that library management should invest in acquiring sufficient and modern LATs compatible with student needs, to repair malfunctioning LATs and implement a robust maintenance strategy. The management should provide staff training and support by offering workshops and personalized assistance to train staff effectively so they can in turn train and assist students on the use of LATs.

Keywords: Assistive Technologies, Explore, Students, Use, Visually Impaired, University Library

Introduction

Visual impairment (VI) is the loss of vision caused by eye diseases, accidents or eye conditions present from birth. It can be congenital, occurring at or shortly after birth or acquired through other means later in life. It is a condition of reduced visual performance that cannot be remedied by refractive correction (spectacles or contact lenses), surgery, or medical methods which results to functional limitations of the visual system and decreases ability to perform activities of daily living, such as reading or writing (Kapur, 2018; Naipal, 2018). Some of the congenital causes of visual impairments include conditions like retinopathy, glaucoma, cortical visual impairment, optical nerve hypoplasia etc. Visual impairment can also be acquired later in life as a result of cataract, trauma, accidents, inadequate nutrition and so forth (Kapur, 2018).

Visual impairment affects how a student understands and functions in the world. It can affect a student's cognitive, emotional, neurological and physical development by limiting the range of experiences and kinds of information they are exposed to. Educationally defined, visually impaired students are students whose visual loss indicates that they should be educated chiefly through the use of Braille tactile and auditory materials. Education in the present day is the powerful force that brings about development in the society. Similarly the role of education in physical, mental, social and emotional development of an individual with visual impairment is of paramount importance (Pandey, 2018). Education is the key to overcoming the challenges of visual impairment and achieving success. Education helps individuals with visual impairment overcome their visual

disabilities and improve their lives and social status. It is a means of getting empowered, becoming independent and self-reliant. At the same time, it enables them contribute their quota to national development when employed or engaged in productive ventures. Improving the life for visually impaired persons rests in education, as this is a vital gateway to job opportunities, socio-economic integration, and normalization (Aghauche, 2021). From the foregoing, it is obvious that education is the way forward for producing successful contributing members of the society. With the provision of better education opportunities, proper and suitable resources and adequate support, the visually impaired students will fulfill their potential and achieve academic excellence (Aghauche, 2021) with technologies to bridge the gap created through problems associated with vision.

Vision is the primary tool for knowledge acquisition. It is the fundamental brick that helps in observing and interpreting happenings in the environment also an important prerequisite for conceptual development in human learning (Mwakyeja, 2013). Thus, any deformity or destruction of this vital part of the body imposes academic limitations upon students. It interferes with their development of learning, mobility, social growth and adjustment (Mboshi, 2018).

In recent years, Assistive Technologies are playing efficient and effectively significant role in engaging students with visual impairment in inclusive education. Students with Visual Impairment are now able to have intellectual access and independent learning through the use of Assistive Technologies. Libraries in academic institutions presently provide assistive technologies to enable inclusive learning for visually impaired students. Library Assistive Technology (LAT) as defined by the Individuals with Disabilities Education Act (1997) is any item, piece of equipment, product, or system, whether acquired commercially off the shelf, modified or customized, that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities. Traditionally, libraries provide conventional alternate format resources to students with visual impairment (Bernardi, 2004). Examples of such are Braille and Large Print. Braille globally was and is still the primary reading method for students with visual impairment to access information and education independently. With Braille, visually impaired students can visualize text by feeling every word of it, and learning how these words are written. Braille gives visually impaired access to material on an equal level to their peers which simultaneously influences their educational achievement and establishes a platform for them to be on a competitive level with others. (Khochen, 2014). Large print is a print format larger than print sizes of 8 to 12 points commonly used by strong-sighted people.

It provides a larger font for making reading accessible to individuals with disabilities or visual impairments (EveryLibrary, 2023)

With the advancement in technology and ICT, more advanced Assistive Technologies are been developed and adopted in the library to give students with visual impairment the same competitive advantage as their sighted counterparts. Library Assistive Technology for VI includes Braille Technologies like an electronic Braille note taker which comes generally in a book size for students to take notes using Braille or standard QWERTY keyboards, Braille printer/embossers which are just like standard printer prints or produce Braille copies of document text, refreshable Braille displays that translates and displaces information appearing on a computer screen into tactile Braille etc. (Martiniello, 2019), Assistive software such as screen reading software which uses text to speech engine to read on-screen information e.g. JAWS, screen magnification software that increases the size of a computer screen from 1.1 to 36 times, making it easier for low vision readers to operate a computer independently e.g. Zoom text and web access software, Braille Translation Software that converts text to Braille e.g. Duxbury (Sutar, 2021). Other assistive technologies include navigation devices that enhance mobility like a walk smart cane (that uses smartphone integration via Bluetooth for obstacle detection, 3D high-tech smart glasses (that use feature recognition to provide audio information), one-on-one aide, highlighted lecture notes, IC recorder, white cane, closed-circuit television, handheld magnifier, video magnifier, abacus, adaptive calculator, adaptive measurement tools, digital voice recorder, magnification software, optical character recognition etc. (Alabi, 2020; Tebo, 2014).

Statement of the Problem

It is the right of every visually impaired person to have access to equal quality education same as that of sighted learners. But all over the world today, educational processes are largely dependent upon printed words and how best one can reconstruct the messages that have been encoded by the writer. According to Kristan (2018), research has shown that 80% of learning is by vision. Perhaps an attempt to educate persons with visual impairment would have been a failure without the development and introduction of Assistive Technologies.

University libraries in Nigeria have invested in assistive technologies so their visually impaired users can have access to the services without restriction to encourage and improve quality learning (Chinwe, 2017). Also, **Ahmadu Bello University just like other universities is trying to achieve the goal of creating an inclusive and accessible learning environment for all students, including**

those with visual impairments. The university has invested heavily in Library Assistive Technology (LAT) and although limited research has been conducted on the use of assistive technologies by the visually impaired, studies have found that there is generally low use of these resources. (Bhardwaj, 2017; Agabirwe, 2020; Mwantimwa, 2021; Obim, 2022).

Therefore, this study focused on finding out the expectations of Visually Impaired Students with regard to the use of LAT in Ahmadu Bello University for learning, using the construct of UTAUT "performance expectancy".

Objectives of the Study

The study achieved the following objectives:

1. To identify the types of Library Assistive Technologies Used by the Visually Impaired Students of Ahmadu Bello University.
2. To determine the effect of the use of Library Assistive Technologies on the learning by Visually Impaired Students.

Literature Review

UTAUT has been used by different researchers ((Hoque, 2017, Al-Saedi, 2019; Rabaai, 2017) from a variety of disciplines to investigate why technologies are not adopted. An empirical review of studies that used the theory to explain how potential users deem a technology fit or unfit based on the perceptions of the attributes of the technology were conducted, for instance, Ramgir&Patil (2023) in a study on assistive technologies in libraries for visually impaired users observed that in the current digital era, ensuring that everyone has access to information, regardless of their ability or disability, is a key component of library and information science. The authors stated that there has been an upsurge in the number of impaired students enrolling in universities in recent years. Regardless of the capacity to address the issues of inclusion and social justice, libraries are required to offer information to all visitors. Because a sizable segment of our population is attempting to integrate into society, these special users need special care. It identified that academic libraries must be outfitted with various Assistive Technologies (AT) to meet the needs of individuals with disabilities and help this underserved community become self-sufficient. The adoption of assistive technologies by individuals with disabilities encourages more equity in the social, academic, and economic public spheres.

a study by Williams (2021) on Students' Perceptions of the Adoption and Use of social media in Academic Libraries In which the Unified Theory of Acceptance and Use of Technology (UTAUT) served as a theoretical framework. The study is

qualitative and the purpose is to gain an understanding of students' perceptions of the adoption of social media, namely Facebook and Twitter, in an academic library setting. The study applied the constructs as described by the UTAUT, namely, performance expectancy, effort expectancy, social influence and facilitating conditions, to explore students' perceived behavioural intentions to use social media. A sample of 30 students was selected from two universities, one in Belgium (University of Antwerp) and one in South Africa (University of Limpopo), to gain a better insight into the students' perceptions regarding the adoption and use of social media, in particular Face book and Twitter, by the academic libraries at these two universities. The study showed that the adoption of social media is positively influenced by effort expectancy, performance expectancy and social influence.

A study titled "Application of UTAUT (Unified Theory of Acceptance and Use of Technology) to Understand the Acceptance and Use of the E-Learning System" by Rahmaningtyas (2020) analyzes the source of the problems that affected use behaviour, by exploring the factors of performance expectancy, effort expectancy, social influence, and facilitating conditions as well as presenting a mediating variable that was behavioural intentions. Using a quantitative method, a questionnaire was administered to 201 students to represent a population of 29,629 students. The findings of the study showed that performance expectancy, social influence facilitating conditions and behavioural intentions affected use behaviour. The findings also showed that the direct effect test showed that performance expectancy, social influence and facilitating conditions affected use behaviour while effort expectancy did not affect use behaviour. The indirect effect test showed that behavioural intentions successfully mediated performance expectancy and social influence, and did not succeed in moderating effort expectancy towards use behaviour.

Another study by Mizal (2020) aimed to analyze the low level of adoption of E-Commerce by MSMEs in the fashion sector in Bandung using the UTAUT model. The objective of the study is to determine the factors of technology adoption that are obstacles to SMEs in adopting E-commerce. The independent variables in this study were performance expectancy, effort expectancy, social expectancy and facilitating condition. The dependent variable is Use Behavior and the intervening variable is Behavioral Intention. Using the quantitative method, a questionnaire was used to collect data from 200 respondents and descriptive analysis and SEM-PLS path analysis were used to analyze the results. The results revealed that Performance Expectancy, Effort Expectancy, and Social Expectancy variables have a significant positive effect on Behavioral Intention. Meanwhile, Behavioral

Intention and Facilitating Conditions also have a significant positive effect on Use Behavior.

Research carried out by Ayaz (2020) on the adoption and use of an electronic document management system (EDMS) at Bartın University, Turkey aimed at examining the factors affecting the intentions to use EDMS using the unified theory of acceptance and use of technology (UTAUT). The study hypothesized that performance expectancy, social influence and effort expectancy, which are the determining factors of the UTAUT model, have a positive effect on behavioural intention. Using a quantitative research method, the study revealed that the most important determinant of behavioural intention is performance expectancy. The findings also showed that the social influence factor has a significant effect on the intention to use EDMS. The academic and administrative staff's tendency to use EDMS will increase further with the effective use of EDMS by the people in the university's senior management. However, the result of the findings indicated that the effort expectation factor has no significant effect on the intention to use. This result may be due to the specification and terms of use of EDMS. The result showed that the reason behind the reluctance to use EDMS is due to the ease/difficulty of use of EDMS.

Another study by Rahi, Abd, Ghani, Alnaser and Ngah, (2018) investigated the role of a unified theory of acceptance and use of technology (UTAUT) in Internet banking adoption in Lahore and Islamabad, Pakistan. The objective of the study was to gain deep insight into customer's unwillingness to adopt Internet banking. Why the majority of banking customers are reluctant to use the innovation irrespective of the benefits? A quantitative approach-based survey was conducted to collect the data. The result of the study indicates that, the UTAUT model provided a good theoretical foundation in technology adoption investigation. Findings confirmed that all four predictors (performance expectancy, effort expectancy, social influence and facilitating condition) were significant and had a significant amount of variance in predicting user's intention to adopt Internet banking. The study showed however that performance expectancy was the most important factor among all other variables to predict user's intention towards adoption of internet banking.

A study by Hoque (2017) aimed to develop a theoretical model based on the Unified Theory of Acceptance and Use of Technology (UTAUT) to determine the key factors influencing elderly users' intention to adopt and use mHealth services in Bangladesh. The most commonly used constructs of UTAUT: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Condition (FC) provided the theoretical framework that guided the study. The

research question was: what are the key factors influencing the elderly's acceptance and adoption of mHealth services in developing countries like Bangladesh? The hypotheses related to the construct are; PE has a positive impact on the elderly's intention to use mHealth, and EE has a positive impact on the elderly's intention to use mHealth. SI has a positive impact on the elderly's intention to use mHealth. FC has a positive impact on the elderly's intention to use mHealth. FC has a positive impact on the elderly's actual use of mHealth. Behavioral Intention has a positive impact on the actual use of mHealth. A face-to-face structured questionnaire survey method was used for data collection. Findings from the study revealed that performance expectancy, effort expectancy and social influence had a significant impact on the user's behavioural intention to adopt mHealth services. The study, however, showed no significant relation between the facilitating condition and the users' behavioural intention to use the mHealth services.

Methodology

The research methodology adopted for the study was qualitative. This conforms to the interpretive research paradigm that guided the study. This paradigm recognizes that reality is subjective and based on individual interpretation and qualitative research methodology is ideally suited for this approach. The study adopted the phenomenology research design. The design was adopted due to the aim of the researchers; to discover the meaning an individual ascribes to a particular issue/problem rather than generalizing results to other groups of people. The population of the study comprised twenty-seven (27) visually impaired students of Ahmadu Bello University, Zaria, Nigeria. This comprised both undergraduate and postgraduate students of the institution. A purposive sampling technique was used for selecting nine (9) participants that served as the sample size for the study. This size was determined at the point of saturation. Data saturation is the most commonly employed concept for estimating sample sizes in qualitative research (Guest, 2020). The research instrument used for the study was a focus group. Qualitative thematic analysis was employed for data analysis. Thematic analysis was adopted by the researchers since the research is a qualitative study that sought to understand and interpret the meaning of visually impaired students ascribed to the problem under study. The method enabled the researchers to construct themes and meaning-based patterns to report the interpretation of the qualitative data set.

Results and Discussion

The data collected from the participants were transcribed verbatim. Responses from the nine visually impaired students who partook in the focus group were read, re-read and examined using an analytical inductive process.

Types of Library Assistive Technologies Visually Impaired Students of Ahmadu Bello University Use for Learning

This research objective sought to identify the types of LAT Visually Impaired Students of ABU Zaria are using for learning, two major themes and six sub-themes. Table 2.

Table 2- Library Assistive Technologies Visually Impaired Students of Ahmadu Bello University are Using for Learning

RQ	Themes	Sub-Themes
What are the types of Libra**ries** Assistive Technologies Visually Impaired Students of ABU are using for Learning?	1. LAT Used for Learning	1.1. Scanning and Reading Machine 1.2. Digital Braille Quran 1.3. Typewriter 1.4. Recorder 1.5. Computer
	2. Non-Use of LAT for Learning	2.1. I have never used any LAT

Source- Interview Analysis, 2024

Theme 1: LAT used for Learning

This theme depicts narratives related to the types of LAT the visually impaired students of Ahmadu Bello University are using for academic activities. It has five sub-themes:

I Use Scanning and Reading Machine: The theme depicts narratives related to the Library Assistive Technologies Visually Impaired Students use for academic activities.

A student from the Department of English, Faculty of Art said: *"I use scanning and reading machines to read my course materials. I also use it to read books and novels that I borrow from the Library"*

Similarly, a student from the Department of Sociology said: *"I use scanning and reading Machine to read handouts lecturers give us, I use it to read my assignments and I use it to read books I get from the library shelves"*

I Use Digital Braille Quran: this theme depicts narratives related to the Library Assistive Technologies Visually Impaired Students use for learning.

A student from the Department of Guidance and Counseling, Faculty of Education said: *"I use Digital Braille Quran. I pick electives from Islamic Studies so I use the Digital Braille Quran for their assignments and to prepare for their tests and exams"*

***I Use Typewriter*:** this category depicts narratives related to the Library Assistive Technologies Visually Impaired Students use for academic activities.

A student from the Department of Mass Communication, Faculty of Social Science said: *"Okay, I use a typewriter and I use, okay seriously typewriter is the only Assistive Technology I use in the Library. I don't have a personal computer so a typewriter is what I use for my tests and exams"*

Similarly, another student from the Department of Political Science Faculty of Social Science said: *"I use a typewriter for exams. In our department, some lecturers don't allow laptops during the exam so I settle completely for Library typewriters"*

Also, another student from the Department of Guidance and Counseling, Faculty of Education said: *"I use a typewriter. I use it to write during exams"*

***I Use IC Recorder*:** this theme depicts narratives related to the Library Assistive Technologies that Visually Impaired Students use for academic activities. Some of the participants make use of IC Recorder.

A student from the Faculty of Education said: *"I use an IC recorder to record lecture's voice during lectures"*

One other student from the Faculty of Education said: *"I use the recorder to record when Librarians or my coursemates are reading for me"*

Another student from the Faculty of Social Science said: "*I use an IC recorder to record or copy the written to an audio converted file of my course material on scanning and reading machine"*

I Use Computer: this category depicts narratives related to the Library Assistive Technologies Visually Impaired Students use for academic activities.

A 100 student from the Department of Sociology, Faculty of Education said: "*I use a computer but to be specific, the staff computer to do my assignment"*

Similarly, another Student from the Department of Sociology, Faculty of Social Science said: *"I use the computer to do my assignment. I also use it to form my note"*

Theme 2: Non-Use of LAT for Learning

This theme includes narratives related to Non-use of Library Assistive Technologies for Learning by Visually Impaired Students. This theme has only one sub-theme; I have never used any LAT. The sub-theme is explained below.

I have never used any LAT: this theme depicts narratives related to the Library Assistive Technologies Visually Impaired Students use for academic activities.

A 300-level student of the Department of Political Science, Faculty of Social Science said: *"I have most of the Library Assistive Technologies available in the unit. I have a recorder, I have a typewriter, I have my phone and computer. What I need is the Braille printing Machine and I heard it is not working well. I also need the scanning and reading machine but it's even hard to get someone who will bring me to the Library so I beg my friends to read for me"*

Effect of the Use of Library Assistive Technologies on the Learning of Visually Impaired Students of Ahmadu Bello University.

This objective sought to find out the effect of the use of Library Assistive Technologies on the learning of Visually Impaired Students of Ahmadu Bello University. Two major themes and six sub-themes emerged. These themes are presented in Table 3.

Table 3- Effect of Library Assistive Technologies on the Learning of Visually Impaired Students

RQs	Themes	Sub-Themes

What is the Effect of the use of Library Assistive Technologies on the Learning of Visually Impaired Students of ABU?	1. Improve Academic Performance	1. The computer helps me with assignments and Information Access. 2. IC Recorder helps me in recording my lectures 3. The scanning and reading machine help me in reading my books 4. A typewriter enables me to write my tests and exams
	2. Lower Academic Performance	5. Digital Braille Quran helps me do assignments and prepare for tests 6. Depending on the Typewriter affected my examination performance

Source- Interview Analysis, 2024

Theme 1: Improve Academic Performance

The theme reveals narratives that explain the effect of the use of Library Assistive Technologies on the Learning of Visually Impaired Students. This theme has five sub-themes. They are explained as follows.

***Computer helps me with Assignment and Information Access*:** This sub-theme depicts the effect of computers on the learning of Visually Impaired Students of ABU. The participants explained that using the computer had assisted in the completion of assignments and improved access to information. Narratives about this sub-theme are captured in the following sentence;

A participant from the Faculty of Social Science said: *"The Library computer helps me with note forming. Some of our lecturers only give course outlines. I browse and form my notes myself and okay not myself completely, with the help of a librarian. I use the Library Computer for my assignments. Currently, my CGPA is 4.62 and this wouldn't have been possible ever without the help of the*

computer. I also use it to search for national or international grants available to People with Special Needs. For example, I recently applied for the MTN grant for Visually Impaired Students. It's one of the opportunities that enable me to purchase Braille papers and other expensive resources that aid my learning"

Another participant in this study setting from the Faculty of Social Science said: *"The computer in the library helps me apply for different scholarships. I am studying Sociology but my greatest interest is in Programming. I use the staff computer to search and apply for international scholarships for Special students who want to pursue a career in Software Engineering. I use it too for my assignments*"

IC Recorder helps me in recording my lectures: This sub-theme presents narratives of the participants on the effect of IC Recorder on the learning of Visually Impaired Students of ABU.

One of the participants from the Faculty of Education said: *"The IC recorder enables me to listen to the Lecturer's explanation after class. It's hard to catch up when using Braille to jot down explanations so IC Recorder works excellently in its stead"*

Another participant in this study setting from the Faculty of Education also said: *"I use the recorder to record when people are helping me read my handout. Me, I don't usually understand that automated voice of the Scanning and Reading Machine so I use the IC Recorder to record when maybe a Librarian or my coursemate is reading for me"*

Another student from the Faculty of Social Science said: *"I use an IC recorder to record during Lectures and I also use it as a flash drive to copy the converted file from scanning and reading machine because I prefer all my reading materials in one source"*

The scanning and reading machine helps me in reading my books: This sub-theme explains the effect of Library Assistive Technologies on the learning of Visually Impaired Students of ABU. *One* of the respondents, a student from the Department of English, Faculty of Art said: *"The Scanning and Reading Machine allows me to read my books and documents It also enables me to read books I am given in class and the recommended ones I find on Library Shelves" "Similarly, another student from Department of Sociology, Faculty of Social Science said: scanning and Reading Machine help me read my notes and documents independently. It also has this function that allows me to copy read files on my recorder for later use anywhere"*

Typewriter enables me to write my tests and exams: This sub-theme explains the effect of typewriters on the learning of Visually Impaired Students of ABU. The participants said typewriter helps them write their tests and exams.

One of the participants, a student from Mass Communication, Faculty of Social Science said: *"The typewriter helps me write during tests and exams"*

Similarly, a student from the Department of Guidance and Counseling, Faculty of Education said: "typewriter allows me to write tests and exams"

Another student from political science said: "*The typewriter helps me confidently write exams. It prevents suspicions of malpractice that come with using laptops"*

Digital Braille Quran helps me do assignments and prepare for tests: This sub-theme explains the effect of Digital Braille Quran on the learning of Visually Impaired Students of ABU.

A respondent, a student from the Department of Guidance and Counseling said: *"Digital Braille Quran enables me to do my Islamic Studies assignments. Though I have the Braille Quran I read with hand but that is not as easy to use as the Digital Braille Quran. It takes time to locate a particular surah I am looking for but this one is so easy. Apart from assignments, it helps me memorize for tests and exams too"*

Theme 2: Lower Academic Performance

This theme includes narratives related to the objective of the effect of the use of Library Assistive Technologies on the Learning of Visually Impaired Students. It has only one sub-theme. Depending on Typewriter affected my examination performance. The sub-theme is explained as follows;

***Depending on how the Typewriter affected my examination performance*:** This sub-theme explains the effect of the use of Library Assistive Technologies on the learning of Visually Impaired Students of ABU. A participant from the Department of Political Science, Faculty of Social Science said: *"There was a time I requested for the typewriter. I made my request a week before our exam began and I was assured I would get it, just for me to be told that day that the storekeeper refused to give out a typewriter and the one in the unit couldn't be borrowed. I had to borrow from another student and his own was a model I didn't know how to use well. It affected my exam performance that semester"*

Discussion of Findings

Types of Library Assistive Technologies the Visually Impaired Students of Ahmadu Bello University are Using for Learning

Kashim Ibrahim Library has several LATs to support the learning of Visually Impaired students. The LAT available are Computer systems, Scanning and

reading machines, Manual Braille machines, Braille Embossing machines, Adaptive wristwatches, and Talking dictionaries. Digital Braille Quran, Typewriter and IC Recorder. There is also wireless and LAN connection to enable internet connectivity. The findings showed that the Library Assistive Technologies the participants use for learning are the Scanning and Reading Machine, Digital Braille Quran, typewriter, IC Recorder and Computer. To complement the effort of the Library Management, some Visually Impaired students purchased personal MODEMS, wireless, laptops, and flash drives to gain uninterrupted access to the internet and make optimal use of the Library Assistive Technologies. This shows that the students are making an effort to manage the inadequacy of the Technologies available.

The findings indicate that three of the participants use typewriters and IC recorders, two use computers and scanning and reading machines while only one uses the Digital Braille Quran. The number of participants that use the LAT is relatively low and this corresponds with the submissions of other scholars who noted there is low use of LAT. The number of students with Visual Impairment registered in the university does not match the number of students with Visual Impairment who frequently use the AT resources available in the Library. It has been disclosed that respondents minimally use Library Assistive Technology (Kiambati, 2018; Osman, 2020; Mwantimwa, 2021; Obim, 2022; Amurani, 2019). Also, not all the available assistive technologies are effectively and frequently accessed and used. The LAT used on average are computers, scanning and reading machines and typewriters. The reason for this is attributed to the level of importance of the LAT in supporting the learning process. For example: literature associates the frequency of use of a computer with multiple applications such as word processing, communication, research and access to library materials. The computer appears to enhance the utilization of other accessories, devices and software (Perfect *et al*., 2019).

Some of the participants only use the LAT they don't have personally. Some of them have personal computers, and phones with software that can substitute for a typewriter, computer or scanning and reading machine. **S**tudents' ownership of smartphones and laptops is also associated with low usage of assistive technology resources available in the library. It is an undeniable fact that smartphone and computer technologies are integrated with diverse assistive tools and accessories. Multi-functions of smartphone and computer technologies are one pulling factor for the Low use of Assistive Technologies in the Library by students with visual impairments (Mwantimwa, 2021).

Effect of the Use of Library Assistive Technologies on the Learning of Visually Impaired Students of Ahmadu Bello University

Library Assistive Technologies have a significant impact on the learning of visually impaired students. They are tools that serve as instructional strategies through which academic performance is enhanced among students living with disabilities. They foster an inclusive learning environment Library and help students with special needs break barriers and achieve better educational outcomes (Okoh, 2022).

Generally, Library Assistive Technologies allow visually impaired students to have improved access to information. It allows them access to information in a variety of formats, including text-to-speech, Braille, and large print. This means that visually impaired students can access the same information as their sighted peers, regardless of the format in which it is presented. Library Assistive Technologies increase independence. It allows visually impaired students to navigate libraries and access information independently. This can help in boosting their self-confidence and self-esteem. It improves academic achievement. Studies have shown that visually impaired students who use assistive technologies in libraries tend to have higher academic achievement than those who do not. This is likely because assistive technologies give visually impaired students the same access to information and resources as their sighted peers.

Kashim Ibrahim Library Management has put spirited effort into making available the most basic and important Assistive Technologies to support the learning of Visually Impaired Students and the findings of this study reveal some substantial impact. The participants interviewed stated that the use of the Library Assistive Technologies significantly assists them in learning. They indicated that the IC recorder assists greatly in recording lectures in class. They can record explanations in class for later use. This gives Visually Impaired students who are not fast enough with Braille writing the opportunity to record the lecturer's voice in class. It also prevents diversion of attention by enabling the students to focus completely on the lecturer's explanation while recording rather than struggling to catch up when jotting with Braille. The participants reveal that the computers help with note forming and assignments. Students with the help of a Librarian can use the computer to form lecture notes and do their assignments. They also use it to access the internet for academic-related activities. The typewriter also enables them to write tests and exams conveniently. Some of the students do not have personal laptops and some do not have complete knowledge of its usage. They use typewriters as a substitute. In addition, some of the departments do not allow

personal devices during exams so the typewriter gives the student freedom to conveniently write their exams without fear of being framed for examination malpractice. Other LATs like the IC recorder, digital Quran and scanning and reading machines also have positive effects on the student's ability to learn independently. They allow them to compete with sighted students. This finding is consistent with the work of other scholars that reveals that Library Assistive technology has been used by blind and partially-sighted people to help increase their independence and boost their social inclusion when it comes to education access (Eligi, 2017; Rabonye, 2020; Siddiqua, 2022).

There is a notable difference in the academic performance of students who use the LAT and the students who do not. A student in the Department of sociology, faculty of Education who frequently uses the library has a CGPA of 4.62. This is because LAT allows Visually Impaired Students access to information, they would otherwise not have access to without the use of LAT. This has been confirmed by other scholars. A study by Siddiqua (2022) reveals that there is a remarkable difference in the academic performance of students when they study with Library Assistive Technologies compared to when they do not. Another study by Amurani (2019) noted that students with Visual Impairment often experience greater success when they use their abilities (strengths) to work around their disabilities (challenges). Assistive Technologies combine the best of both practices as students agreed that AT use leads to a positive increase in their skills and academic performance. Also, the findings of the study (Okoh, 2022) showed that there is a significant difference between student academic performance and the usage of assistive technological tools. Meaning there is an improved performance with the use of assistive technological tools for learning among students with impaired vision.

Conclusion and Recommendations

Based on the findings from this study, it is concluded that although visually impaired students utilize available Library Assistive Technologies (LATs) for their learning, the use is significantly low. This finding goes beyond mere user adoption and delves into the mismatch between student expectations and LAT capabilities. The main issue lies in the relevance and age of the LATs. Some LATs fail to fully address the specific learning needs of visually impaired students; thus, their effectiveness suffers. Outdated tools lack compatibility with students' needs and additionally, some features crucial for specific learning styles or disabilities are absent, forcing students to adapt their methodologies to fit technology limitations, rather than the other way around. As a consequence,

student engagement with LATs becomes partial and potentially less impactful. They resort to using only specific technologies that align with their needs, leaving the rest underutilized. This low use underscores the disassociation between the envisioned potential of LATs and the reality experienced by students. Library Assistive Technologies must be helpful if they are to be used. They should be usable to increase the chances of use. The more usable they are, the easier they will be to persuade and encourage Visually Impaired Students to use them. However, neither usability nor usefulness guarantees use.

Based on the findings, the following recommendations were made:

1. The library management should collaborate with other library units, all academic departments and faculties to ensure that every new visually impaired intake is aware of existing assistive technologies in the library and be encouraged to adopt the technologies to aid his/her learning process.
2. University management should formulate a policy that will ensure that departments demand complete independent activities from Visually Impaired Students. CBT examinations that are being read and filled for students should be discouraged. When the students realize there is a need to write exams and carry out every academic activity independently, they will be compelled to seek out the use of LAT. Equipping Libraries with Assistive Technologies is not enough, policy should be made to guarantee their use.
3. The library management should purchase modern LATs that are compatible with users' needs, fix malfunctioning LATs and develop a maintenance strategy. Lack of good maintenance is greatly affecting the efficiency of the technologies and the impact they are supposed to be having on the student's learning. The Braille Embosser Machine (Braille Printing Machine) is a very important Assistive Technology for visually impaired students. It is the machine that prints Braille output. Without the Braille materials, students have to depend completely on voice reading which is not as compelling as reading on Braille. Comprehension is easier and faster with Braille so effort should be made to ensure that the machine is functioning unceasingly. A maintenance culture should also be developed to ensure little problems are tackled before they aggravate into irredeemable challenges.

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ACQUISITION AND RELEVANCE OF INFORMATION RESOURCES FOR TEACHING AND LEARNING IN GOVERNMENT HEALTH INSTITUTION LIBRARIES (GHILS) IN KATSINA STATE, NIGERIA.

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Abstract

This study investigated the acquisition and relevance of information resources for teaching and learning in Government Health Institution Libraries (GHILs) in Katsina State, Nigeria. Two research questions guided the study: What methods are used to acquire information resources for teaching and learning in GHILs in Katsina State? To what extent are the acquired information resources relevant to the needs of these libraries for teaching and learning? Employing a quantitative survey research design, the study targeted all 16 librarians in GHILs across Katsina State. Data were collected through questionnaires administered by the researcher and a research assistant and analyzed using descriptive statistics, including mean and standard deviation. The collected data were findings revealed that GHILs in Katsina State primarily acquire information resources through purchases, gifts, and donations, while alternative methods such as resource sharing, consortia, and database subscriptions remain underutilized, limiting the diversity and accessibility of resources. Thus, the acquired information resources often failed to meet the specific needs of library users, resulting in poor patronage and undermining the libraries' ability to fulfill mission of supporting teaching, learning and research. To address these challenges, it is recommended that GHILs in Katsina State adopt alternative acquisition methods like resource sharing, consortia, and database subscriptions to broaden resource diversity and accessibility. Furthermore, regular needs assessments and active collaboration with stakeholders, including healthcare professionals and library users, should be conducted to ensure the acquisition strategies align with users' evolving information needs.

Keywords: Acquisition, Government Health Institution Libraries, Information Resources, Resource Relevance, Teaching and Learning.

Introduction

Government Health Institution Libraries (GHILs) in Nigeria play an essential role in the healthcare and academic sectors by providing critical information resources for teaching, learning, and research. These libraries support the medical education and professional development of healthcare practitioners by offering a wide array of information materials, including textbooks, journals, databases, and other resources that are necessary for both students and faculty. The effectiveness of GHILs is heavily dependent on the strategies used for acquiring information resources. These strategies often involve various methods such as direct purchases, donations, interlibrary loans, and resource sharing among institutions. Research into the acquisition practices of libraries, such as the study conducted on the Benue State University College of Health Science Library, highlights the importance of these strategies in ensuring that libraries are adequately stocked with up-to-date resources to meet the needs of their users (Msurshima, Ternenge, & Terhemen, 2022).

However, despite the implementation of these varied acquisition methods, GHILs face significant challenges that hinder their ability to meet the information needs of their users. Msurshima, Tergenge and Terhemen (2022) stressed that financial constraints limit the libraries' capacity to purchase new materials or to subscribe to important databases, which is particularly problematic in specialized areas of medical knowledge. In addition to funding constraints, many GHILs lack clear and consistent acquisition policies. This absence of well-defined policies makes it difficult to systematically select and acquire resources that align with the educational and research goals of the institution. Research conducted at the Nigeria Institute of Transport Technology Library in Zaria found that the lack of acquisition policies, combined with insufficient financial resources, significantly impedes effective resource development (Abdulsalami & Arowolo, 2019). A similar study examining Nigerian medical libraries also identified key challenges such as outdated resources, insufficient library funding, and difficulties in maintaining up-to-date collections (Popoola, Uzoagba, & Rabiu, 2020).

Furthermore, the relevance of acquired information resources is a critical concern for GHILs. Ensuring that the resources in their collections are relevant to the needs of users—particularly in a rapidly evolving field like healthcare—is crucial for the effectiveness of these libraries. Unfortunately, many GHILs struggle with ensuring that their collections remain current and reflect the diverse needs of the healthcare and academic community. This challenge is compounded by the lack of comprehensive collection development policies, which are essential

for guiding the selection of materials that meet the educational and research needs of users. For instance, research indicates that many libraries in Nigeria lack written collection development policies, which can lead to acquisitions that do not fully address the specific needs of users, thereby rendering parts of their collections obsolete or irrelevant (Olaojo & Akewukereke, 2016).

Addressing the challenges faced by GHILs requires a multifaceted approach that includes the development of clear, formal acquisition policies. These policies would help guide decision-making regarding which resources to acquire, based on the needs of the institution and its users. Additionally, it is essential to secure adequate funding to support the acquisition of both physical and digital resources. With the growing importance of digital resources in medical education and research, GHILs must ensure they are investing in technologies that can support access to electronic journals, databases, and other online resources. Moreover, investing in the training of library personnel is critical for improving the efficiency of resource acquisition and management. Library staff must be equipped with the necessary skills to evaluate and select appropriate resources, manage budgets effectively, and utilize modern information management technologies. By enhancing acquisition strategies, securing sustainable funding, and ensuring the relevance of their collections, GHILs can better fulfill their mission of supporting medical education and research, thus contributing to the overall development of the healthcare sector in Nigeria.

While Government Health Institution Libraries play a pivotal role in supporting medical education, they face several challenges that undermine their ability to provide the necessary information resources. Addressing these challenges, particularly through the development of clear acquisition policies, securing adequate funding, and ensuring the relevance of their collections, will enable GHILs to better meet the needs of medical students, faculty, and healthcare professionals in Nigeria.

Statement of the Problem

Ideally, Government Health Institution Libraries (GHILs) in Nigeria should play a vital role in supporting medical education and research by acquiring relevant, up-to-date, and comprehensive information resources for teaching and learning. These libraries are expected to employ well-structured acquisition strategies, including direct purchases, donations, interlibrary loans, and resource sharing, to ensure the availability of resources that meet the diverse and dynamic needs of healthcare professionals and students. A solid foundation in collection

development policies and adequate funding is essential to maintain the relevance of library collections, aligning them with the educational goals and research needs of the institution (Msurshima, Ternenge, & Terhemen, 2022).

However, despite the numerous benefits of information resource acquisition in supporting teaching and learning in GHILs, the current situation in many libraries in Katsina State, Nigeria, contrasts sharply with this ideal. A preliminary study conducted by the researcher, supported by a library checklist and accreditation report, revealed that although many resources have been acquired in these libraries, they appear to be irrelevant to the actual information needs of the library users. This imbalance in resource acquisition has led to ineffective strategies, with the libraries acquiring duplicates of certain materials while failing to acquire sufficient resources for other specialized fields. As a result, the resources available do not adequately support the academic staff, laboratory technicians, and students, particularly about the various areas of specialization offered in these health institutions (Abdulsalami & Arowolo, 2019). Moreover, many of the libraries studied lack a comprehensive written policy to guide the acquisition of information resources in line with the specific needs of their users. Also, the absence of such policies further exacerbates the misalignment between the resources acquired and the actual needs of the target audience.

It is against this backdrop that the researcher deems it necessary to study the acquisition of information resources for teaching and learning in GHILs in Katsina State, Nigeria. This research seeks to investigate the acquisition strategies employed by these libraries and explore potential solutions that would enhance the alignment of the resources with the actual needs of library users, thereby improving the quality and effectiveness of medical education and research in the region.

Research Questions

The following research questions were formulated to collect data for this study:

1. What are the methods used for acquiring information resources for teaching and learning in Government Health Institution Libraries (GHILs) in Katsina State, Nigeria?

2. To what extent are the acquired information resources relevant to the needs of the libraries for teaching and learning in Government Health Institution Libraries (GHILs) in Katsina State, Nigeria?

Literature Review

Methods of Information Resources Acquisition

Acquisition of information resources is a fundamental activity of libraries, serving as the cornerstone of their ability to meet users' needs for consultation, study, learning, and research. Libraries worldwide employ various methods to acquire both printed and non-printed information resources to develop and enrich their collections. These methods may involve financial expenditure or be entirely cost-free. The five primary strategies for resource acquisition are purchase, gift, bequest, exchange, and legal deposit, as noted by Yoon (2009). In addition, libraries increasingly rely on donations, endowments, resource sharing, consortia, and internally generated materials to expand their holdings. This section explores these acquisition strategies in detail.

Acquisition of Library Resources by Purchase

Purchasing remains one of the most reliable methods for acquiring information resources. Libraries purchase books, journals, and electronic resources directly from suppliers or publishers, bearing the full cost. Payments may be made via cash, cheques, or subscription arrangements, depending on the seller's terms and the library's policies.

Local Bookshops

Local bookshops are a vital source of books, particularly for local titles that international suppliers may not offer. They minimize transportation costs and may deliver books directly to libraries at no extra charge. While discounts are often unavailable, many local bookshops supply books on credit, which can ease financial constraints for libraries (Ifidon, 2006). Local bookshops also help libraries quickly access titles relevant to regional curricula and cultural heritage.

Publishers

Directly purchasing from publishers can ensure the availability of first editions and recently published works. However, it often involves dealing with multiple publishers and increasing administrative duties and correspondence. According to Behler (2011), publishers also provide libraries access to exclusive pre-publication discounts or bundled offers for serial publications.

Agents

Agents act as intermediaries, representing multiple publishers and offering libraries the convenience of acquiring diverse titles from a single source. This reduces correspondence and administrative costs. However, libraries must carefully vet agents to avoid discrepancies in pricing or delivery schedules (Aina, 2014).

Acquisition of Library Resources by Gift

Gifts and donations represent a cost-effective way to acquire resources. Donations can be solicited or unsolicited and may come from individuals, organizations, or governments. Solicited donations are made in response to formal requests from libraries, specifying the types of resources needed. This strategy enables libraries to tailor their acquisitions to meet specific gaps in their collections (Imeremba, 2016). Unsolicited donations, on the other hand, may include outdated or irrelevant materials, requiring libraries to assess their value carefully (Ifidon, 2006).

Acquisition of Library Resources by Bequest

Bequests occur when individuals leave their collections to libraries through wills, effective after their passing. This method is prevalent in developed countries, where private collections often contain rare or valuable works (Aina, 2014). Bequests may include restrictions on usage or housing, which libraries must negotiate to align with their operational goals. For instance, the University of Ibadan library benefited significantly from the private collection bequeathed by Sir Charles Orr, enriching its resources on Nigerian history.

Acquisition of Library Resources by Exchange

The inter-library exchange allows libraries to trade surplus copies of resources with one another. This collaborative approach helps libraries diversify their collections without incurring additional costs. Agreements outlining the terms of exchange are crucial for ensuring fairness and mutual benefit (Behler, 2011). In the digital era, such exchanges are often facilitated through online platforms, significantly reducing logistical challenges.

Acquisition of Library Resources by Legal Deposit

Legal deposit mandates publishers to provide copies of all published works to designated libraries. This method ensures that national and public libraries receive comprehensive collections of locally published materials. In Nigeria, this legal framework has been instrumental in preserving the country's literary and intellectual heritage (Ossai, 2010).

Acquisition of Library Resources by Donations

Donations from individuals, organizations, or agencies like Book Aid International and the Nigerian Book Foundation provide a steady influx of resources for libraries. However, donations often require cataloguing, processing, and storage, which may impose hidden costs. Libraries must carefully assess donations to ensure their relevance and usability.

Acquisition of Library Resources by Endowments

Endowments involve funds provided by individuals or organizations to support library acquisitions. The income generated from these funds is used to purchase resources or sustain existing collections. Endowments, common in developed countries, are rare in Nigeria but hold immense potential for supporting specialized libraries (Yoon, 2009). For example, Everett Helm's endowment for Indiana University Libraries highlights how such contributions can transform library services.

Acquisition of Library Resources by Resource Sharing

Resource sharing involves collaborative arrangements among libraries to share information resources. Initiatives like inter-library loans and digital consortia allow libraries to overcome budgetary constraints and provide users with access to a broader range of materials. ICT advancements have simplified resource-sharing processes, enabling real-time access to shared resources. However, administrative and technical challenges must be addressed to ensure the sustainability of such initiatives.

Acquisition of Library Resources by Consortia

Library consortia facilitate coordinated acquisitions, allowing members to share the costs of licensing electronic resources. This model enhances access to expensive databases and journals, particularly for libraries in developing countries (Lawal et al., 2008). Nigerian libraries have increasingly embraced this approach,

leveraging consortia to negotiate better terms and discounts from publishers (Behler, 2011).

Acquisition of Library Resources by Internal Generation

Libraries also acquire resources created within their organizations. For instance, research institutions often deposit staff-authored publications in their libraries. This practice enriches collections with contextually relevant materials while promoting the visibility of institutional research output.

Relevance of Information Resources Acquisition for Teaching, Learning, and Research

The acquisition of information resources is fundamental to supporting the core activities of teaching, learning, and research in educational institutions. Adequate and relevant resources provide the foundation for knowledge dissemination, intellectual development, and academic achievement. Numerous studies emphasize the importance of systematic acquisition processes in ensuring that libraries and information centres meet the evolving needs of users. The availability of diverse and up-to-date information resources is crucial for effective teaching. Teachers rely on these resources to prepare lessons, develop course materials, and design innovative instructional strategies. As observed by Ifidon (2006), the acquisition of subject-specific materials tailored to curricular needs helps instructors deliver content more effectively, bridging the gap between theoretical knowledge and practical application. Furthermore, digital acquisitions such as e-books and online teaching aids have become increasingly important in facilitating access to dynamic and interactive learning materials, particularly in the digital age (Adeoye & Popoola, 2011).

For students, information resources play a critical role in fostering independent learning and academic success. Libraries serve as repositories of knowledge, offering access to textbooks, scholarly journals, multimedia resources, and digital databases that cater to diverse learning styles and academic levels. According to Aina (2014), comprehensive acquisition policies that prioritize user-centric resources ensure that students can access the materials they need for assignments, projects, and self-directed study. Moreover, access to digital collections and open educational resources (OERs) empowers students to engage with global knowledge networks, enhancing their learning experience (Yoon, 2009). Acquiring information resources is also essential for advancing research. Academic researchers rely on access to specialized materials, including peer-reviewed journals, conference proceedings, and archival documents, to

conduct studies, generate new knowledge, and contribute to societal development. Ifidon (2006) highlights that effective acquisition strategies ensure the availability of resources that align with institutional research priorities and emerging fields of inquiry. Additionally, collaborative acquisition models, such as library consortia, enable institutions to pool resources and provide researchers with access to expensive databases and scientific repositories (Lawal et al., 2008).

The acquisition of digital resources has become a key strategy for bridging the digital divide in education. Access to electronic resources enables teachers, students, and researchers to overcome geographical and financial barriers, promoting equity in knowledge dissemination. Adeoye and Popoola (2011) stress the importance of investing in digital acquisitions to foster a culture of continuous learning and innovation. Moreover, the integration of digital tools such as learning management systems (LMS) and virtual libraries supports the creation of hybrid learning environments, which are particularly relevant in the post-COVID-19 era. While the relevance of information resource acquisition is well-documented, challenges such as budgetary constraints, inadequate infrastructure, and evolving user demands often hinder the effectiveness of acquisition processes. Ossai (2010) notes that libraries in developing countries frequently struggle to maintain adequate collections due to limited funding and reliance on traditional acquisition methods. To address these challenges, institutions must adopt innovative strategies, such as leveraging partnerships, seeking donations, and integrating ICT solutions into acquisition workflows (Behler, 2011).

It can be deduced that the acquisition of information resources is indispensable for teaching, learning, and research in educational institutions. By ensuring the availability of relevant and high-quality materials, libraries and information centres can enhance instructional delivery, support student achievement, and advance research activities. As the educational landscape continues to evolve, adopting innovative and sustainable acquisition practices will be critical for meeting the diverse needs of users and fostering academic excellence.

Methodology

The methodology employed in this study was quantitative, utilizing a survey research design. The population of this study consisted of all the 16 librarians in Government Health Institution Libraries (GHILs) in Katsina State. The researcher used the entire 16 members of the population because it was small. For this study, the instrument used was a questionnaire and was subjected to face and content validity and necessary observations, corrections and amendments

which strengthened the instrument. The researchers administered the questionnaire and also employed a research assistant. One week was used to collect the necessary data for the study. The data collected for this study were analyzed using descriptive statistics in the forms of frequency, percentages, mean and standard deviation.

Result and Discussions

Methods of Information Resources Acquisition

In the first research question, the researcher was interested in determining the method through which information resources are acquired for teaching, learning and research in Government Health Institution Libraries in Katsina State, Nigeria. The responses are presented in Table 1

Table 1: Method of Acquisition Information Resources

S/N	INSTITUTIONS	CONAMKAT		COHESKAT		KKBSONKAT		NBSOMMLF		SZDSHTD		KISHTK		TOTAL	
	OPTIONS	F	%	F	%	F	%	F	%	F	%	F	%	F	%
1.	Acquisition by purchase	1	100	1	100	4	100	4	100	3	100	2	100	15	100
2.	Acquisition by Gift	0	0.0	1	100	4	100	4	100	3	100	2	100	14	93.3
3.	Acquisition by Bequeath	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	100	2	13.3
4.	Acquisition by Exchange	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5.	Acquisition by Legal Deposit	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0
6.	Donations	1	100	1	100	4	100	4	100	3	100	0	0.0	13	86.7
7.	Endowments	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2		2	13.3
8.	Resource Sharing	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0
9.	Consortium	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0
10.	Internal Generation	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0
11.	By subscription of databases	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0
12.	By open access databases	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0
13.	Others specify	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0

Source: Field Survey, 2023

Table 1 highlights the methods used to acquire information resources for teaching, learning, and research in Government Health Institution Libraries in Katsina State, Nigeria. Based on a 50% acceptance threshold, the methods identified as effective include acquisition by purchase (15, 100%), acquisition by gift (14,

93.3%), and donations (12, 86.7%). These were the only methods accepted as viable for resource acquisition in these libraries. Conversely, methods such as acquisition by bequeath, exchange, legal deposit, endowments, resource sharing, consortium, internal generation, subscription to databases, open access databases, and others were rejected as effective methods for resource acquisition. This finding suggests a reliance on purchase, gifts, and donations as the primary avenues for acquiring information resources in Government Health Institution Libraries in Katsina State. As corroborated by Ifidon (2006) and Lawal et al. (2008), this limited reliance on traditional methods may restrict the diversity and quantity of resources available to library users.

The implication of this finding is significant. Without leveraging alternative methods such as resource sharing, consortia, and database subscriptions, libraries may struggle to meet the diverse and dynamic information needs of their users. Aina (2014) notes that such limitations can adversely affect the quality of library services and user satisfaction. Additionally, the underutilization of modern and collaborative approaches to resource acquisition could hinder the libraries' ability to adapt to emerging demands in teaching, learning, and research.

Relevant of information resources Acquisition for Teaching, Learning and Research

The second research question was raised to ascertain the relevant of information resources acquired to the information need of the library users for teaching, learning and research in Government Health Institution Libraries in Katsina State, Nigeria. The responses are presented in table 2 below;

Table 2 Relevance of Information Resources Acquisition

INSTITUTIONS		CONAMKAT			COHESKAT			KKBSONKAT			NBSOMMLF			SZDSHTD			KISHTK			T	M	SD
S/N	STATEMENTS	R	NR	UD	R	NR	UD	R	NR	UD	R	NR	UD	R	NR	UD	R	NR	UD			
1.	The information resources acquired are always being utilized by library users	0	1	0	0	1	0	0	4	0	0	3	1	0	3	0	0	2	0	15	1.96	1.31
2.	No complaints from the library users about the irrelevance of the information resources to their needs	0	1	0	0	1	0	0	3	1	0	3	1	0	3	0	0	2	0	15	1.92	1.18
03.	No complaints from the library users about inadequate of the information resources	0	1	0	0	0	1	1	2	1	1	3	0	1	2	0	0	0	2	15	1.76	0.90
4.	The information resources are always being accessed by the library users	0	0	1	0	0	1	0	4	0	0	4	0	0	3	0	0	2	0	15	1.67	1.44
5.	The information always helps library users solve their problems	0	1	0	0	1	0	0	4	0	0	4	0	0	3	0	0	1	1	15	1.92	1.35
6.	It gives the library a good image	0	1	0	0	1	0	1	3	0	0	3	1	0	2	1	0	2	0	15	1.94	1.06
7.	It promotes the rate at which students and staff patronize the library	0	1	0	0	1	0	0	4	0	0	4	0	0	3	0	0	1	1	15	1.92	1.35
8.	It increases the library users' satisfaction and confidence	0	1	0	0	1	0	0	4	0	0	4	0	0	3	0	0	1	1	15	1.92	1.35

Source: Field Survey, 2021 **Key:** R=Relevant; NR= Not Relevant; UD=Undecided; T=Total; M= Mean; SD= Standard deviation.

Conclusion and Recommendations

In conclusion, the findings revealed significant challenges in the acquisition and relevance of information resources in Government Health Institution Libraries in Katsina State, Nigeria. While methods such as acquisition by purchase, gifts, and donations are widely used, alternative methods like legal deposit, resource sharing, and subscription to databases are underutilized, limiting the diversity and adequacy of resources. Additionally, the acquired information resources often fail to meet the specific needs of library users, resulting in poor patronage and undermining the libraries' ability to fulfil their mission of supporting teaching, learning, and research. The study therefore recommended that Government Health Institution Libraries in Katsina state should explore and integrate alternative acquisition methods such as resource sharing, consortia, and database subscriptions to enhance the diversity and accessibility of information

resources, thereby better meeting the evolving needs of library users. Also, improvement in the alignment of information resource acquisition strategies with the specific information needs of library users through regular needs assessments and active collaboration with stakeholders, including healthcare professionals and library users.

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EXPLORING PRIOR KNOWLEDGE OF YOUNG *GOSKOLO* -ALCOHOL ABUSERS ON ALCOHOL ABUSE IN JOS, PLATEAU STATE, NIGERIA

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Abstract
Alcoholism with it associated consequences is a global challenge. Information and education are effective in preventing alcoholism. Understanding the prior knowledge of alcoholics is critical to designing impactful information programs for reducing binge drinking. This research report therefore explored the prior knowledge of binge drinkers in a binge drinking endemic region of the Jos area in Nigeria. The methodology adopted for the study was grounded theory using a case study approach. The sampling technique used was purposive sampling. Data collection was done through semi-structured in-depth interviews with 23 participants from four major flash points for drug and alcohol consumption in Jos Plateau State, Nigeria. The study's significance lies in its potential to contribute to the understanding of alcohol abuse from a social epistemology and ontology perspective, highlighting the importance of considering the prior knowledge of alcohol abusers in designing effective intervention strategies. The study's findings could inform the development of targeted prevention and intervention programs tailored to the needs and experiences of young alcohol abusers in the Jos metropolis. The study recommended that the Use of Cognitive Behavioral Therapy (CBT) to help abusers recognize inaccurate thinking patterns should be prioritized. Also, focuses on the dangers of supposed benefits associated with alcohol abuse (pain relief, warmth).

Keywords: Prior knowledge, Alcohol abusers, young people, Grounded theory, Case study, *Goskolo,* Social epistemology, Ontology, Experiential knowledge,

Introduction

Alcohol abuse remains a global health crisis, including in Plateau State, Nigeria, where the local brew *Goskolo* has emerged as a significant contributor to youth mortality and societal dysfunction. This study explored the prior knowledge

of *Goskolo* abusers to understand their misconceptions, thereby informing strategies for effective intervention and behaviour change. Globally, alcohol abuse ranks among the leading causes of mortality, with approximately 2.5 million alcohol-related deaths recorded annually (Lakhanpal & Agnihotri, 2007; UNDOC, 2007; INCB Report, 2018). Diseases like liver cirrhosis, liver cancer, hepatitis B and C, and HIV are often linked to alcohol and substance abuse (INCB Report, 2018). Locally, in Plateau State, *Goskolo* a highly potent alcoholic drink has become a silent killer, devastating communities with its health, social, and economic consequences.

Goskolo is a local brew with an alcohol content ranging from 29% to 32%, depending on its type—transparent, coloured, or the mixed variant called *Ogogoro*. It is often produced in unregulated environments, packaged in sachets or small containers, and consumed primarily by youths seeking euphoria. Tragically, there are no documented statistics on *Goskolo*-related deaths in Plateau State, and existing government policies fail to address this growing menace. Despite its widespread abuse, misconceptions about *Goskolo* hinder effective communication about its risks. Addressing these misconceptions requires a deeper understanding of the prior knowledge of *Goskolo a*busers.

Alcohol abuse, particularly the consumption of *Goskolo,* has dire health, social, and economic implications. Health issues include delayed sleep, heightened anxiety, impaired brain function, and long-term physical and mental health deterioration (INCB Report, 2018). Socially, *Goskolo* abuse contributes to juvenile delinquency, armed robbery, sexual assault, broken homes, and unwanted pregnancies. Economically, alcohol abuse diverts funds that could support development to rehabilitation and treatment efforts, costing the global economy $249 billion annually (Manthey et-al,2021).

Theoretical Framework: Social Epistemology and Ontology

This research leverages Social Epistemology—how knowledge is acquired and shared—and Social Ontology—the nature of social interactions—to examine the prior knowledge of *Goskolo* abusers. Prior knowledge, shaped by cultural and social contexts, is critical for understanding how individuals perceive alcohol abuse. Recognizing this allows for the design of culturally relevant and effective interventions that can reduce *Goskolo* abuse.

Prior knowledge can be broken into three dimensions:

1. Experiential Knowledge: Insights from personal experiences.
2. Procedural Knowledge: Understanding the processes of alcohol use.

3. Expert Knowledge: Intuitive decision-making based on extended experience.

Understanding these dimensions helped identify gaps and misconceptions, providing a foundation for targeted communication strategies to reduce *Goskolo* abuse.

Researchers recognized prior knowledge as a multidimensional construct composed of familiarity, expertise, and experiential knowledge. This study examined prior knowledge through these three dimensions: Experiential Knowledge (gained through personal experience), Procedural Knowledge (knowing how to perform tasks), and Expert Knowledge (intuitive decision-making from extensive experience) (Rittle-Johnson & Durkin 2009).

Goskolo abusers' prior knowledge can also lead to information avoidance, where individuals consciously or unconsciously avoid information conflicting with their beliefs or values. Factors influencing information avoidance include cognitive dissonance, socio-cultural norms, benefits of knowledge seeking, and benefits of information seeking. Information avoidance has consequences, such as depriving individuals of valuable inputs for decision-making, promoting political polarization, and reinforcing media bias. This study uncovered *Goskolo* abusers' prior knowledge using the Chatman Theory of Normative Behavior, providing insights for effective communication strategies to address *Goskolo* abuse in Jos, Plateau State, Nigeria.

Statement of the Problem

Alcohol abuse poses a major public health challenge, with *Goskolo* emerging as a key contributor to youth mortality and societal decay in Plateau State. Despite awareness campaigns about its dangers, *Goskolo* abuse persists, indicating that current strategies fail to resonate with the target population. Most of them are addicted to *Goskolo* because of the desire to be 'high' or transmute into a higher realm. *Goskolo* -alcohol is a silent killer which has sent many to their untimely graves, as communities seem to be helpless in curbing the trend.

Despite all the messages that are communicated on the consequences of *Goskolo*- alcohol abuse, it appears the objectives have not been achieved. To move forward, there is the need to address the problem from other perspectives such as prior knowledge of *Goskolo* abusers. Thus, this research was concerned with exploring the prior knowledge of young *Goskolo* abusers on alcohol abuse in Jos metropolis, Plateau State, Nigeria- to understand what could be in the prior

knowledge of *Goskolo* -alcohol abusers that make the communications on *Goskolo* -alcohol difficult to comprehend.

Objectives of the Study

The objective of the study is to:

1. Ascertain the prior knowledge of alcohol abusers concerning *Goskolo*-alcohol abuse in *Goskolo* in Jos, Plateau State, Nigeria.

Literature review

Prior knowledge in a broad sense is stored knowledge and beliefs about the world that have been acquired by individuals. Prior knowledge affects information behaviour if the new information is inconsistent with the prior knowledge or beliefs. Prior knowledge therefore was researched to determine the true knowledge from the false knowledge. Gronbaek (2009) suggested that Prior knowledge is a function of learning true and false knowledge. This in the true sense of it can influence the decision-making style of individuals negatively or positively.

Abiona and Oladepo (2019) carried out a study on the prevalence and psychological correlates of alcohol use among Nigerian University students. They investigated the problem of alcohol use among young people as a serious public health concern. The study investigated the prevalence and psychological correlates of alcohol use among university students in Nigeria. A quantity method was employed for data collection. Findings suggest that there were significant differences in alcohol use across age groups and geographical locations. Self–efficacy, depression and life purpose significantly correlate with alcohol use. They concluded that the prevalence of alcohol use among university students remains high. A suggestion of more Evidence-base prevention and intervention programmes should be targeted at this population. Drawing from this study, it is clear that factors causing the abuse of alcohol are known through various research but effective ways of reducing alcohol have not been properly articulated.

Abudu (2008) on the other hand investigated the title Understanding Heavy Drinking Practices and Alcohol-Related Harms: The Live Experience of Nigerian Adolescents and Young Adults. A qualitative method was employed for the study. Findings suggest that participants were knowledgeable about the harms associated with heavy drinking. The findings suggest that prevention and intervention strategies will reduce heavy drinking by targeting the social norms of

heavy drinking. Though one of the isses of addressing alcohol abuse was suggested, the main issues were not deeply addressed such as understanding their knowledge of alcohol abuse.

Methodology

This research study employed a qualitative research approach to investigate the prior knowledge of young *Goskolo* abusers in Jos, Plateau State, Nigeria. The research design was a case study, focusing on 23 participants selected through purposive sampling from four major flashpoints of *Goskolo* markets, namely Angwa, Rukuba, Kabong, Kugiya and Tudun Wada. Semi-structured interviews were used for data collection, allowing participants to share their experiences and perceptions about *Goskolo* abuse and its consequences.

The data analysis employed thematic content analysis, involving six phases: familiarization with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. To ensure rigour, the study adhered to Silverman's standards of credibility, transferability, dependability, and conformability. Credibility was achieved through presenting participants' views without bias, while transferability was ensured through detailed descriptions of the fieldwork setting. Dependability and conformability were maintained through transparent documentation of the research process and methodology, enabling reproducibility and verification.

Findings and Discussion

Prior knowledge of Youths in Jos Metropolis concerning (*Goskolo)* alcohol abuse

Objectives	*Themes*	*Sub-themes*	*Frequency*
Prior knowledge of Youths in Jos Metropolis concerning (Goskolo) alcohol abuse	*1. Goskolo types*	*1.Ogogoro* *2.Herbs* *3.Brainded Goskolo* *4.Good Goskolo* *5.Bad Goskolo* ***Group Total***	*5* *1* *2* *1*
	2.Negative effect	*1. Sickness* *2. Irresponsibility*	*1* ***10***

	3. Intoxication	
	Group Total	*4*
3.Positive effects	*1. Warmth*	
	2. Relaxation	*2*
	Group Total	
	1. Colour type	*5*
4.Content of Goskolo	*2. How it Tastes*	***11***
	3. What makes up the ingredients	*1* *2*
	Group Total	*3*
		2
		1 *1*
		4
	Grand Total	***28***

Source: Field Analysis, 2024

This Table shows the general prior knowledge of *Goskolo* abusers in the Jos metropolis. The subthemes are categorized into four themes: 1. Types and *Goskolo* 2. Negative effects 3. Positive effect of *Goskolo* 4. Content composition of *Goskolo.*

Theme One: *'Goskolo' types:*

Goskolo Types theme describes the narratives related to the Prior knowledge of *Goskolo* abusers on the various types of 'Goskolo' in existence in the Jos metropolis. Five sub-themes made up these themes, which include: 1. *Ogogoro* (5) 2. Herbs (1) 3. Branded '*Goskolo*' (2) 4. Good 'Goskolo' (1) 5. Bad '*Goskolo'* (1). The sub-themes are explained thus:

Ogogoro (Igbo type): This sub-theme emerged as a type of *Goskolo* consumed in Jos metropolis by young abusers. The participants in their narratives mentioned

that Ogogoro is one of the major types or names considered to be *Goskolo* consumed by alcohol abusers in Jos metropolis, commonly produced by the Igbos. Participant 1 who is from Angwa Rukuba said **'***We have two different types but the same,' we have that of Igbos and that of Yorubas. Yoruba own are in the form of herbs while Igbos own is deadly because it contains a high percentage of alcohol and they are divided into two blended and Ogogoro.*'Another participant 5who resides in Kabong/GadaBiu said '*I know Ogogoro, jedi plus, Erujeje and Jacobs captain Jack".*

Herbs (Yoruba type): This sub-category also emerges as a type of 'Goskolo' in the Jos metropolis. Herbs are another type of *Goskolo* known by participants. Participant 2 from Agwa Rukuba said**…** *'that of Yoruba's is called herbs; Yoruba's own are in the form of herbs.* Participant 8 confirms with this list of names of which some are considered as herb types '*I know of MC Blended, King Justice, Erujeje, Captain Jack, Club 7, Jedi Plus, Baby oku, Get Alert, Baby Carry Go, Ever Best, Regal, Dark sailor, Plastic, Aloma bitter, Action bitters***,** Quick *action, Pepper soup, Monkey tail, Bitterroot, Dogoyaro, Soja roots.*

***Branded 'Goskolo'*:** Another sub-theme that emerged from the narratives of participants is Branded 'Goskolo'. Participants identified Branded 'Goskolo' as the most commonly found in shops. They are packaged in different containers such as sachets and bottles with different street names. Participant 2 said *Goskolo is of a different kind. But Ogogoro is 'Goskolo' we have others like Swagga, Erujeje, Captain Jack, which is blended 'Goskolo' found in shops.* Participant 1 in Angwa Rukuba also said this '……*they are divided into two branded and Ogogoro. Branded include Swagga, Erujeje, and Regal. That of Yorubas include confirm, Action bitters, and Baby Oku.*

***Good 'Goskolo'*:** This sub-category also emerged from the narratives of participants as one of the types of Goskolo known in Jos metropolis. Participant 4 who is a Painter and Building Electrician said '…*the good is the branded one, like Erujeje, Captain Jack, they have NAFDAC nu*

***Bad 'Goskolo'*:** Bad *Goskol*o is considered one of the highly concentrated alcohols, sometimes it is made up of car battery water mixed with water. Participant 4 said this…. *the bad is the chemical like Ogogoro …* '*they sometimes use raw battery water to make the Goskolo too'.*

Theme Two: Negative effects

Negative effects category (3) includes narratives related to the Prior Knowledge of alcohol abuser in Jos metropolis. It consists of three sub-themes: Sickness (4); Irresponsibility (2); Intoxication (5).

Sickness: These sub-themes consist of narratives related to the Prior knowledge of *Goskolo* abusers in the Jos metropolis with a frequency of (4). Sicknesses here are the symptoms and diseases that manifest due to consumption of Goskolo. One of the Participants, 14, a resident of Kugiya said … '*It gives people sickness like Tuberculosis (TB) because you share a cup with plenty of people'.* Similarly, Participant 5 gave this narrative thus "…*It damages our body."* In the same vein Participant 1 *said… "I take "Confirm" and it makes me purge, that of Igbos make me feel headache'.* Particpant15 also indicated that '…*Ogogoro is killing'.*

***Irresponsibility* (2):** These sub-themes also emerged as one of the Prior knowledge areas of abusers on 'Goskolo'. To be irresponsible means so many things, in these narratives the participants identified misbehaviour and living a useless life as being 'Irresponsible'. One of the Participant number 4 said: '…*It also destroys people, makes you useless".*

Intoxication: Intoxication (5) is a sub-theme that emerged as one of the Prior Knowledge of abusers on 'Goskolo' in Jos metropolis. Participants indicated that consumption of 'Goskolo' makes them go high. Participant 2 said '….*If you take it you always feel charged someone like me, I don't like taking it always but due to too much thinking you will find yourself taking it always*.'

Theme Three: Positive effects

Positive effects category (3) includes narratives related to the Prior Knowledge of alcohol abusers in the Jos metropolis. It consists of two sub-themes: Warmth (1) and Relaxation (2).

Warmth: The warmth subcategory is related to the positive effects of 'Goskolo' is a narrative from a Participant (1) which explains *Goskolo* as a substance which when taken helps in warming up the body system during cold weather, thus it is beneficial to the abuser. Participant 6 said this '…*It takes away the cold" when one is feeling cold'.*

Relaxation*:** This is another sub-theme that emanated from the narratives of participants. Relaxation (2) explains the temporal relief a 'Goskolo' abuser gets from its consumption; it serves as a stress reduction substance. One of the Participants 7 said **'…** *It makes me sleep well'*….*** *It makes one forget his or her stress'* and another participant 8 said '**..***makes you feel happy for some hours'*

Theme Four: Content of Goskolo

The content of *Goskol*o includes narratives related to the components that make up the drink called '*Goskolo*'. It consists of three sub-themes: Colour (2); How it Tastes (1); Ingredients (1).

***Colour type*:** This sub-theme is explained from the following narratives by Participant 9 who said *'……..'It is colourless'*.

Participant 10 said '*Ogogoro is the father of all that is, it has high quantity of alcohol and is very strong, it is white in colour ...Ogogoro is white in colour'*

How it tastes: This sub- theme is observed from the narratives of Participant13*'.... Ogogoro is white, while the root is bitter. '..... Almost all of them taste bitter*

***What makes up the ingredient*:** The ingredient sub-theme emerged from the narrative of participants as one of the contents of 'Goskolo' described by abusers in Jos metropolis. Ingredients constitute the raw materials that are used for the production of 'Goskolo'. This includes water, chemicals like Car battery water and alcohol. Participant 21 said *'...some they use raw battery water/water to make the Goskolo'*

Discussion

Types of Alcohol

Alcohol is categorized into three main types based on content: wine, spirits, and beer (Mandora, 2018). Spirits, including *Goskolo*, have high alcoholic content (20-50%) (American Academy of Family Physicians, 2017). In this research study, *Goskolo* abusers recognized two types: Bad *Goskolo:* High-concentration drinks made with harmful chemicals (e.g., car battery water), including Ogogoro and herbal *Goskolo*. The second is the Good *Goskolo*: Branded, packaged drinks with standard measurements, sold in shops. In a contrasting classification, scholars categorize alcohol as wine, spirit, and beer, but *Goskolo* abusers classify it as "bad" or "good" alcohol, contradicting traditional classification.

All types of *Goskolo* pose health risks due to high alcohol content, regardless of classification as "good" or "bad". Therefore, to reduce alcohol intake, it's essential to: Disabuse *Goskolo* abusers of the notion that there's a "good" alcohol. It is pertinent to emphasize that all alcohol is harmful, while accurate information about alcohol poisoning risks should be provided. Consequently, *Goskolo* abusers' perception of "good" and "bad" alcohol must be addressed to effectively reduce alcohol consumption and mitigate health risks.

Negative effects

The research highlights that *Goskolo* (a type of alcohol) abuse has significant negative effects on the body, including liver damage, headaches, tuberculosis, emaciation, heart problems, and even death. Despite being aware of these dangers, *Goskolo* abusers continue their harmful behaviour, possibly due to cognitive dissonance and the backfire effect, where conflicting information reinforces their beliefs. This persistence in abuse occurs even though they understand the risks, such as liver failure, cancer, and social irresponsibility, including the failure to meet responsibilities and engaging in dangerous behaviour.

Emphasizes should therefore be on the challenge of changing the behavior of *Goskolo* abusers, as they often dismiss negative health information, holding onto the belief that death is inevitable regardless of how it comes. To reduce *Goskolo* abuse, this research suggests that communication and intervention efforts should be empathetic, respectful, and non-confrontational. Information should be presented in a way that respects the abuser's views and avoids attacking or shaming them, as this approach may be more effective in promoting change.

Positive effects

Young *Goskolo* abusers believe that *Goskolo* consumption has positive effects, including providing warmth in cold weather, relaxation, and stress relief. They report that *Goskolo* helps them sleep well, feel happy temporarily, and forget their stress. Research supports this idea, suggesting that alcohol can reduce stress in certain people and circumstances (Sayette, 1999). Additionally, drinking is often used to dull the emotional pain and hardships of life.

However, it's crucial to note that these perceived positive effects are short-term and subjective, masking the long-term damage caused by alcohol consumption. *Goskolo* abusers' prior knowledge negatively influences their information behaviour, making them resistant to contrary information. To address this, information providers should sensitize young abusers to the dangers of using alcohol for warmth and stress relief and promote healthier alternatives. Encouraging them to face problems head-on, rather than using alcohol as an escape, is also essential. By addressing subjective knowledge and promoting factual information, interventions can effectively reduce *Goskolo* abuse and its harmful consequences.

Content composition

Young *Goskolo* abusers possess prior knowledge about the physical characteristics of *Goskolo*, including its colour (colourless or white for *Ogogoro*, coloured for branded versions), bitter taste, and burning sensation. However, they lack knowledge about the composition of *Goskolo*'s alcoholic content. The literature revealed three types of alcohol: isopropyl, methyl, and ethyl, with only ethyl being safe for human consumption (Sciencing, 2018).

Goskolo abusers' subjective experiences guided their understanding, focusing on colour, taste, and sensation rather than the toxic composition. This ignorance puts them at risk, as homemade *Goskolo* contains harmful methyl alcohol. To reduce alcohol abuse, information providers must educate abusers about the dangers of methyl alcohol and its effects. This knowledge gap highlights the need for targeted interventions addressing the specific misconceptions and lack of understanding among *Goskolo* abusers.

Conclusion

The following conclusions were drawn from the major question of this research which explored the Prior knowledge of young *Goskolo*- abusers: Prior knowledge influenced the refusal of *Goskolo* abusers to accept information communicated to them by the various sources of information, NGO's, government and agencies. This is so because their prior Knowledge which is socially constructed raised to some misconceptions of good and bad *Goskolo*. Chatman's theory of normative behaviour gave explanations for this misconception. The understanding or awareness of the consequences but of the influence of social norms, social type, world view and information behaviour in the *Goskolo abusers'* small world, informed the non-use of information from information providers and communication officials. They therefore exhibited an attitude of selective distortion. That is interpreting information to support what *Goskolo* abusers believe in. An attitude of backfire effect was also exhibited by *Goskolo* abusers. 'Backfire effect is when a correction increases belief in the very misconception it is attempting to correct, and it is often used as a reason not to correct misinformation' (Swire-Thompson 2022). Some of the misconceptions are the fact that *Goskolo* helps in reducing their physical and psychological pains and that there is a good and bad *Goskolo*. Goskolo abusers' subjective experiences guided their understanding, focusing on colour, taste, and sensation rather than the toxic composition.

The following recommendations are proffered:

Communicate to binge drinkers based on standard alcohol classifications (Wine, Spirits, Beer); Focus on the dangers of "*Goskolo*" and the negative effects of binge drinking; Use visual aids like videos to communicate the consequences of alcohol abuse;

Another way that will help in reducing *Goskolo* abuse is to develop effective video communication modes to translate health messages

Use Cognitive Behavioral Therapy (CBT) to help abusers recognize inaccurate thinking patterns. Focus on the dangers of supposed benefits associated with alcohol abuse (pain relief, warmth).

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EXPLORING SELF-REFERENCING PATTERNS IN INAUGURAL LECTURES OF FEDERAL UNIVERSITY OF AGRICULTURE, ABEOKUTA, NIGERIA: A 25-YEAR INFORMETRICS ANALYSIS

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Abstract
The study investigated exploring self-referencing patterns in inaugural lectures of the Federal University of Agriculture, Abeokuta, Nigeria: A 25-year informetric analysis between 1994 and 2018. Using descriptive content analysis, 3713 references cited in 57 ILs were analysed. The findings revealed that an average of 62 document sources were used as references per IL. While self-referencing accounted for 35.5% of total references, with professors citing their work as sole authors (12.15%), lead authors (14.03%), or team authors (9.32%). A significant proportion (64.5%) of the cited references originated from external publications. Journals were the most preferred source of information, but patents were rarely mentioned. Our analysis reveals a steady increase in ILs since 2009 and a consistent change in authorship position, collaboration strategies, and document sources. This study recommended that ILs should serve as a reliable source of institutional databases, providing valuable insights into professors' research productivity.

Keywords: Inaugural lecture**,** Informetric**,** Bibliometrics**,** Cited-references, Authorship, Libraries and University.

Introduction

The place of scientific publications in the career development of academics is largely that of "publish or perish". Academics who passed through the ranks and files of teaching, researching, community services, and publishing, eventually emerge as university professors based on their scientific contributions to humanity. Consequent upon becoming a professor either by an appointment or promotion, there is an academic obligation known as inaugural lecture (IL) which all persons so elevated are required to fulfil to confer recognition and acceptability for the academic subject professes. Therefore, IL is an address which is given to specifically mark the appointment or installation of a university professor at a formal occasion (Ezeri, 2014).

In other words, it is an opportunity for every professor to submit himself to both the public and peer appraisal, and prove his worthiness to the professorial chair before disengagement from the university system (Ezeri, 2014). However, some professors retired without being able to discharge this obligation to the academia (Chikere, 2020). It is the burden of proof required to adjudge a professor, a worthy occupier of the professorial chair, while to the people outside the academics i.e. "the town" it is an occasion to celebrate a professor's research activities, as a distinguished scholar who has meritoriously satisfied the triple tasks of teaching, research and community service. Presenting according to Pritychenko (2016), is not only a pivotal obligation of a university professor but also, a significant occasion in the career of an academic. It is an opportunity to inform colleagues and the general public of one's work. A professor is considered to be a debtor until he/she fulfils this obligation (Aina, 2013).

Highlights of the inaugural lecture

One of the features of IL is that it is, an audience of "town" and "gown", an avenue to meet great personalities, celebrities, crème-la-societies, and "who is who" in academia, business, and politics, depending on the social strata of the lecturer. To some, it's a time to recall their humble beginnings; to some, a time to pay glowing tribute to great heroes; to some, a time of emotion-laden voice, a time of tears, a time of joy; a time to appreciate and recognize people who have contributed in no small measure to their success story. IL is presided over by the vice-chancellor who gives the opening and closing remarks. The introductory remarks contain a concise, factual description of the inaugural lecturer's academic profile, career, and background. Aderibigbe (1999), in a bid to distinguish ILs from other types of public lectures, stated that, while the closing remarks are not summaries of the lectures as is the practice by most chairmen of public lectures;

rather, it is an opportunity for the vice-chancellor to highlight and articulate relevant university policies that are related to the "theme" of the lecture as well as bring out succinctly, areas of the lecture where the 'town and the gown' could collaborate for the mutual benefit of both.

Objectives of the study

From the existing literature, studies that examined the contents of ILs are limited. So, this study aims to provide insight by analyzing and reporting on the content analysis of 58 IL series publications for twenty-five years 1994-2018. Meanwhile, the specific objectives of this study are to:

1. find the average number of references cited per IL,
2. find the authorship patterns of cited works (sole author, First/lead author, collaborative author, and other consulted authors),
3. determine the types of information sources cited in the ILs,
4. determine the frequency of yearly presentation of the ILs.

Literature review

Numerous studies in library and information science have employed citation-based analysis to assess the usefulness, quality, and connectivity of scientific publications through citation counts (Yeung, 2020). Citation-based measures are commonly used to rank authors, papers, and journals based on their impact and usefulness. However, citation-based analysis has limitations. It can only be conducted after a publication has existed for a considerable period, making it challenging to recognize important papers immediately. In contrast, cited references are works mentioned (cited) in publications which can later be used to determine times cited (number of citations). Reference analysis offers a distinct advantage of analyzing any document sources such as journals, books etc which may not necessarily be found in citation or bibliographic databases (Marx and Bornmann 2016). Cited references precede a publication set, while Citing papers follow the publication set. Cited references (or publications) date back significantly further than the citing publications, allowing for a more comprehensive understanding of the impact within a specific publication set (Marx and Bornmann, 2015).

By examining cited references, researchers can trace the intellectual lineage of ideas, often uncovering sources that predate the citing publication (Marx and Bornmann, 2015). This approach enables the assessment of impact

within a clearly defined publication set, where the recipient of impact is explicitly identified. Although often used interchangeably, references and citations have distinct meanings. According to Bornmann and Mutz (2014), a reference is "an acknowledgement that one document gives to another," whereas a citation is "an acknowledgement that one document receives from another." In the context of academic publishing, a reference refers to the bibliographic information provided in the bibliography or reference list of a scientific publication. This includes details such as: Author names, year of publication, title, abstract, geographical location of the publication, number of pages of the publication, Volume and number. In contrast, citations refer to the instances where a publication is acknowledged or referenced by another document.

Analyses of such bibliographic information as found on the list of cited references is known as reference analysis (Ding, Liu, Guo, and Cronin 2013; Singh and Singh, 2024). A citation (otherwise known as times cited) is a reference given to a previously published source of information that is relevant to the present piece of work (Sahoo, Mohanty, Biswal, Dash and Sahu, 2020). If document A appears in the references or bibliography of document B. It means that Document B has referred to or cited Document A. And that Document A receives a reference or citation from Document B (Diodato and Gellatly 2013).

Onyancha (2007) used a short and snappy explanation to further clarify the reference and citation as the relationship between publications. For reference and citation to subsist, publication A must have been in existence earlier and contributed to publication B later. Implying that, while putting publication B together, its author(s) used publication A and subsequently admitted to using publication A by adding it to the list of references.

From the above scenario, it is clear that a relationship has subsisted between the two publications. For publication A, a citation has emerged, while for publication B it is a reference. Therefore, the list of references on publication B becomes citations to all so listed including publication A. Cited Reference gives rise to citation, and both can be subjected to scientific analysis. Put simply, an author provides a reference and receives a citation (Cronin, 2000). However, this paper deals with self-cited references as listed in the ILs.

Self-cited reference of publications is done for several reasons, such as, to propagate one's work, to portray a self-image of scientific authority, to allude to previous research findings, or simply for self-swaggering (Foley and Della Sala, 2010). These are the rationale for the inclusion and citing of self-publications in ILs. Professors put more emphasis on their past research to demonstrate

accountability and contribution to research speciality and how these have solved society's problems.

The analysis of the self-cited references from inaugural publications allows us to investigate and determine the history of their scientific activity much earlier in retrospect. Pichappan and Sarasvady (2002, p. 285), note that "science is a continuum of experiences consisting of the author and objects of experiences. Authors' experience is an integral part of their work that gets reflected through self-references to indicate a continuous research process of one author or a group (Pichappan, and Sarasvady 2002). Authors are engaged in a constant and continuing inquiry into the nature of science through a series of investigations that include a dialogue between the past and present work including his/her own". These self-citations calculated from the reference list is also a method which allows one to measure new creative approaches in publications (Marx and Bornmann, 2016). Cited references can be used to overcome the drawbacks of conventional citation analysis (Yeung, 2020), discover emerging research fields (Kullenberg and Nelhans, 2015; Hota, Subramanian, and Narayanamurthy 2020); to identify highly cited publications (Marx and Bornmann, 2016; Thelwall, 2019); cited references give insight into the early period of modern science (Bornmann and Mutz, 2015); and reveal historical roots of various units such as a researcher, and research field (Yeung, 2020; Bornmann and Leydesdorf 2020).

Authorship pattern

Authorship is how researchers, institutions, and countries are recognized as owners of scientific output like journal articles, conference proceedings, books, book chapters, and other intellectual works. Researchers received recognition among their peers for transmitting the results of their scholarly work and establishing priority for their discoveries (Academic Writing 2024). This suggests that writing a paper is a prerequisite condition for the award of authorship. Although authorship practices differ across disciplines, their significance remains unchanged due to its role in information dissemination and communication activities (Neelamma and Gavisiddappa, 2018). The authorship position of scholars on the by-line of a publication plays a crucial role in their academic careers.

A sole author is responsible for every aspect of the research, including findings and results. However, in certain specialities, sole research publications are nearly impossible due to the complexity of resources, technical expertise, and facilities, thus science has become 'big', multifaceted and global (Bornmann and Mutz, 2015; Adigwe, 2016). However, disciplines such as Arts and Humanities

value sole authorship, while physicians are more likely to be involved in collaborative projects. Consequently, emphasis has shifted from sole authorship to collaborative work which involves concerted efforts of co-authors.

Collaboration occurs when a publication's by-line contains at least two or more co-authors. Collaborations are essential for scholars to enhance their research output. A publication resulting from co-authorship leads to the sharing of ideas with colleagues and a high level of teamwork. This study identifies two types of collaboration based on co-authorships of publications found in ILs: Lead or First author and Team collaborative authors.

The Lead or First name on a publication is assumed to have contributed more significantly than other co-authors researchers (Zhang, Wei, Huang, and Sivertsen, 2021). In most cases, the first authors are subject experts or well-performing researchers with experience in scholarly writing who can manage a scientific research group (Abbasia, Altmannb, and Hossain, 2011). In the early years of their career, young researchers are not likely to be the first authors of a publication because they are supposed to learn the rudiments of academic writing from more senior academics; except in cases where they published from their undergraduate dissertations or postgraduate research projects. Often, younger scientists undertake more technical tasks, while senior ones concentrate more on the big picture and "conceptual" tasks (Larivière, Desrochers, Macaluso et al., 2016). However, in later years, the tendency of being the first author rises as senior scientists with accumulated knowledge and experiences, become more versatile and capable of initiating research (Marx and Bornmann 2016). Generally, productivity grows with seniority until a turning point, when researchers would probably plunge from first authorship to dominantly last authorship due to age (Liu, Xu, Ding, and Bu 2023).

Be that as it may, Bu, Ding, Xu, Liang, Gao, and Zhao (2018) argue that junior colleagues or mentees' under the supervision of senior scholars' are qualified to be first-authors, provided they are foremost contributors in research publications. In some disciplines, a lead author may be the corresponding author and takes responsibility though he may not necessarily be the most senior among the remaining co-authors. According to Pritychenko (2016), the first/lead author usually contributes about (~)50 %, and the rest is split between the remaining co-authors. Heuritsch (2020) accentuated that lead authorship, citation rates and number of acquired grants are the core value of a researcher. There is strong evidence that collaborative research publications outperform research done on an individual basis and also attract huge benefits and greater impact (Maluleka, and Onyancha, 2016; Pouris, and Ho, 2014; Sooryamoorthy, 2017).

Team collaborator in the context of this study refers to a scientist who is neither the Lead or First author of a research publication, but rather, cooperating with colleagues from within or outside one's area of specialty to form scientific ties or communities of practices (CoPs) (Buckley and Du Toit 2010). Team collaborators promote joint research activities that facilitate learning from each other while working on contemporary scientific research. Understanding a collaborative research team is important given, the diverse composition of team members. Hence, vibrant team collaborators require good interpersonal skills, frequent assessment of team functioning and mutually accountable performance goals (Kelly, Doyle and Parker 2020).

Research method

Informetric is a methodology in library and information science as "patterns that show up not only in publications but also in many aspects of life, as long as the patterns deal with information" (Diodato, and Gellatly, 2013). Informetrics deals with the statistical evaluation of any information phenomenon such as research publications. Abrizah, Erfanmanesh, Rohani, Thelwall, Levitt, and Didegah, (2014) described informetric as a generic name that covered research into any kind of information-related metrics such as scientometric, bibliometrics, webometrics, cybermetric and altmetric. Our study was based on authors' names, and a reference list of all the inaugural publications of the Federal University of Agriculture, Abeokuta Nigeria from 1994-2018. A reference analysis was conducted to determine the authorship pattern of professors who had delivered ILs, to determine how they have contributed to the body of knowledge. No database was used to collect information as it is common with metric studies. 58 ILs have been delivered at the University under consideration. However, only 57 ILs were downloadable from the University's website and found physically available at the Library. Consequently, 3713 references found in the 57 ILs were organised and analysed in Excel spreadsheet. The position of each professor on a publication's byline vis-à-vis the references were counted using variables such as the number of publications per author, Lead/First author publications as team collaborators. The period 1994 to 2018 was considered because presentation of ILs have cut across the entire colleges of the University as at that time. No database was used to collect information as it is common with metric studies. 58 ILs have been delivered at the University under consideration. But only 57 ILs were downloadable from the University's website and found physically available at the Library. Consequently, 3713 references found in these 57 ILs were

organised and analysed in Excel spreadsheet. The position of each professor on a publication's by-line vis-à-vis the references were counted using variables such as the number of publications per author, Lead/First author publications, and team collaborators. The position of each professor on a publication's by-line was carefully examined in relation to the references cited. This approach enabled a comprehensive understanding of the authorship patterns and collaborative research endeavours among the professors.

This study provides insights into the authorship patterns and collaborative research trajectories of inaugurated professors at the Federal University of Agriculture, Abeokuta, Nigeria. The findings of this study can inform strategies for promoting research productivity and collaboration among academics.

Data analysis

The result of the references harvested from the 57 ILs was presented in the form of averages and simple percentages.

Table 1: Average no of references per inaugural lecture

Total No of References	Total No of Inaugural Lecturers	Average No of references per Inaugural Lecture
3713	57	65.14

The total number of references found in the 57 inaugural lectures was 3713.

Table 2: Inaugural lecturer's pattern of authorship as sole, leading, collaborative and other consulted authors

Authorship pattern of inaugural lecturers	**No of references**	**Average (N=57)**	**Percentage %**
Sole Authors	451	7.91	12.15
First /Lead Authors	521	9.14	14.03
Team collaborative Authors	346	6.07	9.32
Other Consulted Authors/ External publications	2395	42.01	64.50
Total	**3713**		**100**

Sole authorship appeared in 451 references and accounted for 12,15% of total references, and 521 First/Lead authors (14,03%), while other collaborative amounted to 346 (9.32%) references. A significant proportion (64.5%) of cited references originated from external publications. This demonstrates inaugurated professors' ability to integrate diverse knowledge sources, highlighting the interdisciplinary aspects of their research and its impact on scientific progress.

Table 3: Distribution by types of information sources

Sources of Information	No	Percentage
Journals	2024	54.5
Books	467	12.6
Conference Proceedings	427	11.5
Reports	301	8.11
Theses and Master's dissertation	132	3.56
Bulletin/Dailies/Magazines	95	2.56
Others	94	2.53
Online/ e-resources	73	1.97
Inaugural series	32	0.86
Handbooks	27	0.73
Monographs	26	0.7
Government publications	11	0.3
Patent	4	0.11
Total	**3713**	100

Table 3 revealed that, among the cited 3713 references, the most used information sources were journals, books, conference proceedings, reports and theses. 73 (1.97%) of the sources consulted were electronic based while the rest were print sources. It shows that scientists would probably cite print publications that are traditional knowledge carriers such as journals, books, theses, and conference proceedings than website resources. These traditional knowledge carriers are assumed to be personal valuable resources and reliable. Moreover, the use of e-resources became more popular in Nigeria less than two decades ago. The majority of the inaugural lecturers may not have gotten accustomed to the use of e-resources as of then. Chikere (2020) also confirmed that even some young professors are not in tandem with modern trends such as functional e-mails, nor operate computers because they simply feel they have 'arrived'.

Table 4: The frequency of inaugural lectures delivered

Year	No of inaugural lectures	Percentage
1994-1998	7	12.07
1999-2003	9	15.52

2004-2008	8	13.79
2009-2013	18	31.03
2014-2018	16	27.59
Total	**58**	**100**

Discussion of findings

This analysis was conducted to reveal the evolving trends of professors' order of authorship in scientific publications. A simple count of self-cited publications on the references list of the ILs series was used as a basic metric to determine the scientists.

Average References per Inaugural Lecture

The average number of references per inaugural lecture (IL) was calculated to be 65.14, obtained by dividing the total number of references (3,713) by the total number of ILs (57).

This finding suggests that professors, as prolific scholars, consult a substantial number of documents and publications (at least 65) in preparation for an IL. This preparation enables them to convey the significance of their area of expertise to their audience clearly and concisely, typically within a 45-minute presentation. The significance of this finding lies in the fact that professors must distil complex ideas and research findings into an accessible and engaging format, highlighting the importance of their work to a broad audience.

Pattern of inaugural lectures authorship

The pattern of scholarly publications of IL as sole, leading, collaborative and other consulted authors shown in Table 2 above suggests a continuous growth in scientific leadership of professors. For instance, the number of First/Lead author publications of an inaugurated professor on the average was almost 10 (9.14) which was greater than that of sole authorship (7.91). In other words, the most substantial scientific output of IL professors came from papers published as First/Lead authors from international, national or institutional co-authorship. This suggests that professors take lead in sharing knowledge among co-researchers through research publications, and also, assume the onus of initiating and directing original scientific work. Thereby, wielding a larger leadership influence in initiating, dictating and organizing the direction of the research (González-Alcaide, Park, Huamaní, and Ramos 2017). Globally, research institutions are increasingly depending on the total number of First/Lead-author papers for tenure

track and promotions (Pritychenko, 2016). Likewise, in some universities in Nigeria, for example, the criteria for tenure and promotion such as the university under consideration, clearly state that, to be eligible for promotion to a senior academic rank, a faculty member must publish first-authored papers in scientific journals. Of course, there are two sides to this kind of policy. While it may promote academic leadership, it can also deter academic collaboration, especially within the same college (Tang, Hu, Sui, Yang and Cao 2020).

Our analysis revealed that professors' self-reported references as team collaborators accounted for 346 (9.32%) publications. This translates to an average of six (6) research articles co-authored by each inaugurated scholar as a team collaborator. Team collaboration can occur between senior and junior academics, as well as among senior academics. Notably, junior researchers in the early stages of their scientific careers are unlikely to be responsible for significant academic writing. Instead, they may be assigned specific tasks as part of a research team, facilitating their learning and development. Furthermore, more than half (64.5%) of the references cited by the inaugurated professors came from external publications. This suggests that they not only built upon their research but also drew from a wide range of knowledge sources. By doing so, they effectively demonstrated the interdisciplinary nature of their work and its contributions to advancing scientific knowledge (Marx and Bornmann).

A change in hierarchical status can significantly influence an academic's authorship patterns. As academics transition from team collaborators to independent researchers, they often assume leadership and mentorship roles, guiding graduate or post-graduate students in their research endeavours. This collaborative relationship frequently results in co-authored publications.

Notably, the number of co-authored publications is typically lower than those authored solely or jointly with others. This suggests that inaugurated professors are primarily independent researchers who have initiated, conducted, and authored original scientific outputs, rather than merely contributing as team collaborators. Inaugurated professors are a distinguished group of scholars who have established themselves as research specialists and academic leaders. Over time, they have wielded significant influence, demonstrating exceptional leadership and management skills. Their substantial contributions to scientific literature, particularly through lead and sole authorship, are a testament to their expertise and dedication to their field.

Interestingly, our analysis revealed that 64.5% of the publications cited by the professors were from other consulted authors. This suggests that the professors drew upon a broad range of knowledge sources to describe their field of specialization and scientific contributions to their audience who are largely "unlearned" in the context of the discoursed subject. As Omamor (2003) aptly puts it, a university professor should justify their appointment by speaking "ex cathedra" – using simple terms to convey complex ideas related to their area of expertise. ILs provide a platform for professors to demonstrate their research stewardship in an accessible and engaging manner. By doing so, they establish their authority and expertise in their field, while also sharing their knowledge with a broader audience.

Types of information sources

Professors make use of a diverse array of information sources in the course of preparing for IL. Thus, Table 3 shows data for the most frequently referenced publications within the IL. These publications are considered to be crucial information sources for research. The various research output referenced in IL of each unique scholar reveals that, 2024 Journals (54.5%) were the most preferred source of information cited followed by 467 books (12.6%) and 427 conference proceedings (11.5%). This outcome was expected because journal articles are the most popular way of presenting research findings (Jayasekara and Abu 2018; Qi, Hongyu, Zhou, Sun, Huang, and Zhang, 2023). This concurs with the finding of Ningrum, and Atanassova (2023), that journal articles are the most popular academic publications. The second most frequently cited source was Books (467,12.6%); followed by Conference proceedings (427, 11.5%). Conference proceedings are major channels for scholarly communication, and are playing a more vital role as journals. Conferences are shaping future research direction, guiding the allocation of scholarly resources, and breeding innovative thinking. Moreover, there are research areas where conferences are not just the primary communication channel, but also, conference leadership is also a useful data source for measuring the scholarly impact (Yu, Lin, and Huang 2023).

Further, the inclusion of thesis and master's dissertation as information sources showed that works cited by professors in their inauguration lectures dated back to different research areas of the past studies. Highlighting and summarizing those works in a lecture is tantamount to accounting for life-long scientific stewardship. For instance, it is interesting to note that some IL professors cited their PhD theses as well as Master's dissertations. Of course, findings from such

research undertaking should normally form part of their research stewardship because the essence of IL is to account for scholarly contribution to humanity. This finding corroborates Chikere's (2020), assertion that, IL are primary source of information about a topical narrative in which the individual has direct knowledge of the situation. Often, scholarly works such as theses and master's projects are referenced in IL to show the researcher's foundations to research contributions from the onset or serve as historical documents that form the basis or background adventure into a particular research specialty.

Meanwhile, patent literatures are important resources for effective technical information, they are the least referenced source in IL as it accounted for (4, 0.11%) of the references over the twenty-five-year period. One of the important findings of the study was weak research in technological development. The share of patent cited to the overall number of information source was considerably low. Wider gap exists between flow of knowledge from science to technology, depicting little prospect for entrepreneurial technological development. Patent transfer is an important form of technology transfer in universities. It is an important tool for reflecting technological development. (Chen, Han, Xuan and Gao 2019). They are useful in exploring research hotspots and technology frontiers in a certain research field (Rongying, Xinlai, and Danyang 2019).

Since universities play an important role both in producing and disseminating knowledge, universities dons are supposed to facilitate technology transfer by establishing technology transfer agencies and websites. In most technological areas, obtaining a patent is the most popular method of protecting R&D results, because of the economic benefits (Zhang, Xu, and Yang 2023). Therefore, patent documents are an important source of information on new technologies (Boschma, Balland, and Kogler, 2015). Nigerian universities can leverage on their patents to finance research activities through other sources of income including the monetization of important technology source to enterprises (Fusco, Lissoni, Martinez, and Sterzi, 2019). The reason why patent carries a smaller share of information sources may be owed to the fact that, patenting required more specialization, more equipment, more time, so fewer inventors could do it (Meyer, 2023). This outcome speaks to the fact that; Nigerian Government needs to pay attention to research funding in universities to boost, particularly, technological inventions, which often, require huge capital and usually, such outlay are out of reach for university dons.

Frequency Analysis of Inaugural Lectures (1994-2018) The distribution of ILs as shown in Table 4 were analysed in terms of five years' frequency. It was observed that the first IL dated back to 1994 and subsequently one IL per year until the last two years when two ILs were delivered. Followed by a little attention to ILs between 1999-2003 as nine (9) ILs were delivered within the second period of five years. It is notable that there was a drop from 2004 to 2008. However, the highest number of ILs was delivered between 2009 and 2013, having produced around 31.03% of the ILs. The period appeared to be the beginning of considerably stronger footing than the past years. The sharp increase in presentations of ILs between 2009 and 2018 under-scores the extent to which university management was determined to uphold academic traditions that no professors disembark from service without paying "their debt" to the university community in particular and the society in general. The fact that, at least, 3 ILs were delivered per year from 2009 onward suggests that many factors such as uninterrupted academic calendar might have been at play.

Limitations

Although this study analysed the authorship trend of professors who had given ILs in a Nigerian Federal University it does not give detailed information on the subject-contents of their ILs; neither does it contain the complete publication records of individual scientists. Our analysis was based on references cited within the IL publications since 1994-2018. The objective of our analysis consists of identifying concrete self-cited publications within an individual's research context which he had referred to as contributing to his research works in the IL. In addition, this study used one institution, a future study could include broader research that would compare institutions from around the nation.

Recommendations

This study's analysis was grounded in the references cited within inaugural lecture publications spanning 1994 to 2018 in Federal University of agriculture, Abeokuta. The primary objective of inquiry was to meticulously identify self-cited publications that each professor explicitly referenced as contributing to their research endeavours, as articulated within their ILs. In other words, our analysis, demonstrated how bibliometric methods can be used to investigate the authorial practices of inaugurated professors based on the information found on the reference list of ILs series. The outcome showed that works cited as references in ILs stretched back to different areas in the past, such as undergraduate students project, master dissertations and doctoral thesis. Most prevalent authorship pattern among the inaugurated professors was Lead or First authorship, suggesting that,

bulk of the research that culminated into scientific publications were initiated by the professors. This is not surprising because from the level of a senior lecturer, academics are supposed to carry out original research as well as mentor younger ones who are not experienced in scholarly publishing. Meanwhile, the share of single-authored papers found in the inaugural lectures were significant as well. They are indicator of ability to carry out independent research, leadership progression and alignment of research. It is noteworthy that over half (64.5%) of the references cited by the inaugurated professors were from other publications. This shows that they didn't just rely on their own research; they also tapped into a broad range of knowledge sources. This approach highlights the interdisciplinary aspects of their work and how it contributes to the bigger picture of scientific progress. The result of frequency of ILs presentations over the years has increased steadily, with a notable surge between 2009 and 2013. This implies that the inclusion of ILs within the scheme of academic routine shows compliance with best global practices.

Conclusion

The primary contribution of this study is the recognition of inaugural lectures (ILs) as a valuable repository of professors' research output. Although ILs may not encompass a professor's entire research output, they can serve as a proxy for their scientific output and provide insight into their research productivity. Hence, preservation of ILs is sacrosanct because they historic and original document that outlived the owners. Given their significance, ILs should be meticulously managed and preserved through institutional repositories. By preserving ILs, institutions can safeguard their academic legacy and provide a valuable resource for future research and scholarship.

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PERCEPTION OF LECTURERS ON TECHNOLOGY ADOPTION FOR TRAINING OF HEALTH INFORMATION MANAGEMENT STUDENTS IN INSTITUTIONS IN ONDO STATE, NIGERIA

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Abstract

With the increasing demand for technological proficiency among Health Information Management (HIM) graduates, there is a need for enhanced technological adoption in the training of HIM students to prepare them for the field. The study investigated lecturers' perceptions on technology adoption in the training of HIM students in selected institutions in Ondo State. Quantitative data were collected from the study. The population comprised of 50 HIM lecturers at the selected training institutions. A structured questionnaire was administered through Google Forms, and the data collected was analysed using descriptive and inferential statistics. The results revealed that the HIM lecturers adopt technology on an average level for the training of HIM Students. Most lecturers have a positive perception of technology usefulness, while perceived ease of use showed a positive and significant influence on the level of technology adoption. Additionally, regular use of technology in the preparation and delivery of course materials, and to communicate with students and other staff are effective strategies reported to enhance technology adoption and proficiency among the HIM lecturers. The study concluded that there is a need to institute effective strategies and enhance the user-friendliness of digital tools to enhance technology adoption by lecturers for the training of HIM students. *The study recommends the development of policies and protocols aimed towards higher adoption of technology in HIM training to ultimately improve the technological proficiency of HIM graduates.*

***Keywords**:* Health Information Management, Lecturers, Perception, Technology Adoption, Training

Introduction

In the evolving landscape of healthcare, effective management of health information plays a pivotal role in ensuring quality care delivery and patient outcomes. The integration of technology into health information management (HIM) practices has therefore become imperative to keep pace with the demands of modern healthcare systems. Particularly within educational settings, where future professionals are trained, the adoption and utilization of technology can significantly influence the development of competencies and skills among students. The 21st century is characterized as technology-dependent; hence, to function optimally within this tech-savvy environment, health information management students require certain technological skills. Tech-savvy lecturers can identify and explore a diverse array of technological tools and devices to select the ones that most effectively complement their teaching and learning materials. Lecturers in higher training institutions frequently use basic information technology skills to coordinate activities, communicate electronically, and create documents (Kotrlik & Redmann, 2009).

Technology adoption refers to an intentional and gradual switch over to the automation of educational processes, not only in administrative activities such as students' admission, registration, and evaluation (Basri *et al.*, 2018), but also in academic activities, including online delivery of lectures, submission of assignments, and administration of tests and examinations. Some of the emerging technologies in educational settings that can be explored in training health information management students include flipped classrooms, social media, asynchronous learning, adaptive learning algorithms, augmented reality, virtual reality, 3D printing, robotics, blackboard learning management system, micro-learning, artificial intelligence/robots, and remote teaching and learning through platforms such as Google Meet and Zoom. Technology adoption helps students to significantly improve not only their scores but also their industry readiness by expanding the information they can access about health information management practices. Also, the enhancement of the quality of teaching is facilitated by the adoption of technology (Mtebe & Raphael, 2018).

In Ondo State, Nigeria, several institutions of learning, such as the University of Medical Sciences, Ondo (UNIMED), Achievers University in Owo,

Ondo State College of Health Technology, Akure, and Millennium College of Health Technology, Akure, among others, are involved in the training of health information management professionals and advancing medical knowledge. These institutions provide diploma, undergraduate, and postgraduate programmes in health information management to address local and global health challenges through effective data management and healthcare service delivery.

This study investigated the lecturers' perceptions on technology adoption in the training of health information management students at selected institutions in Ondo state, Nigeria. Understanding this perspective is critical for discerning the current state, challenges, and opportunities associated with technology adoption in HIM training. The perception of lecturers towards technology adoption in HIM training is multifaceted, encompassing views on its impact on curriculum design, teaching methodologies, student engagement, and overall learning outcomes. By delving into the insights of these lecturers, this study seeks to elucidate key factors that either facilitate or hinder the effective incorporation of technology into HIM training.

Statement of the problem

The adoption of technology in Health Information Management (HIM) training programmes is crucial for equipping graduates with the necessary skills to succeed in today's healthcare environment. However, there is a significant gap between the technological requirements of the HIM field and the preparedness of HIM graduates. The researchers have observed instances of inadequate knowledge and limited technical skills demonstrated by HIM graduates during the application process for a higher degree and their performance of HIM-related functions on digital platforms. This deficiency appears to stem from insufficient technology adoption in the training programmes, leaving the graduates ill-equipped to utilise essential technological tools in their field.

To address the observed gap, it is essential to examine lecturers' perceptions regarding technology adoption in the training of HIM students. Understanding these perspectives is vital for identifying the underlying causes of the technology gap and developing targeted strategies to enhance technology integration in the HIM curriculum and training programmes.

Research objectives

The general objective of this study was to investigate lecturers' perception on technology adoption in training of health information management students in selected institutions in Ondo State. The specific objectives were to:

1. identify the level of technology adoption in the training of health information management students in selected institutions in Ondo State.
2. identify strategies to enhance technology adoption and proficiency among HIM lecturers in selected training institutions in Ondo State.
3. examine lecturers' perceived usefulness of technology adoption in health information management training in selected training institutions in Ondo State.
4. determine the influence of lecturers' perceived ease of use on the level of technology adoption in health information management training in selected training institutions in Ondo State.
5. assess the perceived barriers to effective technology adoption in training HIM students in selected institutions in Ondo State.

Literature Review

Educational technologies have continued to gain recognition among researchers globally. Shi (2016) outlines a broad array of "emerging educational technologies," including augmented reality, virtual reality, artificial intelligence, and live streaming services like Google Classroom and Zoom. These technologies are gaining traction, particularly as EdTech companies emerge to support remote and hybrid learning environments. For health information management students, tools such as Cengage, Google Classroom, and SMART Board can enhance training experiences.

The American Health Information Management Association (AHIMA) has been proactive in addressing technological challenges in academia, launching the e-HIM Virtual Lab in 2006 to improve Health Information Management (HIM) education (AHIMA Advantage, 2008). Despite the benefits these technologies offer, their adoption in developing countries, particularly in West Africa, remains limited. Opoku *et al.* (2016) highlighted that the region lags behind developed nations due to insufficient understanding and preparedness for technology integration in educational settings. Khasawneh (2015) further notes that many institutions in West Africa are not equipped to adopt these technologies.

In Nigeria, while awareness of emerging technologies among lecturers is increasing, actual usage remains low (Uzezi Idhalama *et al.*, 2024). Research

from Sauda Universities also shows that, although technology integration enhances the academic performance of female students, it does not significantly affect their decision to choose technology as a major (Basri *et al.*, 2018). Challenges such as inadequate facilities, negative attitudes, and insufficient supportive policies hinder technology adoption (Ahmed *et al*., 2023). Adeyemi and Awolusi (2021) emphasize that the skills and attitudes of lecturers play a crucial role in technology adoption.

Although educational technology is believed to enhance learning, quantifying its impact remains difficult (Cabaleiro-Cerviño & Vera, 2020). Shi (2016) advocated for digital training for lecturers and promoting student autonomy to maximize technology use. Historical literature demonstrates that technology can significantly improve academic performance by broadening access to information and enhancing the learning environment (Mtebe & Raphael, 2018).

Moreover, technologies such as Web 2.0 facilitate collaborative learning and knowledge sharing (Ikenwe *et al.*, 2019). Innovations like artificial intelligence and virtual reality offer personalized learning experiences and foster teamwork which are crucial for modern education (Hussain Bhat, 2024a). However, challenges persist in the adoption of technology in health information management. Factors such as user attitudes, inadequate infrastructure, and insufficient training contribute to resistance (Akinsola & Oyediran, 2020).

Theoretical Review

The Technology Acceptance Model (TAM), proposed by Davis in 1989, suggests that the acceptance of a computer system hinges on two factors: *perceived usefulness and perceived ease of use*. This model focuses on the user's perceptions, in this case, the lecturers' perception. Even if a technology creator views a product as useful and user-friendly, it will not be accepted by potential users unless they hold similar beliefs. `

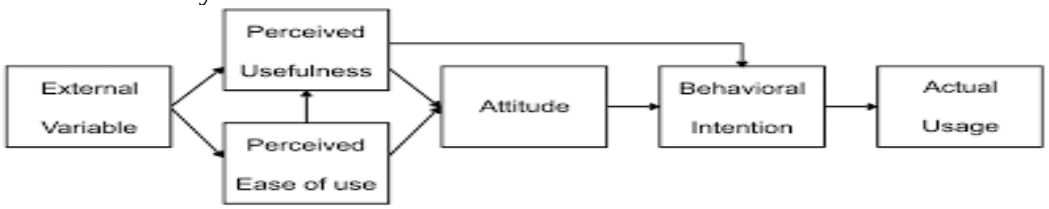


Figure I Technology Acceptance Model

The Unified Theory of Acceptance and Use of Technology (UTAUT) theoretical model posits that the utilization of technology is influenced by behavioural intention. Adoption likelihood is perceived based on the direct impact of four key factors: performance expectancy, effort expectancy, social influence, and facilitating conditions. Various predictors such as age, gender, experience, and voluntariness of use moderate these effects.

Overall, UTAUT offers a comprehensive framework for understanding technology acceptance, depicting a sophisticated interplay of individual characteristics and environmental factors in the adoption process (Marikyan & Papagiannidis, 2023).

Methodology

The study employed a descriptive cross-sectional survey research design of correlational type using a quantitative approach, which involves a systematic and comprehensive collection of data. The study was conducted among institutions offering health information management training in Ondo State. The study population was 50, comprising lecturers involved in the teaching of health information management students at the training institutions. Due to the relatively small and easily manageable population size, the total enumeration method was adopted. The data collection instrument was an adapted structured questionnaire deployed to the respondents through Google Forms.

The settings of the Google Form were configured to maintain response confidentiality and ensure respondent's anonymity. The survey's consent page outlined the study's purpose, stressed voluntary participation, assured respondents of response confidentiality, and sought their consent to partake in the study through a tick on a checkbox. Data collected was analysed using Stata Package (version 14) for descriptive (frequency, percentages, mean and standard deviation, to address objectives i, ii, iii and iv) and inferential (simple linear regression, to address objective v) statistics. The response rate was 92% and a cut-off point of 2.5 was used as the decision point in the four-point Likert scale of the research instrument.

Results and Discussion

Level of Technology Adoption for the Training of Health Information Management Students in Institutions in Ondo State, Nigeria

The first objective of the study sought to identify the level of technology adoption for the training of Health Information Management students in Ondo

State, Nigeria. Respondents were provided with options to enhance the actualization of the objectives.

Table 1: Level of Technology Adoption in the Training of Health Information Management Students in Selected Training Institutions in Ondo State

S/N	Survey Items for the level of technology adoption	Very High Extent Freq (%)	High Extent Freq (%)	Low Extent Freq (%)	Very Low Extent Freq (%)	Mean	Std. Dev.
1	I design learning activities that result in my students being comfortable using technology in their learning.	8 (17.39)	25 (54.35)	10 (21.74)	3 (6.52)	2.83	0.79
2	I regularly pursue innovative ways to incorporate technology into the learning process for my students.	13 (28.26)	26 (56.52)	7 (15.22)	-	2.87	0.65
3	I incorporate technology in my teaching to such an extent that it has become a standard learning tool for my students.	6 (13.04)	22 (47.83)	14 (30.43)	4 (8.70)	2.65	0.82
4	I assign students to use the computer to do content-related activities regularly.	6 (13.04)	16 (34.78)	18 (39.14)	6 (13.04)	2.52	0.88
5	I discuss with my students how they can use technology to enable them to be self-directed learners.	13 (28.26)	28 (60.87)	3 (6.52)	2 (4.35)	3.13	0.72

Grand Mean	2.70	

Source: Researcher's Computation (2024)

Table 1 presents the respondents' opinions on the level of technology adoption in HIM training in institutions in Ondo State, Nigeria. The overall grand mean of 2.7 on a 4-point scale showed that the level of technology adoption among lecturers in the selected training institutions can be described as near-high adoption. The findings revealed that the majority of the respondents,89.13% discuss with their students how they become self-directed learners using technology (mean =3.13 ±0.72); this suggests that the respondents are quite knowledgeable about technology and have positive perceptions about its usefulness. Meanwhile, only a few of the respondents, 47.8% assign students to use the computer to do content-related activities on a regular basis (mean=2.52±0.88); this confirms that technology is not fully adopted or maximized by the respondents in their various institutions. Lastly, majority of the respondents,71.74% adopt technology in designing learning activities and regularly pursue innovative ways to incorporate technology into the learning process for their students (mean=2.83±0.79). Overall, the findings indicated a near-high level of technology adoption for the training of Health Information Management students in institutions in Ondo State, Nigeria.

Strategies to enhance technology adoption and proficiency among HIM lecturers in training institutions in Ondo State

The second objective of the study aimed to identify effective strategies for improving technology adoption and proficiency among Health Information Management lecturers in selected institutions in Ondo State. Respondents were presented with a range of strategic options to select from.

Table 2 Strategies to enhance technology adoption and proficiency among HIM lecturers in training institutions in Ondo State

S/N	Survey Items on Strategies for Technology adoption and proficiency	Very High Extent Freq (%)	High Extent Freq (%)	Low Extent Freq (%)	Very Low Extent Freq (%)	Mean	Std. Dev.
1	By using technology in the preparation of	19 (41.30)	25 (54.35)	2 (4.35)	-	3.37	0.51

	course materials						
2	By using technology in communicating with students and other faculty's	13 (28.26)	31 (67.39)	2 (4.35)	-	3.23	0.52
3	Using technology in delivering learning materials	12 (26.08)	32 (69.57)	2 (4.35)	-	3.22	0.51
4	By appraising lecturers' technological skills for promotion	10 (21.74)	23 (50.00)	7 (15.22)	6 (13.04)	2.80	0.93
5	By enacting an institutional policy that mandates technology adoption in teaching	15 (32.61)	23 (50.00)	8 (17.39)	-	3.15	0.69

Source: Researcher's Computation (2024)

As shown in Table 2, most of the respondents, 95.65% agreed that their technology adoption and proficiency would be enhanced if they inculcated technology in the preparation of course materials (mean =3.37 ±0.51), in delivering their lectures (mean =3.22 ±0.51), and if the lecturers use technology in communicating with students and other faculties, (mean =3.24 ±0.52). In addition, 71.74% of the respondents opined that the technology adoption of lecturers will be enhanced if their technology skills are appraised before promotion (mean = 2.80 ±0.93); this suggests that institutional interventions would be necessary to enhance the adoption of technology among lecturers.

Perceived usefulness of technology adoption in health information management training

The third objective sought to assess the perceived usefulness of technology adoption in the training of Health Information Management (HIM) students within selected institutions in Ondo State, Nigeria. Respondents were provided with various options reflecting the perceived benefits of technology adoption in HIM training. Table 3 illustrates the responses to these options,

highlighting the respondents' overall perceived usefulness of technology adoption in the training of Health Information Management (HIM) students.

Table 3 Perceived usefulness of technology adoption in health information management training in the selected training institutions in Ondo State

S/N	Survey Items on Perceived usefulness of technology adoption	SA Freq (%)	A Freq (%)	D Freq (%)	SD Freq (%)	Mean	Std. Dev.
1	Using technology in my job would enable me to accomplish task more quickly.	24 (52.17)	20 (43.48)	2 (4.35)	-	3.60	0.49
2	Using technology would improve my job performance.	24 (52.17)	17 (36.96)	5 (10.87)	-	3.52	0.72
3	Using technology would increase my job productivity.	26 (56.52)	20 (43.48)	-	-	3.56	0.58
4	Using technology would enhance my effectiveness on the job.	25 (54.35)	19 (41.30)	2 (4.35)	-	3.58	0.49
5	Using technology would make it easier to do my job.	29 (63.04)	15 (32.61)	2 (4.35)	-	3.5	0.58

Source: Researcher's Computation (2024) Key: SA=Strongly Agreed, A=Agreed, D=Disagreed, SD=Strongly Disagreed

Table 3 presents respondents' opinions on the perceived usefulness of technology adoption in health information management training in the selected training institutions in Ondo State, Nigeria. Generally, the data showed that the respondents have a strong positive perception that technology adoption is useful for the training of HIM students. 95.6% of the respondents agreed that using technology in their jobs would enable them to accomplish tasks more quickly (mean =3.60 ±0.49). Similarly, 95.6% of the respondents believed their effectiveness on the job as lecturers would be enhanced using technology (mean =3.58 ±0.49). The majority of the respondents, 95.65% also believed that using technology would make it easier to do their job (mean =3.5 ±0.58).

Influence of lecturers' perceived ease of use on the level of technology adoption in the training of health information management students in selected institutions in Ondo State, Nigeria

This fourth objective assessed the influence of lecturers' perceived ease of use on the level of technology adoption in the training of Health Information Management (HIM) students within selected institutions in Ondo State, Nigeria. Respondents were provided with various options regarding the ease of use of technology in their training processes. Table 4**:** Ordinary Least Square Regression

Source	SS	df		MS
Model	8.22183794	1		8.22183794
Residual	16.1477273	44		.36699380
Total	24.3695652	45		.54154589
Level of Technology Adoption	Coef.	Std. Err.	t	P>|t|
Perceived Ease of Use	0.7329	0.1548	4.73	0.000
_cons	0.1477	0.5592	0.26	0.793
F(1, 44)	= 22.40	Prob > F	= 0.0000	
R-squared	= 0.3374	Adj R-squared	= 0.3223	

Table 4 shows the results of the simple linear regression conducted to examine the fourth objective of the study. The results indicated that the total sum of squares associated with the three sources of variance is 8.2218. Notably, the majority of this variance is attributed to the error term, which accounts for 16.147. This suggests that a substantial portion of the variance is not explained by the independent variables in the model. The degrees of freedom associated with these sources of variance is one, as the model considers only perceived ease of use as the predictor.

Additionally, the analysis demonstrates that the specified model, which examines the linear relationship between perceived ease of use and the level of adoption of technology in Health Information Management (HIM) training models, is statistically significant. This is evidenced by an F-statistic of 22.40 and a p-value of 0.0000, indicating that the model is a good fit for the data.

Furthermore, as shown in Table 4, the R-squared value of 0.3374 indicates that perceived ease of use accounts for 33.74% of the variation in the level of technology adoption in HIM training institutions in Ondo State. This overall result demonstrates that the indicators of perceived ease of use have a positive and significant influence on the level of technology adoption in the training of health information management students in Ondo State.

The individual results for the variables as shown in Table 4 revealed that perceived ease of use has a coefficient value of 0.7329, t-statistics of 4.73 and probability value of 0.000. This indicates that for every unit increase in the perceived ease of use of technology, the level of its adoption for training improves by 0.1477.

Perceived Barriers to Effective Technology Adoption in Training HIM Students in Selected Institutions in Ondo State, Nigeria

The fifth objective of the study was to identify the perceived barriers to effective technology adoption in the training of Health Information Management (HIM) students in selected institutions in Ondo State. Respondents were presented with a range of options regarding potential challenges that could hinder technology adoption. The responses are summarized in Table 5, illustrating the various barriers identified by the respondents.

Table 5 Perceived Barriers to Effective Technology Adoption in Training of HIM Students in Selected Institutions in Ondo State

S/N	Survey Items for Barriers to Effective Technology Adoption	SA Freq (%)	A Freq (%)	D Freq (%)	SD Freq (%)	Mean	Std. Dev.
1	Reduction in students' concentration span, attention and anti-social behaviour is a challenge to the adoption of technology in my teaching.	10 (21.74)	17 (36.96)	19 (41.30)	-	2.804	0.77
2	Poor internet	14	20	12	-	3.043	0.75

	facilities and resources in my institution is a challenge to the adoption of technology in my teaching	(30.43)	(43.48)	(26.09)			
3	Fear of internet and electronic insecurity (hacking) is a challenge to the adoption of technology in my teaching	8 (17.39)	7 (15.22)	25 (54.35)	6 (13.04)	2.369	0.92
4	Computer illiteracy and limited technical support is a challenge to the adoption of technology in my teaching	4 (8.70)	17 (36.96)	11 (23.91)	14 (30.43)	2. 760	0.88
5	Unstable electricity supply is a challenge to the adoption of technology in my teaching	4 (8.70)	4 (8.70)	24 (52.17)	14 (30.43)	3.043	0.72

Source: Researcher's Computation (2024)

Table 5 shows that poor internet facilities/resources (mean = 3.043±0.75) and unstable electricity supply (mean = 3.043±0.72) in studied institutions were identified by the respondents as the major barriers to their adoption of technology. This was followed by the reduction in students' concentration span, attention and anti-social behaviour (mean =3.043±0.72), computer illiteracy and limited technical support is another challenge indicated by respondents (mean 2.760±0.88). Interestingly, the fear of the internet and electronic insecurity (hacking) was the least rated barrier to technology adoption (mean =2.369±0.92).

Discussion of Findings

As revealed in this study, technology adoption by lecturers involved in the training of HIM students in selected institutions in Ondo State, Nigeria was at a near-high level. This depicts a moderate adoption status and provides a strong foundation for identifying barriers and putting forward strategies to encourage optimal and consistent use of technology in HIM training institutions. This level of adoption signifies that most lecturers believe in the use of technology in training HIM students but may have not fully adopted technology for this purpose. Generally, lecturers concur with the usefulness of designing learning activities in a way that makes students comfortable using technology and regularly pursuing innovative ways to incorporate technology. This suggests that most lecturers in these institutions are knowledgeable about technology for training HIM students. However, not all faculties in universities have adopted technology for this purpose (Kotrlik and Redmann, 2009).

With regards to strategies to enhance technology adoption and proficiency among HIM lecturers, the study's findings indicated that there is a need for more improvement in technology adoption and proficiency through suggested strategies such as using technology in the preparation of course materials, communicating students and other faculties, and teaching of learning materials. These findings align with the report of Uzorka *et al.* (2023), which noted that the use of technology in the preparation, communication, and delivery of learning materials enhances technological proficiency.

Nevertheless, the study findings also depict that when the lecturers have a clear understanding of technology and find it easy to use, there will be little to no hesitation to incorporate technology in the learning process of the students. More so, the regular pursuit of innovative ways to incorporate technology in the learning process of students during their training is a function of easiness of the lecturers to operate technology. Furthermore, the study findings connote that perceived ease of use significantly influences technology adoption in health information management (HIM) training by lecturers. Thus, while perceived ease of use is crucial, a broader examination of additional factors is necessary for a complete understanding of technology adoption in selected training institutions in Ondo State.

With regards to the identification of perceived barriers to technology adoption for the training of HIM students in Ondo State, the lecturers acknowledged poor internet facilities and resources, unstable power supply at their institutions, reduction in students' attention span and increase in their anti-

social behaviour as the most prominent challenges. While power and internet challenges are pervasive in the country, many academics continue to explore ways to manoeuvre the various challenges debarring the incorporation technology of into their work. Nevertheless, HIM lecturers could need more orientation on how to ameliorate these challenges and deal with technological distractions among students. The findings are in resonance with the findings of Mbazu *et al.* (2023) who also highlighted constraints such as poor internet services, poor electricity and anti-social behaviour as challenges to technology adoption in higher education institutions in Nigeria. The identified barriers in this study also corroborate the findings of a report from Pakistan, which recommended high-speed internet facilities at departments' computer labs, offices, libraries, hostels and homes to improve the searching skills of lecturers (Afridi & Chaudhry, 2019).

Conclusion

This study concludes that lecturers at HIM training institutions in Ondo believe there is a need to institute effective strategies to improve technology adoption for the training of HIM students in the state. While the lecturers demonstrate a moderate level of technology adoption for the training of Health Information Management (HIM) students, they have positive perceptions regarding the usefulness of technologies for training purposes. However, technological products with higher ease of use (user-friendliness) would potentially receive higher adoption and integration for educational purposes than those that are less user-friendly.

Improvement in technology adoption for the training of HIM students could be achieved through consistent engagement with digital tools to foster proficiency among HIM lecturers and students. Nevertheless, the maximal utilization of the technological tools would depend on how well the identified challenges are addressed through innovative solutions that can enhance the teaching and learning environments.

Recommendations

Based on the findings of this study, the following recommendations are suggested to improve technology adoption for the training of HIM students by lecturers at selected institutions in Ondo State, Nigeria. : in the selected institutions in Ondo State, Nigeria:

1. Staff unions should advocate for improved internet facilities and reliable power supply in educational institutions, while institutional leadership should

collaborate with local government and private sector partners to invest in necessary infrastructure upgrades.

2. Departmental Heads and educational authorities should implement regular training programmes for HIM lecturers focused on the effective use of technology in teaching. This should include mentoring, workshops on digital communication tools and e-learning platforms to enhance their skills and confidence.
3. HIM Lecturers and Curriculum Development Committees should incorporate technology seamlessly into the curriculum. The curriculum should include assignments and projects that require students to use various technological tools, fostering a tech-savvy learning environment.
4. Department Heads and Faculty should establish a feedback system where lecturers can share their experiences with technology use in teaching.
5. Institutional Leadership should create policies that support technology adoption, including providing necessary resources, incentives for adopting new technologies and recognizing innovative teaching practices.

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UTILISATION OF ELECTRONIC THESES AND DISSERTATIONS FOR RESEARCH BY POSTGRADUATE STUDENTS OF AHMADU BELLO UNIVERSITY ZARIA, NIGERIA

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Abstract
The study investigated the Utilization of electronic theses and Dissertations for Research by postgraduate Students Ahmadu Bello University Zaria. The specific objective was to identify the purpose of utilizing electronic theses & dissertations by postgraduate students of Ahmadu Bello University Zaria and it also investigated the extent of the utilization of electronic theses & dissertations for research by postgraduate students of Ahmadu Bello University Zaria, the study is quantitative and Cross-Sectional Survey research design method was be adopted for the study. Questionnaire on utilisation of electronic theses and Dissertations for Research by postgraduate Students Ahmadu Bello University Zaria (QUETDRO) with 0.912 reliability coefficient was the only instrument used for the study, targeted 320 respondents selected through stratified proportional random sampling technique from a population of 1,964 Postgraduate Students from three (3) Faculties of Ahmadu Bello University Zaria. Data from the survey was analysed using descriptive and inferential statistics of SPSS. Frequency distribution tables and percentages were used for the descriptive statistics. While Findings from the study revealed that the main purposes for utilizing ETDs by postgraduate students of Ahmadu Bello University Zaria include learning, examination preparation, seminar preparation theses or dissertation writing in that order. The study concludes that it is obvious that Ahmadu Bello University Zaria has enough ETDs in its repository and the resources are meant more for research and academic purposes and recommended that the use of ETDs has many purposes of which some postgraduate students are not aware, such as entertainment and for group discussions, therefore there should be adequate awareness on the several uses of ETDs for research purposes and the greatest

challenge hindering ETDs utilization is Inadequate Internet search skills, Therefore all postgraduate should undergo compulsory course on how to use the various search engines to source for students information electronically.

Keywords: Utilization, Electronic Theses and Dissertations, Postgraduate Students

Research, Ahmadu Bello University

Introduction

Electronic Theses and Dissertations (ETDs) are regarded as the bedrock of graduate education. As a secondary source of information, ETDs are known to be the rich and unique source of information. Often the only source for research work that does not find its way into various publication channels. Electronic theses and dissertations (ETDs) are a relatively new mode of research and scholarly communication. Lippincott states that an ETD program provides a process, standards, and software to automate functions, as well as a digital infrastructure for access and preservation (Lippincott, 2006). As a primary source of information, theses and dissertations are particularly useful to researchers, but many languish in obscurity in university libraries and archives. Digital library technologies have helped ETDs gain momentum (Jin, 2004). Theses submitted in support of a PhD are difficult to access, as they are only collected by the library of the university that granted the degree. ETDs can be easily located, readily accessible, and delivered over the Web (Vijaykumar and Murthy, 2001).

Electronic theses and dissertations (ETDs) are similar to traditional theses but more appropriate for worldwide access and retrieval with the help of computers, tablets, mobile phones and so on. Depending on the nature of accessibility provided, ETDs can be accessed anytime, anywhere. It helps in increasing the visibility of the individual researcher as well as the institution involved in the research work (Fox, Macmilliam & Srinivasam 2009). An electronic Thesis and Dissertation environment is enabled by the widespread application of information and communication technologies (ICTs) in the universities for effectiveness and efficiency in the research process (Ani, 2013).

According to the Networked Digital Library of Theses & Dissertations NDLTD (2009), Electronic Theses and Dissertations (ETDs) can be accessed on the web in full or partial-text. Theses and dissertations ETDs are documents that are created as an electronic document (or set of electronic documents), the electronic documents that make up ETDs can be created using any popular word

processing software program. One can also use advanced software programs which include Windows Media Player, VLC Media Player, iTunes, Winamp, IPTV Smarters, Media Player Classic, MediaMonkey, Foobar2000 AIMP and JRiver Media Center to produce multimedia animations and Sounds for use in an electronic version of theses and dissertations.

In the past, researchers were not able to utilise all the scholarly literature (theses and dissertations) published across the world due to inadequate communication technology facilities. With the advent of information and communication technology (ICT), this problem is solved to a large extent and the results of the research going throughout the world is made available to the public without any restriction (Ahmed, 2017). Today's Technology has advanced so fast providing newer and effective solutions to many of our problems. Electronic theses and dissertations (ETDs) is one such technology which can enhance the management of theses and dissertations in libraries. The submission of theses and dissertations in electronic format has expanded the opportunity for the user community to have an entrance to the knowledge implanted in these works through different national and international ETDs and databases. ETD documents gives procedures, standards and software to automate functions, and additionally a digital infrastructure for the utilization and preservation of theses and dissertations (Lippincott, 2006). One of the basic goals of a university is to provide an enabling environment for the conduct of research and dissemination of knowledge for societal development. Therefore, this study focused on the utilisation of electronic theses and dissertations for research by postgraduate students of Ahmadu Bello University Zaria.

Statement of the Problem

Utilization of scholarly publications like theses and dissertations is key to research and development of postgraduate students in Universities. Essentially, universities are the centers for the generation and propagation of knowledge through research towards nation building. Past submitted theses and dissertations that are in electronic version have helped postgraduate students to achieve this by overcoming the delay that has been established by the use of library's manual systems. E-theses and dissertations have to some extent perfected efficiency in information dissemination and providing easy utilize offline and on the web (Online) that are freely available on the internet. It has been universally acknowledged that the quality of academic research theses and dissertations is

traceable to the quality of available electronic theses and dissertations therein in an Academic environment (Ani, 2013).

Despite massive investment on institutional repository for housing and dissemination of electronic theses and dissertation, observation made by the researcher and literature revealed that postgraduate students face difficulties when utilizing electronic theses and dissertations for research in Ahmadu Bello University Zaria. In Nigeria, the utilization of electronic theses and dissertations are affected due to factors which include among others difficulties when utilizing theses and dissertations, awareness of the existence of open electronic theses and dissertation websites, copy right issues, policy and many others. As such, these will affect the quality and productivity of research particularly at the university level.

This could lead to an overreliance on print theses and dissertations that are becoming overstretched due to the increasing population of postgraduate students. Hence, the study intends to find out the utilization of electronic theses and dissertations for research by postgraduate students in some selected faculties in Ahmadu Bello University Zaria, Kaduna state Nigeria.

Research questions

The following research questions were answered:

1. What are the purposes of utilizing electronic theses and dissertations by postgraduate students of Ahmadu Bello University Zaria?
2. To what extent do postgraduate students of Ahmadu Bello University Zaria utilize electronic theses and dissertations for research?

Literature Review

A study by Saturday, Madukoma, Bamidele etal (2012) conducted a study on the utilization of Electronic Information Resources and Research Output by Academic Staff in Private Universities in Ogun State, Nigeria. The study examined the use of electronic information resources and research output by academic staff in private universities in Ogun state, Nigeria. Three private universities were selected out of the nine private universities in Ogun state. The purposive sampling method was used to investigate respondents. The instrument used for data collection was a structured questionnaire. The study revealed that most of the academic staff from the three private universities knew and used electronic information resources for their research work as most of respondents

from the three private universities have published their articles and presented papers with the use of electronic information resources, effective use of electronic information resources contribute to the academics' research output hence and It is imperative to state here that lack of personal computer and erratic power supply among others are major constraints that inhibit use of electronic information resources in the three private universities which invariably affects their research output.

According to Edem and Egbe (2016) in their study on the Availability and Utilization of Electronic Resources by Postgraduate Students in a Nigerian University Library, five research questions and a single hypothesis were formulated to guide the study. Descriptive survey was adopted and the population of the study was two thousand, seven hundred and twenty six, while a sample of four hundred postgraduate library users were selected through stratified sampling; Questionnaire was the main instrument used for data collection. Pearson Correlation Coefficient (r) was the statistical analysis technique adopted to test the hypothesis under study at 0.05 level of significance. The result of the analysis revealed that electronic resources were available in Unical Library and P.G. students utilized them. However, online databases were underutilized. The University Library had e-journals, ebooks and access to databases and Internet resources. E-journals were the most often used electronic resources. Lack of computer skills, slow network, inconsistent internet connectivity, power outage and irrelevant electronic information resources were the problems postgraduate students encountered while accessing and using electronic resources in Unical Library. Based on the findings, the following recommendations were made: adequate budgetary allocation should be given to the University Library for subscription to online databases and acquisition of electronic books, more relevant open access databases should be made accessible to users, creation of awareness on the available electronic resources in Unical Library, installation of inverter and battery system in the Electronic Library, and organising users education for better use of electronic resources in Unical Library.

Ahmad (2017) investigated awareness and utilization of institutional digital repositories by Postgraduate Students of the Faculty of Science, Ahmadu Bello University Zaria. The study achieved the following objectives; To find out the extent of awareness of the institutional digital repository, to identify the factors motivating the utilization of the Institutional Digital Repository, to find out the extent at which the institutional digital repository is being utilized by the

Postgraduate Students and to identify the challenges of utilization of the institutional digital repository by the Postgraduate Students The study adopted a quantitative method for data gathering. A questionnaire was the only instrument used for the study; a stratified proportional random sampling technique was used. Data from the survey was analysed using descriptive and inferential statistics of SPSS. The study discovered that the Awareness of the Institutional Digital Repository by Postgraduate Students of the Faculty of Science Ahmadu Bello University Zaria was very low so also the utilisation of the institutional digital repository, and free access to the IDR was the major motivator of utilization of IDR in A.B.U. Zaria by Postgraduate Students of the Faculty of Science that were opportune to be aware of the IDR.

Saka, Yusufu and Mommoh (2021) work on digital preservation, accessibility, and use of electronic theses and dissertations in university libraries in Nigeria. It adopted a documentary research approach to highlight a critical examination of the various aspects of digitization (to provide electronic information services) as practised by various university libraries and some library schools in Nigeria. use of ETDs includes inadequate information and communications technology (ICT) facilities, low ICT proficiency, and erratic power supply. Attama (2013) determines library resources utilization and publication output of academic staff of Polytechnics in Southeast and South-South Nigeria; the design of this study was an Ex post facto design type of survey research. Okon, Ani, Ngulube, and Onyancha (2015) study the perceived effect of accessibility and utilization of electronic resources on the productivity of academic staff in selected Nigerian universities. A quantitative research approach was adopted for the study with a survey as research method. Data were collected for the study with a self-reporting questionnaire. Regression analysis in the study revealed that accessibility and use of electronic resources had a significant perceived positive effect on research productivity at the surveyed Nigerian universities. it is recommended that the effective development of digital libraries in Nigerian universities would ameliorate the problems of accessibility and utilization of electronic resources by academic staff in research.

Methodology

This study is quantitative in nature and aims in collecting information from a sample of the population such that the results are representative of the population. Cross Sectional Survey research design method was adopted for this study, because it ideal and capable of providing accurate and comprehensive data.

This study targets the population of one thousand nine hundred and sixty-four (1,964) Registered Postgraduate Students that carryout research from the Three (3) Faculties in Ahmadu Bello University, Zaria between the 2018 to 2019 academic calendars. The three faculties were randomly selected from 17 Faculties in Ahmadu Bello University Zaria. Sample size of 320 Postgraduate Students were selected from a population of 1,964 Postgraduate Students using Krejcie and Morgan sample size table, The research adopted Cluster sampling technique. Questionnaire on utilization of electronic theses and dissertations on research (QUETDRO) by postgraduate students of Ahmadu Bello University, Zaria was adopted by the researcher. The data collected from the administration of the instrument was analyzed using appropriate statistical tools such one-way Anova at $P \leq 0.05$ level of significant differences in order to the research question.

Result and Discussion

Table 1: Purpose of utilizing electronic theses and dissertations by postgraduate students of Ahmadu Bello University Zaria on the university

S/No.	Items	Yes	No	Mean	std	RANK
1.	Learning	228	69	0.77	0.423	1
2.	Personal Research	191	106	0.64	0.480	2
3.	Examinations Preparation	153	144	0.502	0.501	5
4.	Group Discussion	94	203	0.32	0.466	9
5.	Entertainment	58	239	0.20	0.397	10
6.	Seminar Preparation	169	128	0.57	0.496	3
7.	Class Note	125	172	0.42	0.495	7
8.	Theses or Dissertation Writing	167	130	0.56	0.497	4
9.	Lecture Note Preparation	103	194	0.35	0.477	8
10.	Professional Growth	139	158	0.47	0.500	6

11.	Workshop Preparation	117	180	0.39	0.489	11
12.	Not at all	7	290	0.02	0.152	12
Cumulative Mean 0.43433						
Decision/standard mean =0.500						

The table above showed the Purpose of utilizing ETDS. It showed that the ETDs level of general utilization for the above purposes is quite low as the general/cumulative mean of 0.434 is below the 0.5 Decision mean. However, the main purpose of utilization ETDs is for learning as this rank first with a total of 228 that said YES they access the ETDs for this purpose as against 69 that said they NO to utilization it for this purpose. In the same vein, another purpose for utilizing ETDs is for examinations preparations as a total of 191 said YES as against 106 that said NO to this purpose. Also, the third main purpose for utilizing ETDs is for seminar preparation as details showed that while 169 said YES, the rest 128 said NO to this purpose. In summary the main purposes for utilizing ETDs include learning, examination preparation, seminar preparation theses or dissertation writing in that order.

Table 2: Extent for postgraduate students of Ahmadu Bello University Zaria utilizes electronic theses for research.

S/No.	ITEMS	HU	U	NU	RU	NU	Mean	STD	Rank
ELECTRONIC THESES									
1.	Abstract	152	78	47	2	18	4.16	1.105	1
2.	Preliminary pages	88	112	49	13	35	3.69	1.267	3
3.	Chapters	143	61	37	18	38	3.85	1.409	2
4.	Appendix	102	87	41	11	56	3.57	1.465	
5.	Complete theses	104	81	65	10	37	3.69	1.317	3
Cumulative Mean 3.792									
Decision /Standard Mean =3.00									
S/No.	**ITEMS**	**HU**	**U**	**UD**	**RU**	**NU**	**Mean**	**STD**	**Rank**
ELECTRONIC DISSERTATION									

1.	Abstract	168	64	28	11	26	4.13	1.258	1
2.	Preliminary pages	110	100	28	14	45	3.73	1.396	3
3.	Chapters	127	82	34	14	40	3.81	1.384	2
4.	Appendix	105	95	39	11	47	3.67	1.399	5
5.	Complete dissertation	105	78	63	24	2	3.71	1.275	4
Cumulative Mean 3.81									
Decision Mean =3.00									

Keys: HU: Highly Utilizes, U: Utilize, UD: Undecided, RU: Really Utilizes, NU: Not Utilizes

The table above shows, the extent postgraduate students of Ahmadu Bello University Zaria utilize electronic theses for research is very high. Reason being that the cumulative general mean of 3.792 is above the 3.000 decision/standards mean. Specifically, they utilize it for Abstract to the highest extent as this has the highest mean of 4.16 as details showed that 152 highly utilize it while 78 utilize as against 47 that were undecided while 2 rarely utilize it and the rest 18 do not utilize it. Again, they utilize chapters with the electronic theses for research to a high extent as this attract the second highest mean of 3.85 as details sowed that while 143 highly utilize it, 61 utilize it as against 37 that were undecided while 18 rarely utilize it and the rest 38 do not utilize it. In summary, the extent postgraduate students of Ahmadu Bello University Zaria utilize electronic theses for research is very high. Additionally, the outcome of the table above, the extent postgraduate students of Ahmadu Bello University Zaria utilize electronic dissertation for research is very high. Reason being that the cumulative general mean of 3.792 is above the 3.000 decision/standards mean. Specifically, they utilize it for Abstract to the highest extent as this has the highest mean of 4.13 as details showed that 168 highly utilize it while 64 utilize as against 28 that were undecided while 11 rarely utilize it and the rest 26 do not utilize it. Again, they utilize chapters with the electronic theses for research to a high extent as this attract the second highest mean of 3.81 as details sowed that while 127 highly utilize it, 82 utilize it as against 34 that were undecided while 14 rarely utilize it and the rest 40 do not utilize it. In summary, the extent postgraduate students of ABU utilize electronic dissertation for research is very high especially in Abstract and Chapters. This corroborates the findings of Attama (2013) and Okon, Ani, Ngulube & Onyacha (2015) that publication of perceived effect of accessibility

and utilisation of ETDs on productivity of academic staffs in some selected Nigerian University. However, the result was not favorable as the number of respondents that have published articles with the use of ETDs were less than 50% of the total respondents in each of the population.

Summary of the Findings

Arising from this research below are the following findings; On the basis of the outcome of the study, the following summary are presented.

1. The main purposes for utilizing ETDs by postgraduate student of Ahmadu Bello University Zaria include learning, examination preparation, seminar preparation theses or dissertation writing in that order and the ways of accessing electronic theses and dissertations for research, is quite high especially through their phones and through their ETDs.

3. The extent do postgraduate students of Ahmadu Bello University utilize electronic theses dissertation for research, is high especially as most utilizes Abstract and complete dissertation.

Conclusion

It is obvious that Ahmadu Bello University Zaria has enough ETDs in its repository and the resources are meant more for research and academic purposes. Nevertheless, most postgraduate students particularly Masters Student of the University are not aware of the existence and important of the available electronic information resources provided, hence do not patronize the resources and services. It is imperative that postgraduate students are not properly sensitized and enlightened about the availability ETDs databases provided. The researcher is of the opinion that the use of ETDs by the postgraduate students of Ahmadu Bello University Zaria in particular and other Nigerian universities in general is not only inevitable but sacrosanct.

Recommendations

Based on the findings, the following recommendations were made:

1. The use of ETDs has many purposes to which some Postgraduates students are not aware about, such as entertainment and for group discussions, therefore there should be adequate awareness on the several uses of ETDs for research purposes.
2. There is gross Lack of awareness of the existence of open free e-theses and dissertations among the post graduate students. The school management should as a matter of necessity make available all open free

e-theses and dissertations to them during orientation and at the point of registration.

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ADOPTION OF TELEMEDICINE SERVICES BY MEDICAL PROFESSIONALS IN SELECTED HOSPITALS IN ZARIA METROPOLIS, KADUNA STATE, NIGERIA

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Abstract

This study was carried out to investigate the 'Adoption of Telemedicine Services by Medical Professionals in Selected Hospitals in Zaria Metropolis, Kaduna State, Nigeria. Three research questions were raised; What is the current level of awareness among Medical Professionals regarding Telemedicine in Zaria Metropolis Kaduna State Nigeria?, What are the level of ethical, legal and regulatory considerations associated with the use of Telemedicine in Zaria Metropolis Kaduna State Nigeria? and What are the key challenges and barriers to the use of Telemedicine in Zaria Metropolis Kaduna State Nigeria? The study used Quantitative Methodology and Cross-Sectional Survey Design to carry out the research among various Medical Professionals using a sampling frame obtained from a list of selected Hospitals located in and around Zaria Metropolis Kaduna State, Nigeria, from 2022-2023. Proportionate Stratified Sampling technique was used in this study. The study revealed that majority of Medical Professionals are fully aware of Telemedicine in Zaria Metropolis even though they do not utilize it on daily basis, also that majority of Medical Professionals in Zaria Metropolis seek informed consent of patients while utilizing Telemedicine and that Patient privacy and confidentiality is protected and that Limited access to technology and privacy and security concerns are the major challenges hindering the utilization of Telemedicine by Medical Professionals in Zaria Metropolis. The study concluded that Utilization of Telemedicine by Medical Professionals in Zaria Metropolis has a number of benefits, including increased access to Medical Care, improved quality of Medical Care, reduced costs, increased efficiency and effectiveness, improved patient satisfaction, and the potential to revolutionize the delivery of Medical Care in Zaria Metropolis even

though there are some challenges that needed to be looked at. The following recommendations where made; that Efforts should be made to encourage the use of Telemedicine by Medical Professionals in Zaria Metropolis on daily basis due to the numerous benefits by creating more awareness, Medical Professionals in Zaria Metropolis should be encourage to work more on Professional Conduct, Malpractice insurance, Data Protection and Reimbursement to patients and Medical Care providers should give more access to technology and Privacy and security as well as encouraging the use of Telemedicine.

Keywords: Adoption, Awareness, Medical Care, Medical Professionals, Telemedicine, Ethical, e-health, Hospital, Tele-health, Tele-medical, Services

Introduction

The role of information and communication technology (ICT) in the advancement of Medical Care is a topic of significant importance in the current trends. Telemedicine refers to the delivery of healthcare services through the use of telecommunications technology, enabling remote consultations, diagnosis, and treatment. This approach leverages video conferencing, mobile apps, and other digital communication tools to provide clinical services to patients without the need for in-person visits. The primary goal of telemedicine is to increase access to healthcare, especially for individuals in remote or underserved areas, and to improve the efficiency and quality of care. According to the World Health Organization (WHO), telemedicine involves "the delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment, and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities" (World Health Organization, 2010).

Advances in ICT have led to the development of new Telemedicine tools and applications. The rapid advancement of ICT has brought about significant changes in various fields, including Medical Care. The use of ICT as a tool in Medical Care has improved the delivery of Medical Care services and enhanced patient outcomes. Some of the ICTs tool involved in Medical Care are remote monitoring devices, mobile health applications, and video conferencing tools among others. Remote monitoring devices, such as blood pressure monitors,

glucose meters, and heart rate monitors, allow patients to monitor their vital signs remotely. Patients can transmit their readings to Medical Care providers who can then provide appropriate feedback and care. Remote monitoring devices have been particularly useful for patients with chronic conditions such as diabetes, hypertension, and heart disease, as they allow Medical Care providers to monitor patients' medical status more closely and intervene early if necessary (Haque & Rahman 2020).

Mobile health apps are another example of ICTs tools used in Medical Care, these apps can be used to monitor patients'' health, remind them to take medications, and provide them with educational resources. Patients can use these apps to track their symptoms, receive medication reminders, and access Medical Care information (Haque & Rahman 2020). Medical Care providers can also use these apps to monitor patients'' progress and adjust treatment plans accordingly. Video conferencing tools have also revolutionized Medical Care by enabling virtual consultations between Medical Care providers and patients. Patients can consult with their Medical Care providers from the comfort of their homes, saving time and travel costs. Video conferencing tools have been particularly useful for patients in rural or remote areas who may not have access to Medical Care services.

According to report by the American Medical Association (AMA) (2023), telemedicine has rapidly evolved and expanded, especially in response to the COVID-19 pandemic, which highlighted the need for remote healthcare solutions. The report states, "Telemedicine has become a critical component of healthcare delivery, offering a convenient and efficient way for patients to receive care while reducing the burden on healthcare systems" (American Medical Association, 2023). Telemedicine has also been shown to reduce Medical Care costs significantly. According to a study conducted by the University of California, Davis in 2015, Telemedicine can reduce Medical Care costs by up to 40% in certain cases (Bashshur et al., 2016). Telemedicine has also been shown to reduce the number of hospital admissions, readmissions, and emergency room visits, which reduces Medical Care costs further.

Statement of the Problem

The advancement that has been recorded in the field of Technology over the years has been of significant advantage to Telemedicine especially in the area of improved medical care and outcomes of clinical procedures for emergency medical situations. Despite the potential benefits of telemedicine in improving

healthcare delivery, the adoption of telemedicine services by medical professionals in Zaria Metropolis, Kaduna State, Nigeria, remains limited. Hollander & Carr (2020) states that innovations in Telemedicine can reduce the need for patient mobility in remote areas. It is the ultimate solution to the problem of lack of healthcare professionals. Also InTouch, (2021) posited that Telemedicine has the potential to reduce healthcare costs, improve patient reach and health outcomes, and transform the way healthcare providers treat patients. This study aims to investigate the barriers and facilitators affecting the adoption of telemedicine services in selected hospitals within the region, providing insights to enhance implementation strategies and improve healthcare outcomes.

Research Questions

1. What is the current level of awareness among Medical professionals regarding Telemedicine Services in Zaria Metropolis Kaduna State Nigeria?
2. What are the level of ethical, legal and regulatory considerations associated with the use of Telemedicine Services by Medical Professionals in Zaria Metropolis Kaduna State Nigeria?
3. What are the key challenges to the use of Telemedicine Services by Medical Professionals in Zaria Metropolis Kaduna State Nigeria?

Review of Related Literature

Enhancing awareness among Medical professionals about Telemedicine Services in Medical Care facilities is essential for its successful implementation. ICT enabled medical services such as Telemedicine and e-health is fast developing from the recent past which supports long distance health care services. The term is often used as an umbrella term that includes Tele-health, electronic medical records, e-health and other components of health information technology (Wootton, (2001).

E-health is the use of electronic information and advanced telecommunication technologies to support long distance clinical health care, patient's health records, patients and professional health related education, public health and health administration (WHO 2010). The World Health Organization (WHO) defines e-health as the cost-effective use of ICT (Information and Communications Technologies) in the support of health and health related fields including Medical Care services, health surveillance, education, knowledge and research (WHO, (2010). E-health may be synchronous/real-time or non-

synchronous "store and forward". It is seen as a means of overcoming the growing shortage of health practitioners in developing countries. The health sector has been much less effective than many other sectors in reaping reward from the applications of ICT. There are many possible reasons why implementation of e-health systems continues to be challenging despite the available literature. The success of any new technology depends on many factors including the knowledge and understanding of the concept, skills acquired attitude and working environment by the concerned professionals.

This is applicable for any new medical technology like Telemedicine where it is important to make professionals understand the new concept and assess how far they are professionally ready to accept and provide Telemedicine services. Telemedicine is an emerging technology in health sector across the globe, so it requires study to be done to know the health professionals and patients' awareness and their attitude towards Telemedicine (George, Rozariow & Abraham 2007). To facilitate the adoption of Telemedicine in developing countries requires information about the Awareness, Knowledge, Attitude and Skills (AKAS) of the user groups. Medical Care facilities should invest in comprehensive training programs to educate Medical professionals about Telemedicine. These programs should be ongoing and include hands-on experience with the system. Telemedicine awareness training should be designed with user-friendly interfaces, making it easier for Medical Professionals to navigate and utilize the system without extensive technical knowledge and at the same time Incentives, such as recognition and rewards for proficient Telemedicine usage, can motivate Medical Care professionals to embrace the technology.

The coronavirus disease 2019 (COVID-19) pandemic has drained physicians, hospitals, and Medical Care institutes. This overwhelming pressure has rapidly shifted Medical Care delivery to Telemedicine in response to the increased demand for primary care and patients' needs for Medical Care services at their convenience. Telemedicine embraces electronic communication technologies to provide Medical Care services to patients regardless of geographical barriers (Hau, Kim, Hur & Chang 2020). Oxford defines it as "the remote diagnosis and treatment of patients by means of telecommunications technology".

However, Telemedicine is not a new concept in the medical community; it has only resurfaced during the COVID-19 pandemic. A book on Telemedicine sheds light on the fact that clinicians, researchers in health services, and others have been studying how to employ cutting-edge computer and telecommunications technology to enhance Medical Care for more than 50 years. Telemedicine is a product of this advanced information technology's intersection and is central to many smart initiatives (Field, 1996). As Medical Care systems worldwide are undergoing profound changes, Telemedicine is gaining attraction beyond its demand in rural areas.

As rightly suggested by Chaet et al, (2017) significant advances in medical management cannot be achieved without a review of clinical ethics. The same goes for Telemedicine which is posed to make unprecedented advances in the medical and health world. Ethics is a broad subject that covers all aspects of society (Aurore, 2020). This vast domain that ethics cover has made it difficult for scholars to adopt a universal definition for it. That notwithstanding, ethics is a reflection of human values.

Current realities in Telemedicine have thrown up several ethical issues because Telemedicine has made a vast number of medical resources available on the internet allowing just anyone to access them. This implies that patients may be inspired to want to make certain medical decisions based on information that they sourced. While this sounds good as they can better make informed decisions, it raises some concern as to the validity of the medical information that they have and leaves medical caregivers in a dilemma between what they know and what the patient knows since they are bound by ethical codes to not harm the patient.

Ethics permeates all aspects of human life and it has serious consequences on how people and institutions operate. Although there are also sides to ethics, of significant interest to this research is ethics in medical practice, especially Telemedicine. That is because Medical Professionals are charged with the responsibility of working with humans. Given their role, they have to abide by certain ethical guides to protect their lives and the patients as well. This has a greater significance in Telemedicine because medical experts are allowed to carry out consultations and handling of patient data from remote locations. This can happen between medical practitioners that have never seen each other in real life like it happens when a medical radiologist interprets imaging results for a Medical doctor in charge of primary medical care as stated by Moulaei K, Shanbehzadeh

M, Bahaadinbeigy K, et al. (2022) that in the synchronous mode (such as video conferences or telephone), patients can engage in real-time communication with their doctors, enabling immediate diagnosis and treatment recommendations while in the asynchronous or store-and-forward mode, patients can share medical images, test results, or descriptions of symptoms, allowing healthcare providers to review the information at a later time and respond with appropriate guidance or prescriptions. The standards of medical care provided will be enhanced to a high level prompting concerns about Telemedicine application as it is a field that is advancing every day just as technology advances.

It raises some ethical, and legal problems particularly because it disconnects the patient from the doctor in a way by allowing physicians to connect and carry out diagnosis and medical procedures without the patient being directly involved. Telemedicine offers expert support to committees set up to look into ethical matters arising from the practice. This is responsible for its wide range of applications in many aspects of health such as neurology, and behavioural health. This has become notable in the management of post-stroke health which involves communication. Patients have the right to decide the medical procedures that should be used in their treatment. It is then the responsibility of the health service provider to ensure that they have all the information that they require to make an informed decision about their treatment.

Research by the Federation of State Medical Board (FSMB) (2022) shows that for informed consent patient documentation, health provider, type of Telemedical treatment to be received, recognition of the medical practitioner's right to decide how appropriate it is to use Telemedicine to manage an ailment, security o health records and information, privacy risks associated with the use of Telemedicine, not holding the service providers blameworthy if the information is lost due to technical issues and permission of patient before information are sent to third parties. In circumstances of self-care, patients now referred to as mere users may face some risks managing their health through self-care Telemedical apps because while it protects their rights as users, it may not offer much protection in terms of patients since the original goal is not mere satisfaction but improved health outcomes.

Although there is an increase in the adoption of ICT in the field of medicine which is now known as Telemedicine, there have been some challenges that arise in the course of implementation. Coyne (1995) posited that the gap

between the rich and the poor has been widened by the implementation of ICT in the field of medicine and Medical Care. Coyne raised an argument about how Telemedical infrastructures are expensive and available more in advanced countries than in poorer ones. Although Telemedicine is beneficial as stated by Edejer (2000) it remains dramatic as it contributes to the widening inequality gap because those that need the internet resources or ICT have the least resources to access them.

Furthermore, there is contradictory information on the internet about various medical subjects hence it poses a big challenge to the success of Telemedicine. It makes it more difficult to find a solution to the problem as the amount of resources is very vast. (Samuel et al., 2004). The internet often presents vast amounts of information that are relevant to helping in the administering of treatment. Other web-related challenges include; the quality of information provided by the largely inconsistent internet. Also, the absence of adequate research information from the developing countries that face the most health crises is a major challenge. There is also a problem with the distribution of technology meaning that such resources are not readily available. Even when they are available there is the issue of access to the ICT facilities.

The place of behavioural factors was also considered due to recurrent academic dishonesty (Stephens, 2004). While learning takes place via ICT facilities, it can be affected by behavioural qualities like honesty, respect, trust, and responsibility. Behavioural factors can have either a positive or a negative impact on the overall outcome. Furthermore, another obstacle is the high cost of ICT infrastructure and the cost of incorporating them into Medical Care systems (Tygerberg Childrens Hospital, 2003).

Although researchers have rated the ICT infrastructure in South Africa as the highest in Africa, (WorldFactbook, 2008), the problem of access to networks remains due to poor connectivity in some areas. However those areas can be reached through wireless connectivity even with the absence of technological infrastructure. (Louw and Hanmer, 2002).

Methodology

Quantitative methodology was used, along with Cross-Sectional Survey Design in conducting this study on various Medical Professionals in selected hospitals in Zaria metropolis, Kaduna State, Zaria from 2022 – 2023. The

Proportionate Stratified Sampling technique was employed in this research. Stratified sampling is a sampling procedure in which elements of the population are divided into homogenous subgroups (called "strata"). A simple random sampling was used to draw the sample from within each subgroup. The choice of Stratified sampling is because Hospitals in Zaria Metropolis are in different locations as well as being homogenous and heterogonous. Based on this the population of hospitals in Zaria Metropolis was divided into Three (3) status; Hajiya Gambo Sawaba General Hospital, Zaria, Al-Madina Clinic, Sabon Gari, and Ahmadu Bello University Teaching Hospital Shika. This position is supported by Ibrahim (2013) who revealed that if the population is large for the researcher to survey all its members, a small, but carefully chosen sample can be used to represent the population. Further stressed that a sample of 35% - 43% is considered an adequate representative sample in research. 35% of the total population was chosen randomly as the sample of the respondents in each stratum.

The summary of the target sample size of each stratum is shown in Table

Table 1: Sample Size distribution of the Medical Professionals in Zaria Metropolis

S/N	Selected Hospitals	Sample Size
1	Ahmadu Bello University Teaching Hospital Zaria (ABUTH)	78 (61.4%)
2	Hajiya Gambo Sawaba General Hospital, Zaria	31 (24.4%)
3	Almedina Hospital, Sabon Gari	18 (14.2%)
	Total	127 (100%)

Source: Field Work (2023)

A sample size of 127 Medical Professionals participated in the study. This ensured that about 35% of the hospital Medical Professionals participated in the study to have a more manageable and representative sample size that can minimize sampling biases and consequently, get reliable findings. Units such as the Maternity/Anesthesia Clinic, Medical Wards (Pediatrics, Female & Male), Out Patient Department (GOPD, SOPD, MOPD & POPD) and Surgical Wards (Pediatrics, Female & Male) had the most participants in the sample size. On the other hand, units such as psychiatric and Public/Community Medicine had fewer participants because they had fewer Medical Professionals.

Data Presentation and Analysis

A total of one hundred and twenty-seven (127) Questionnaires were distributed to respondents out of which one hundred and twenty-one (121) questionnaires were duly filled and returned making a 91% response rate, this is attributed to constant physical, phone calls and chats follow up by the researcher. The analysis was based on simple frequency and percentages. The decision mean is 2.5 and 3.0 on the Likert scale.

Table 2: Level of Awareness Among Medical Professionals regarding Telemedicine Services in Selected Hospitals in Zaria Metropolis Kaduna State Nigeria.

Awareness among Medical Professionals	Level of Agreement				Average	
	Strongly agree	Agree	Disagree	Strongly Disagree	Total	Mean
I am aware of Telemedicine	99 (81.8%)	22 (18.2%)	0 (0.0%)	0 (0.0%)	121 (100%)	3.82
I utilize Telemedicine daily	10 (08.3%)	05 (04.1%)	90 (74.4%)	16 (13.2%)	121 (100%)	2.10
Telemedicine facilitates medical care in our daily routine	80 (66.1%)	12 (09.9%)	20 (16.5%)	09 (07.5%)	121 (100%)	3.94
Telemedicine enhances the quality and response time for diagnosis of a patient	78 (64.5%)	14 (11.6%)	21 (17.3%)	08 (06.6%)	121 (100%)	3.69
Telemedicine ensures adequate medical care	70 (57.9%)	20 (16.5%)	18 (14.9%)	13 (10.7%)	121 (100%)	3.21

Source: Field Work (2023)

Table 2 assesses the level of awareness and perceptions of Medical Professionals in selected hospitals in Zaria Metropolis regarding Telemedicine Services. The finding is based on five statements, with corresponding response categories and the Mean of respondents who selected each option. The first statement reveals that an overwhelming majority of respondents strongly agree that they are aware of Telemedicine Services in the Medical Care facility with a

Mean value of 3.82. In the second statement, it was shown that the majority of the respondents Disagree with the utilization of Telemedicine daily with a Mean of 2.10 which is below the decision mean. The third statement indicates that the majority of the respondents strongly agree that Telemedicine facilitates medical care in their daily routine with a mean of 3.94. The fourth statement reveals that the majority of respondents strongly agree that Telemedicine enhances the quality and response time for diagnosing patients with a mean of 3.69, indicating high confidence in the system's effectiveness. The final statement reveals that the majority of the respondents believe that Telemedicine ensures adequate medical care, emphasizing the importance of Telemedicine in maintaining comprehensive medical care.

Table 3: Level of Ethical, Legal and Regulatory considerations associated with the use of Telemedicine Services

Ethical, Legal & Regulatory considerations	**Level of Agreement**				**Average**	
	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**	**Total**	**Mean**
Informed consent	100 (82.6%)	21 (17.4%)	00 (0.0%)	00 (0.0%)	121 (100%)	3.83
Patient privacy and confidentiality	98 (81.0%)	20 (16.5%)	03 (02.5%)	00 (0.0%)	121 (100%)	3.79
Access to Care	90 (74.4%)	12 (09.9%)	10 08.3%)	09 (07.4%)	121 (100%)	3.51
Professional Conduct	84 (69.4%)	19 (15.7%)	09 (07.4%)	00 (0.0%)	121 (100%)	3.40
Licensure and Credentialing	90 (74.4%)	20 (16.5%)	08 (06.6%)	03 (02.5%)	121 (100%)	3.63
Malpractice insurance	78 (64.5%)	21 (17.5%)	06 (05.0%)	06 (05.0%)	121 (100%)	3.25
Data Protection	79 (65.3%)	18 (14.9%)	14 (11.6%)	10 (08.3%)	121 (100%)	3.37
Reimbursement	70 (57.8%)	21 (17.4%)	19 (15.7%)	11 (09.1%)	121 (100%)	3.24
Prescribing authority	95 (78.5%)	16 (13.2%)	10 (08.3%)	00 (0.0%)	121 (100%)	3.70
Quality of care	96 (79.3%)	25 (20.7%)	00 (0.0%)	00 (0.0%)	121 (100%)	3.79

Source: Field Work (2023)

Table 3 presents the respondents'' responses on the level of ethical, legal and regulatory considerations associated with the use of Telemedicine Services. The findings show that the majority of the respondents strongly agree that they seek Informed consent of Patients with a Mean of 3.83, the majority of the respondents strongly agree that Patient privacy and confidentiality are protected and the Quality of care is provided with a Mean of 3.79 each. Furthermore, the majority of the respondents strongly agreed that they have Prescribing authority with a Mean of 3.70.

Table 4 Challenges to the Adoption of Telemedicine Services in Selected Hospitals in Zaria Metropolis

Challenges and Barriers	Level of Agreement				Average	
	Strongly Agree	Agree	Disagree	Strongly Disagree	Total	Mean
Limited access to technology	99 (81.8%)	20 (16.5%)	02 (01.7%)	00 (0.0%)	121 (100%)	3.80
Privacy and security concerns	100 (82.6%)	21 (17.4%)	00 (0.0%)	00 (0.0%)	121 (100%)	3.83
Malpractice concerns	80 (66.1%)	20 (16.5%)	11 (09.1%)	10 (08.3%)	121 (100%)	3.41
Technical issues	85 (70.3%)	09 (07.4%)	12 (09.9%)	15 (12.4%)	121 (100%)	3.36
Cultural and language barriers	30 (24.8%)	20 (16.5%)	60 (49.6%)	11 (09.1%)	121 (100%)	2.57
Licensing Issues	79 (65.3%)	11 (09.1%)	18 (14.9%)	13 (10.7%)	121 (100%)	3.29
Inadequate connectivity and	70 (57.9%)	20 (16.5%)	18 (14.9%)	13 (10.7%)	121 (100%)	3.21
Reimbursement and payment issues	90 (74.4%)	10 (08.3%)	11 (09.1%)	10 (16.5%)	121 (100%)	3.45
Regulatory Issues	70 (57.9%)	10 (08.3%)	31 (25.6%)	10 (16.5%)	121 (100%)	3.16
Resistance from Medical Care providers	90 (74.4%)	10 (08.3%)	18 (14.8%)	03 (02.5%)	121 (100%)	3.55

Digital literacy	50 (41.4%)	20 (16.5%)	38 (31.4%)	13 (10.7%)	121 (100%)	2.88

Source: Field Work (2023)

Table 4 presents responses on the challenges to the adoption of Telemedicine services by medical professionals in selected hospitals in Zaria Metropolis. The findings reveals that majority of the respondents strongly agree that Limited access to technology and Privacy and security concerns are the major challenges hindering the utilization of Telemedicine in Zaria Metropolis with a Mean of 3.83and 3.80 respectively.

Discussion

Table 2 suggests a high level of awareness and positive perceptions among Medical Care professionals regarding Telemedicine, reflecting its significant role in their daily routines and patients. It shows that a high percentage of respondents are aware of Telemedicine even though they do not utilize it daily, and believe it positively impacts patient diagnosis. This is in line with the findings of the Federation of State Medical Board (FSMB) (2022) where it was found that Telemedicine is an emerging technology in the health sector across the globe. Therefore, it is required for a study to be conducted to ascertain the health professionals' and patients' awareness and their attitude towards Telemedicine. Table 3 revealed that the rapid advancement of information and communication technologies (ICT) has revolutionized Telemedicine, offering a convenient and accessible alternative to traditional in person Medical Care services these ethical, legal, and regulatory considerations have been be carefully addressed to ensure patient safety, and privacy, and the quality of care. The finding is contrary to research by the Federation of State Medical Board (FSMB) which shows that for informed consent patient documentation, health provider, type of telemedical treatment to be received, recognition of the medical practitioner's right to decide how appropriate it is to use Telemedicine to manage an ailment, security o health records and information, privacy risks associated with the use of Telemedicine, not holding the service providers blameworthy if the information is lost due to technical issues and permission of patient before information are sent to third parties. Table 4 reveals that the majority of the respondents strongly agree that Limited access to technology and Privacy and security concerns are the major challenges, Tygerberg Children Hospital, (2003), affirmed that limited technology, costs and compatibility with the cost of Telemedicine equipment, such as video conferencing cameras and specialized medical devices, can be

prohibitive for some Medical Care providers and patients, additionally, compatibility issues.

Summary of Findings

The study reveals that the majority of Medical Professionals are fully aware of Telemedicine Services in Zaria Metropolis even though they don't utilize it on daily basis. It also show that the majority of Medical Professionals in Zaria Metropolis seek informed consent of patients while utilizing Telemedicine Services and that Patient privacy and confidentiality is protected. Furthermore, the findings reveal that Limited access to technology and Privacy and security concerns are the major challenges hindering the utilization of Telemedicine Services by Medical Professionals in Zaria Metropolis.

Conclusion

Adoption of Telemedicine by Medical Professionals in Zaria Metropolis has several benefits, including increased access to care, improved quality of care, reduced costs, increased efficiency and effectiveness, improved patient satisfaction, and the potential to revolutionize the delivery of Medical Care in Zaria Metropolis even though some challenges needed to be looked at.

Recommendations

The study recommended that efforts should be made to encourage the use of Telemedicine Services by Medical Professionals in Zaria Metropolis daily due to the numerous benefits of creating more awareness. Also, Medical Professionals in Zaria Metropolis should be encouraged to work more on Professional Conduct, Malpractice insurance, Data Protection and Reimbursement to patients and Medical Care providers should give more access to technology, Privacy and security as well as encouraging the use of Telemedicine Services.

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INFORMATION PRACTICES OF COMMERCIAL MOTORCYCLE RIDERS (*OKADA*) IN SAMARU COMMUNITY SABON GARI LOCAL GOVERNMENT AREA, KADUNA STATE, NIGERIA

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Abstract

This research explored the Information Practices of Commercial Motorcycle riders in Samaru Community, Sabon Gari Local Government Area of Kaduna State, Nigeria. The objectives were; to identify the information needs of commercial motorcycle riders in Samaru community, to ascertain the purpose of the use of available information by commercial motorcycle riders in Samaru community. The study applied Savolainen's (1995) everyday life information seeking ELIS theory as theoretical framework for the study. Qualitative research methodology and qualitative case study research design was *adopted for the study. Semi-structured interview was used for data collection. 10 participants determined the sample size for this study, Purposive sampling technique was used in this study. The data for this study was analyzed using qualitative content analysis. The findings revealed Health information need, security information need, and everyday life information need were the types of information need found most relevant by the participant of this study. The study concluded that security and health information used is part of the commercial motorcycle rider's everyday life information use for the purposes of solving everyday life problems. Therefore, it was recommended that, The Kaduna State Government, health and security agencies to consider their information need very important, and to provide such kind of information available to them.*

Keywords: Information practices, Commercial Motorcycle Riders and Samaru Community

Introduction

Information practice is a social practice that is composed of a range of activities such as; to produce information, to seek and acquire information, to place value and evaluate information, to identify and compose information into meaningful combinations, to distribute and share information, and, in general, to put information into use (McKenzie, 2003). According to Talja and Hansen (2005), information practices are those practices of information seeking, retrieval, filtering and synthesis. Similarly, Savolainen (2008) stated that information practices are the entirety of ways in which people seek, use, and share information in different contexts. Similarly Savolainen (2008) moves toward an objectified view, calling information practices "socially and culturally established ways to identify, seek, use and share the information available in various sources and channels such as television, newspaper and the Internet" On the other hand, recent articulations of information practice is also described as several suites or bundles of activities such as information need, use, and sources that bring about individuals' understanding or literacy as tacit know-how (McKenzie, 2009; Moring & Lloyd, 2013). Therefore, this study explored the information need, and information use as information practice of commercial motorcycle riders in Samaru Community, Sabon Gari Local Government Area of Kaduna State, Nigeria.

Information needs is an awareness that arises when information users recognize that there is a gap in their knowledge, which they cannot bridge without seeking and finding relevant information Dutoit (2022). Agarwal also stressed that (2022) opined that Information need is the recognition that our knowledge is inadequate to satisfy a goal we have. Savolainen (2017) has reviewed and divided information needs into two definitions. The first definition is that information need may be conceived as a trigger providing an initial impetus to information seeking. Second, information need may be approached as a driver keeping information seeking in motion for a longer time. Similarly, he noted that even though information need is probably the most widely used construct explaining why people engage in information seeking, wherein the seeker attempts to find information in order to meet an information need (Savolainen, 2017). When an individual or a group attempting to seek for information to meet personal, academic and everyday life desires, an information channels is involved to help in getting right information that will help to solve everyday problems.

Information use therefore can be for different purposes by individual or groups in a different context or environment with the aims of solving everyday

life problems. However, using information in different context can help to solve everyday problems. Commercial motorcycle riders use information in different context in their community to solve everyday life problems. Meyer (2016) regards information use as an activity where information users create, collect and apply information. Du toit (2022), from his perspectives considered information use as an individual's understanding information in such a way that they can apply the information for its intended purpose to reach the desired outcomes. Information use refers to the acts taken by the information user based on the information obtained from information sources (Kamdjoug and Bawack, 2020).

Commercial motorcycle riders are commonly called or known as "*Okada*", "*Achaba*", "*Goyin*" "express" or "*Inaga*" in different parts of Nigeria. It is one of the affordable and reliable means of transportation in Nigeria and by far the most common form of informal transport system in the country (Cervero, 2015). Due to the economic downturn, commercial vehicles began to disappear from the roads in most towns and cities in Nigeria including Samaru. The result of the above was the scarcity of buses and taxies in the cities, forcing them to operate only on major roads. Commercial motorcycle riders are an offshoot of the Structural Adjustment Programme (SAP) of the late '80s and early '90s. The surge in the use of okada riders emerged when many civil servants in both the public and private sector were either retrenched or retired prematurely. Most of these people who owned motorcycles resorted to commercializing them in order to make ends meet. Commercial motorcycle riders serve various uses to their patrons: in some instances, they are the only means of transportation available to some passengers (Aluko, 2018). Similarly, various sets of people in the society including, government workers, students, traders and business people find commercial motorcycle riding business as a great relief from the congested traffic situations during the rush hours in the morning and afternoon when schools and offices open or closes (Olalekan, Rebecca & Adenike, 2013).

The purpose of this study was to explore information practices of commercial motorcycle riders (Okada Riders) in Samaru Community of Sabon Gari Local Government Area, Kaduna State, Nigeria. In order to explore the information practices of the commercial motorcycle riders (Okada Riders), Everyday Life Information Seeking theory by Savolainen (1995) was used as a theoretical framework to guide this study. Everyday Life Information Seeking theory refers to the acquisition of various information both cognitive and expressive elements, which people employ to orient themselves in daily life or to

solve problems not directly connected with the performance of professional tasks or full-time study.

Statement of the Problem

It is obvious that people from different walks of life have the need for information because as the population grows and society becomes complex, the production and perceived need for information also expands. These information needs may be related not only to their work roles but also to their everyday life needs such as health, education, security, shopping and current affairs etc. This implies that the culture of people, the environment where they live, and their occupational practices are factors that can influence information-seeking behavior (Dankasa, 2015). Commercial motorcycle riders need information in order to solve their everyday life problems. This information provides them with a sense of security, achievement and control. Dearth of understanding of their information need, channels of access to information, information sources and their information use create difficulties for the Commercial motorcycle riders to solve problems in their everyday lives, which is related to their health, education, security, occupation, government policies and current affairs.

Many studies have been conducted on different workgroups and their information-seeking behavior (Abbas, Abubakar, Omeiza, & Minoza, 2013). To the best of the researcher's knowledge no study has explored the information practices of commercial motorcycle riders as a workgroup. Specifically, this study therefore, explored the information practices of commercial motorcycle riders in Samaru Community, Sabon Gari Local Government Area of Kaduna State, Nigeria. Using Everyday Life Information Seeking theory as a theoretical framework to guide the study.

Research Questions

This study was guided by the following research questions

1. What is the information needs of commercial motorcycle riders in Samaru Community, Sabon Gari Local Government Area of Kaduna State, Nigeria?
2. For what purpose do commercial motorcycle riders in Samaru community Sabon Gari Local Government Area of Kaduna State, Nigeria use the available information?

Literature Review

This study used theoretical review of studies that adopted everyday' Life Information Seeking Theory. This type of literature review focuses on the theoretical aspects of a phenomenon and the degree to which theories have explored the phenomenon, (University of Alabama, 2018). According Warraich and Hanif (2019) explores the information practice of Pakistani urban teens. The study was driven by five research questions asking for the types of information practice of urban teens along with perceived usefulness of acquired information to fulfill their information needs. Survey instrument and interview guide used to collect data the study. The theoretical framework of this proposed study will be based upon the "Savolenen information practice model", "information source horizon" and "information pathways". In Pakistan many studies have been carried out on information need and seeking behavior of diverse groups, but not a single study has been done so far on everyday information practices of Pakistani urban teens.

Jun, Aristeguieta, Ha, and Li, (2022) explore people's information practices in rural communities and their uses of libraries in everyday life. A qualitative approach with individual interviews was conducted. Preliminary findings revealed themes on sources and attitudes toward information depending on situations, ranging from not caring about information sources in monitoring everyday life information to verifying sources for schoolwork or health-related situations. Findings also showed participants commonly perceived libraries as book repositories, and compared libraries with Google in terms of information providers. Agosto and Hughes-Hassell (2015) investigated the everyday life information-seeking behaviours of urban young adults. This study was driven by three research questions asking for the types of everyday life information urban youths seek, the different media they use to seek this information, and the people sources they utilize the most. Qualitative data were gathered using written activity logs and semi-structured group interviews. Their findings showed that young people, teenagers in particular, do not frequently use libraries or hooks, even though they identified schoolwork as their primary information need. They also found that the participants in their study turned to humans such as friends as preferred sources of information. Hertzum, and Hyldegård, (2019) carried out a study to investigate how four international students at a Danish university cope with their study-related and everyday information needs. It employed qualitative case studies and semi-structured interviews. Findings revealed that international students' information needs and seeking behaviour are shaped by their host

university but also by cross-cultural, personal, and situational issues. While the cross-cultural issues set international students apart from domestic students.

Rafiq, Iqbal, Rehman, Waqas, Naveed, and Khan, (2021) investigate the everyday life information seeking of female university students residing at hostels in Lahore, Pakistan. A quantitative research approach using a survey method was adopted Two-hundred and forty-eight female students living in various university and private hostels in Lahore, Pakistan, were surveyed, and the collected data was analyzed using Statistics Package for Social Sciences (SPSS) version 21. Results of the study revealed that hostel living expanded the social circle of students, as it offered exposure to diverse multicultural social groups. Female students living in hostels required information related to their academic needs, safety concerns, social life, and self-help issues. They relied mainly on mobile phones, the internet, social media, and interpersonal relationships for everyday information. Cultural differences, natural hesitation, language barriers, time concerns, and difficulty in identifying reliable information were the primary obstacles in meeting everyday life information needs. Harding (2021) conducted a study on the information practices of urban teens, Semi-structured interviews with six teens enrolled in schools in Brooklyn, New York, were conducted and the transcripts were analyzed qualitatively through open coding to identify similarities and differences between participants. Findings showed a wide diversity of search topics and information sources among the participants. Their views on digitally-mediated information interactions fell into three distinct categories: preference for in-person, best of both worlds, and preference for digitally-mediated.

Martzoukou and Burnett (2018) explore the information needs of "Syrian New Scots" (the preferred name for refugees in Scotland), their habitual and adaptive information literacy practices and the barriers and enablers they encounter within their new socio-cultural setting via their interactions with people, tools and processes. Primary data were collected via interviews. The findings indicated that the main information needs expressed by participants revolved around the learning of the English language which was linked to addressing health-related information needs, well-being and community engagement. All participants also highlighted the issue of socio-cultural differences in fulfilling everyday life information needs (such as health and housing). Information provision to Syrian New Scots requires a more structured process that acknowledges personalized information needs and it is tailored to the different stages of the adaptation process.

Methodology

The Qualitative Research Methodology was adopted for this study. This research methodology is deemed appropriate for this study because the study was conducted in a natural setting as it attempts to gain an in-depth understanding of the commercial motorcycle rider's information practices in Samaru Community, Sabon Gari Local Government Area of Kaduna State, Nigeria. A qualitative case study design was adopted for this study because it provided a comprehensive and in-depth understanding of commercial motorcycle rider's information practices in Samaru Community Sabon Gari Local Government Area of Kaduna State Nigeria. Commercial motorcycle riders in Samaru Community are the data sources for the study. They are two thousand six hundred and thirty-seven (2637) but they are two kinds: commercial motorcycle riders registered with Jacket they are one thousand and fifty-six (1056) and commercial motorcycle riders registered without Jacket they are one thousand six hundred and thirty-seven (1637). The sample size for the study was ten (10) motorcycle riders in the Samaru community. A purposive sampling technique was adopted for sample selection for this study. This purposive sampling technique permits the opportunity for the researcher to select the participants who are knowledgeable about the phenomenon of the study. Semi-structured Interview was used to collect data for the study. Semi-structured Interviews help the researcher to obtain adequate information from the participants, based on their opinions, understanding, and experience on the phenomenon of this study. The interview was personally conducted by the researcher to the participants. All selected participants were interviewed by the researcher and the interview was recorded using an audiotape recorder. All the questions on the interview guide were included and it contained open-ended questions to facilitate the in-depth elicitation of information from the participants. The interviews lasted approximately 45 minutes for each participant. The data for this study was analyzed using qualitative content analysis. This enables the researcher to go into the content of the transcribed interview to create code, categories and subcategories.

Discussion

Qualitative data was collected through semi-structured interviews of the participants of this study. The interviews were recorded using a Tape Recorder. The audio recordings were then transcribed. All the transcripts of the Interview were vigorously read, examined and re-examined for phrases and sentences that form patterns that are consistent with the objectives of the study. These patterns

were further grouped into Categories using the analytic inductive process described by Creswell (2013).

Table 1: Information needed of Commercial Motorcycle riders in Samaru Community

Objectives	Categories	Sub-Categories
information needs for Commercial Motorcycle Riders	**1.** Health information	1. Information on access to health care services 2. information on coronavirus 3. Information on accident
	2. Security information	4. Information on disease control
	3. Everyday life information	1. Information on motorcycle snatchers/kidnappers 2. Information on KASTLEA activities 3. Information on Police activities
		1. Information on regulations of motorcycle activities 2. Information on motorcycle rider's empowerment 3. Information on family education 4. information on relations with passengers

This study found three types of information needs of commercial motorcycle riders in Samaru Community these are: Health information need,

security information need, and everyday life information need. Health and security information are integral constituents of everyday life information needs. Everyday life information need encompasses information from all aspect of an individual life, needed in solving everyday problems. In this study setting health information needs include Information on easy access to health services, information on coronavirus, Information on accidents and Information on contact with diseases. Security information needs include Information on motorcycle snatchers/kidnappers, Information on KASTLEA activities, and information on Police activities. Most of these commercial motorcycle riders attend primary health care centres within their community if they have an accident or contacted with diseases. This information needs either security, health and everyday life; plays a vital role in commercial motorcycle riders' everyday activities. because commercial motorcycle riders also consider the kidnapping of their members as worrisome, and arresting their members by security agents such as police or KASTLEA when they are on motorcycle riding business activities is of great concern to them. All this will help commercial motorcycle riders understand the current security situation, get better access to health services, and also help commercial motorcycle riders to solve security and health issues related to their everyday life activities. Everyday life information seeking is a vital area of concern in the field of information studies.

The findings are consistent with other studies conducted on everyday life information seeking (ELIS) such as ((Dankasa, 2015, Markwei, 2015; Anwar, Batool & Naveed, 2021; Haines and Du 2017). The findings of this study indicated that health information needs, security information needs, and everyday life information needs are the information needs of participants of this study. This finding implies that it uncovered data on the information needs of commercial motorcycle riders that will help policymakers, information professionals and commercial motorcycle rider associations in the designing of an information programme that will be geared toward addressing their everyday life problems.

Table 2: Purpose for the use of available information by Commercial Motorcycle riders in Samaru Community

OBJECTIVE	CATEGORIES	SUB-CATEGORIES
Purpose of the use of available information by Commercial Motorcycle	1. Security Issues Use	1. Use for Protection from Motorcycle Snatchers/kidnap-Pers Evil Activities
	2. Health Services Use	2. Use for Protection from

Riders in Samaru Comm-Unity, Sabon Gari Local Government Area Kaduna State.	3. Everyday Life Use	KASTLEA Activities 3. Use for Protection from Police Activities/Arrest 1. Use for Easy Access to Health Services 2. Use for Protection Against Coronavirus 3. Use for Protection Against Accidents 4. Use for Protection Against Contacting Diseases 1. Use to understand laws on Motorcycle Riding Activities 2. Use to know the Empowerment Schemes for Commercial Motorcycle Riders 3. Use to encourage family Education 4. Use for Good Relations with Passengers/Customers

The study found three purposes for the use of available information by commercial motorcycle riders in the Samaru Community. These are: Security protection use, ailment protection use, and everyday life use. In the context of this study, the security protection use category included. Use for protection from Motorcycle snatchers/kidnappers' evil activities, use for protection from KASTLEA activities, use for protection from Police activities/arrests. The ailment protection use category embraced use for easy access to health services, use for protection from coronavirus, use for protection from accidents and use for protection from contracting diseases. The everyday life use category comprised

the use to understand laws banning Motorcycle riding activities, use to know the empowerment schemes for commercial motorcycle riders, use to encourage family education, and use for excellent relations with passengers/customers. This finding is in line with Osterhage and Hartzler's (2017) study on everyday life use of personal health information.

The findings revealed that commercial motorcycle riders used information to solve security problems, health problems, and everyday life problems. The security and health information use it is part of the commercial motorcycle rider's everyday life information use to solve everyday life problems. This implies that, there is need for Nigerian Police Force to take adequate measures to tackle motorcycle snatching/kidnapping activities. This will provide security and protection to commercial motorcycle rider's when they are on their activities. The government at the state and local level need to provide primary health and secondary health care information services that are accessible to commercial motorcycle riders. This will help to provide protection to commercial motorcycle riders from corona virus, accident and others diseases. However, Nigerian Police Force and KASTLEA through the commercial motorcycle riders Association need to organize seminar that will educate motorcycle riders on the nature of their duties, services and interpersonal relation. This will assist commercial motorcycle riders to have excellent interaction with Police, KASTLEA and their Passengers/customer.

Findings

Based on data collected and analyzed, the following are the Summary of major findings of this study:

1. Health information need, security information need, and everyday life information need were the types of information need found most relevant by the participant of this study.
2. Security protection use, ailment protection uses, and everyday life use were the purposes for using the available information by commercial motorcycle riders in Samaru Community.

Conclusion and Recommendations

This study explored the information practices of commercial motorcycle riders in Samaru Community. Thus, it was concluded that security and health information used is part of the commercial motorcycle rider's everyday life information use for the purposes of solving everyday life problems. Based on the

findings of this study, the following recommendations were made; health information need, Security information need, and Everyday life information need are the information need for commercial motorcycle riders in Samaru Community. The Kaduna State Government, health and security agencies to consider their information need very important, and to provide such kind of information available to them. The Kaduna State Government, health and security agencies should work with commercial motorcycle riders' association; to identify their information needs related to security, health and everyday life and provide them with a solution. This will help motorcycle rider to solve everyday life problems. Security use, health use, and everyday life protection use were the purposes for using the available information. The security and health agencies should design a programme that will educate commercial motorcycle riders through their association on current security and health issues that will help them in solving everyday life problem. Nigerian Police Force to take adequate measures to tackle motorcycle snatching/kidnapping activities. This will provide security and protection to commercial motorcycle rider's when they are on their activities. The government at the state and local level need to provide primary health and secondary health care information services that are accessible to commercial motorcycle riders. This will help to provide protection to commercial motorcycle riders from corona virus, accident and others diseases.

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ROLES OF LIBRARIANS AS RESEARCH DATA MANAGERS IN ACADEMIC LIBRARIES

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Abstract

The study investigated the involvement of librarians in Research Data Management using a quantitative approach. The study examined the perception of librarians on their roles as Research Data Managers in academic libraries, the actual RDM roles performed by academic libraries and how academic libraries could promote research data management within higher education institutions in Nigeria. The study used the quantitative approach and adopted the descriptive survey research design. The population consisted of 87 librarians from six academic libraries in South West Nigeria. A complete enumeration sampling technique was adopted for the study. Six academic libraries were chosen based on specific criteria and interventions relevant to the study. The selected academic libraries were Nimbe Adedipe Library, FUNAAB, FUOYE University Library; Albert Ilemobade Library, FUTA; Hezekiah Oluwasanmi Library, OAU, Kenneth Dike Library, UI, and UNILAG Library. 52 academic librarians participated in the study. Descriptive statistical analysis was used for data analysis. Findings revealed that academic librarians were familiar with the term "Research Data Management (RDM)" and its significance in academic libraries. The research findings reveal that the following activities are predominantly performed by the majority of respondents: assisting researchers with data management plans (DMPs) [42 (80.8%), 0.8077], collaborating with IT departments and other campus units [38 (73.1%), 0.7308] and providing data storage solutions and guidance [31 (59.6%), 0.5962]. Moreover, a significant portion of respondents affirm that integrating RDM services into the broader support framework of the academic library enhances the effectiveness of research data, with a mean (SD) value of 4.1154 (0.64637). The study indicates that there is a foundational understanding of Research Data Management (RDM) within Nigerian academic libraries, but significant gaps remain in terms of fully performing the specific roles and responsibilities of Research Data Managers (RDMs).

Keywords: Research data management; academic libraries; data management, data curation; academic librarians; Nigeria

Introduction

The rapid proliferation of research data has necessitated the need to have research data managers in academic libraries. The engagement of academic libraries in research data management resonates with the open access movement on one hand and supports researchers to meet the mandate by funders and publishers on developing data management policies to curate and make available data emanating from their research for reuse (Masinde, Chen, Wambiri and Mumo, 2021). The concept of the open access movement refers to the unrestricted access to scientific research outputs through the Internet, thereby allowing users to search, read download and re-use research data and full text of publications for free (Qutab, 2012). Recent literature suggests that awareness of the relevance of data in the advancement of scientific research and innovation is increasing (Ugochukwu and Phillips, 2024). As the volume and complexity of research data continue to rise, research data management is becoming more and more crucial (Hombali, 2022). Research data management (RDM) refers to all the actions taken to ensure that research data is properly structured, stored, archived, and curated to make it findable and reusable (Tripathi, Shukla and Sonkar, 2017).

Research data management aims to reduce the cost of doing research by making data readily available while limiting its duplication and acting as a way of meeting funder mandates (Masine et.al, 2021) capacity development for librarians, deployment of RDM technologies, and formulation and implementation of RDM policies and services (Cox, Kennan, Lyon, and Pinfield, 2017; Zotoo and Liu, 2019). Rapid growth in the volume and complexity of research data has turned Research Data Management into a key function for academic institutions worldwide. Driving forces for this change have been the increasing importance of data-intensive research, funder mandates for open data, and the global emphasis on open science.

Academic libraries now perform more sophisticated functions, such as research support services, in addition to the acquisition, and organisation of library collections, searching and retrieving information for researchers, and reference services. Such research support services entail research data management; open access; scholarly publishing; research evaluation; and research advisory services (Healy, 2022). Research data refer to the recorded factual information, comprising quantitative and qualitative data, images, and audio

recordings, that underpin scientific research and are broadly acknowledged as crucial for validating research outcomes (OECD, 2007). Examples of research data include experimental data, observational data, textual data, visual data, and digital data, methodologies and workflow, field notebooks, models and algorithms (Payal, Awasthi, and Tripathi, 2019; Kalu, Chidi-Kalu and Mafe, 2021). Researchers experience restricted access to research data that are stored by them in the cloud (Zain, Ahmad, Lackie, Kamarudin and Nordin, 2023). It is worth noting that academic libraries in developed nations like the United States of America, UK, Canada and Australia have more widespread growth of RDM services having adjusted their services, infrastructure and roles to reflect the management of research data (Ishida, 2011; Rice and Haywood, 2011 and Cox, Kennan, Lyon and Pinfield, 2017). However, there persists a research gap concerning the roles of librarians as research data managers in academic libraries**.**

Statement of the Problem

Research Data Management (RDM) has turned out to be an integral aspect of the scholarly research environment propelled by, among other factors, increasing information, complicated modes of data-based research inquiries, and demands to preserve accessibility. Whereas well-resourced nations in the global North have widely implemented RDM-related infrastructure, training, and support services, Nigerian academic libraries are seriously lagging behind. Many lack the technical infrastructure, such as institutional repositories and data storage systems, to effectively manage research data (Kalu, Chidi-Kalu, and Mafe, 2021). In addition, inadequate numbers of specially trained librarians in RDM, combined with an absence of relevant national policies and institutional frameworks, make many researchers dependent upon low-security solutions, such as personal cloud storage services, where research data are not well preserved for long. This negatively affects research efficiency, innovation, and compliance with international standards due to the lack of structured RDM services. Moreover, researchers are mostly unaware of the importance of RDM, while librarians still lack the requisite skills required for RDM services (Maurya and Madhusudhan, 2023). Researchers in Nigeria also face significant barriers in the global open science community, impeding their ability to collaborate seamlessly, share knowledge, and contribute substantively to scientific progress, thereby undermining the country's potential for innovation and discovery. Unless these gaps in the current RDM practices are addressed research data management will remain low in Nigeria. The purpose of the study, therefore, is to examine the

involvement of librarians in selected academic libraries in Nigeria in Research Data Management.

Research Questions

1. What are the perceptions of librarians on their roles as Research Data Managers in academic libraries in Nigeria?
2. What are the actual RDM roles performed by academic libraries in academic libraries in Nigeria?
3. In what ways can academic libraries promote research data management within higher education institutions in Nigeria?

Literature Review

Research data management (RDM) is an essential and trending service in academic libraries. The importance of RDM in supporting open science, data sharing, and reproducibility cannot be stressed enough (Subaveerapandiyan, 2023). Research data management offers numerous advantages, including improving the accessibility and reusability of research data, protecting research integrity, and strengthening the verification of research findings through open access to research data. (Hoeven and Kuiper, 2009; Higman and Pinfield, 2015). RDM began as a new addition to library research support services, and librarians have a part to play in facilitating research data curation and data reuse among researchers. A variety of factors influence the adoption of RDM in universities. These factors include a strong organisational structure and strategic insights (Donner, 2022). The practice of research data management in academic libraries is still poorly practised, indicating that research support services in higher education institutions are yet to gain adequate attention due to lack of active collaboration among stakeholders in the academe (Ashiq, Usmani and Naeem, 2022). These stakeholders are librarians, researchers, IT professionals, legal experts and research office directors (Ngaji, 2024).

In providing direction on the role of libraries in research data management, earlier studies such as Lewis (2010) identified the development of research data management plans; development of data catalogues; active data management; data repository; guidance and RDM training and support. By performing these roles, higher education institutions are better positioned to attain research excellence. Moreover, the expansion of academic libraries' responsibilities to include Research Data Management (RDM) is an extension of the traditional roles of librarians as managers of scholarly knowledge and institutional repositories. Due to the expertise of librarians in information curation

and management, it can then be argued that libraries are well-positioned to provide leadership in the development and implementation of research data management. Recent literature reveals some more promising levels of involvement of academic libraries in RDM to include rendering IT support and research advisory services (Bibi, 2024). In addition to this submission, some scholars note that academic librarians should accept the responsibility of teaching students and lecturers on research data management so as to help gain more visibility as researchers (Flores, Brodeur, Daniels, Nicholls and Turnator 2015; Mosha and Ngulube, 2023).

RDM services offered in academic libraries differ from one library to another depending on readiness in RDM positions, organisational and geographic variations and available RDM infrastructure (Tang and Hu, 2019). According to a survey conducted by Subaveerapandiyan and Ugwulebo (2024) in academic libraries in four East African nations: Malawi, Mozambique, Zambia, and Zimbabwe. According to the study, to provide RDM services effectively, higher education institutions should focus enough on creating and executing clear RDM policies and guidelines. It is also recommended that resources be allocated for RDM infrastructure, tools, and training programs. To effectively provide RDM services, academic libraries are to engage in data procurement; processing; storing; archiving; data cataloguing, data sharing; provision of RDM infrastructure; data repository; training on data archiving; awareness and training; and development of data management plan (DMP) and RDM policies (Pinfield, Cox and Smith, 2014; Paul, 2024). Regarding the development of RDM policies, Njagi, Njoroge and Bituka (2024) note that RDM policies need to adhere to open science standards and legal requirements, including intellectual property rights, data security, and privacy regulations. This indicates that libraries play a significant role in promoting responsible research practices such as transparency and reproducibility among researchers (Schmidt, Chiarelli, Loffreda and Sondervan, 2023).

To begin research data management in academic libraries, it should first be introduced as a comprehensive, institution-wide initiative (Verhaar, Schoots, Sesink and Frederiks, 2017). A study by Joo and Schmidt (2021) examined the perspective of academic librarians in providing RDM services and found that users would value consultative services more than technical help. As a result, participants thought that abilities related to consultancy services, like instructional skills and data management planning, were more crucial. As Badenhorst and Raju (2023) put it, academic librarians must acquire key RDM competencies, such as

data management practices, repository management, data curation, and understanding of funder policies. Dessa and Dani (2024) in a study involving RDM management roles performed in Hungarian Academic Libraries found that the University of Debrecen Library, the University of Szeged Library, and the Corvinus University of Budapest Library, the authors discovered that these libraries offer research data management services to researchers; lecturers and PhD students. The RDM services offered include consultation, training, creating an institution-wide data management policy and strategy, and promoting awareness and support for FAIR data sharing, data reuse, and data.

Chigwada, Kasiroori, and Chiparausha (2017) examined the management of research data at Zimbabwean research institutes. The study found that the majority of the research data were in spreadsheet and text format. There was also research data in the form of graphics, audio, video, databases, structured text formats, and software applications. Research data management was negatively impacted by several factors, including a lack of good practice guidelines, a lack of human resources, outdated technology, unsafe infrastructure, the use of different terminology by researchers and librarians, limited financial resources, a lack of research data management policies, and an absence of support from researchers and institutional authorities. Ojo, Dahunsi and Opele (2024) conducted a study on research data management among librarians in selected libraries in south-west, Nigeria. The study unfurls the knowledge, skills, and training requirements of librarians in RDM in selected libraries in the southwest of Nigeria. The study indicated that librarians in academic libraries in Nigeria require training on data preservation and long-term access and ethical considerations in research data management. The study underscores the necessity of partnership between librarians and researchers; professional development for librarians; and collaboration with international organisations for RDM as part of strategies for improving RDM practices in academic libraries in Nigeria.

For academic librarians to function effectively as research data managers, they must possess expertise in data management practices, including data cleaning, metadata creation, data security and data preservation (Tammaro, Matusiak, Sposito and Casarosa, 2019). To acquire these competencies, academic librarians should engage in continuous professional development, including online courses, webinars, and self-directed learning (Mthembu and Ocholla, 2024). While the thinking on capacity building for academic librarians on RDM is in the right direction, some other authors point out that **r**esearchers first need to be

educated on the benefits of research data management and data sharing (Sheikh, Malik, and Adnan, 2023). Such training programs should address legal policy guiding data sharing, data management and awareness campaigns on the importance of RDM practices in the academic community (Subaveerapandiyan and Ugwulebo, 2024).

Igbinovia, Segun-Adeniran and Okuonghae (2024) argue for a technological revamp in academic libraries for libraries to realise their full potential in the management of research data. Sheikh, Malik and Adnan (2023) point out that before librarians can take on RDM roles, their institutions need to have the right resources and support. This includes things like clear policies, funds, ICT infrastructure and RDM training for librarians to develop the skills they need. Hombali (2022) argues that librarians, because of the training they receive in Library and Information Science (LIS) programs, are already equipped with the fundamental knowledge and abilities needed to manage research data, and they are in a good position to create a research data management program that works for their institutions. This assertion may not be true in all cases. For instance, academic libraries in Malaysia have not included data analysis, data citation, data mining, or data visualisation services in RDM (Amanullah and Abrizah, 2023). Academic libraries could also embrace the use of digital technologies such as Artificial Intelligence, Cloud Computing, and Blockchain (Paul, 2024).

Methodology

This study used the quantitative approach and adopted the descriptive survey research design. This study's use of a quantitative approach and survey research design aligns with previous research on research data management (Yabanet, Abubakar, Abdulrahman and Aliyu, 2024). The survey research design allows for the collection of quantitative data. The population of the study comprised 87 librarians from six academic libraries in South West Nigeria namely Nimbe Adedipe Library, FUNAAB, FUOYE University Library, *Albert Ilemobade Library,* FUTA; UNILAG Library, Kenneth Dike Library, University of Ibadan and Hezekiah Oluwasanmi Library, OAU. The six academic libraries were chosen based on specific criteria and interventions relevant to the study. A complete enumeration sampling technique was used therefore; the sample size is equal to the size of the population. To address and answer the research questions, data were collected using a questionnaire. A questionnaire was administered to the entire study population through Google Forms - a web-based application.

Google Forms is appropriate for data collection in social science research (Bhalerao, 2015). Participation in the study was voluntary. Data collection was for four weeks. At the end of the survey, 52 academic librarians participated in the study, giving a response rate of 60%. Data was analysed using the SPSS version and results were presented using descriptive statistics such as frequency counts, percentages, mean values, and standard deviations.

Results and Discussion

This section begins by presenting the findings about demographic information of study respondents**.**

Table 1: Demographic Profile of Respondents (N=52)

Demographic Characteristics	**Frequency**	**Percentage**
Selected Libraries		
Nimbe Adedipe Library	6	11.5
FUOYE Library	10	19.2
Albert *Ilemobade* Library, FUTA	5	9.6
Hezekiah Oluwasanmi library	7	13.5
Kenneth Dike Library, UI	12	23.1
UNILAG Library	12	23.1
Total	**52**	**100.0**
Gender		
Female	27	51.9
Male	25	48.1
Total	**52**	**100.0**
Age Range		
25 – 35	1	1.9
36 – 46	13	25.0
47- 57	34	65.4
Above 57	4	7.7
Total	**52**	**100.0**
Designation		
Assistant Librarian	9	17.3
Librarian I	7	13.5
Librarian II	10	19.2
Reader Librarian	6	11.5
Senior Librarian	17	32.7

University Librarian	3	5.8
Total	**52**	**100.0**

The study found that a majority of the respondents are from the University of Lagos Library and Kenneth Dike Library, University of Ibadan with (12 or 23.1%) each. Also, more female respondents participated in the study (27 or 51.9%). A higher number of the respondents were in the age of 47–57 (34 or 65.4%). Findings further showed that a majority of the respondents are Senior Librarians 17 (32.7%). The study's results displayed robust consistency across demographic groups, lending credibility to the data and supporting their use in informing the conclusions of this investigation.

Table 2: Perception of Librarians on their roles as Research Data Managers in Academic Libraries (N = 52)

Perception of Librarians on their Roles as Research Data Managers	**Minimum**	**Maximum**	**Mean**	**SD**
I have a clear understanding of the term "Research Data Management (RDM)" and its significance in academic libraries.	2.00	5.00	4.1154	0.67603
My understanding of the primary roles and responsibilities of librarians in the context of Research Data Management (RDM) is very low.	1.00	5.00	3.6538	1.20269
I understand that librarians in academic libraries often provide guidance on data storage solutions and best practices to researchers.	1.00	5.00	4.2115	0.97692
I recognise that librarians play a role in ensuring compliance with data protection and privacy regulations when it comes to research data.	1.00	5.00	4.2308	0.89914
I understand that librarians are responsible for curating and preserving research datasets in academic libraries.	1.00	5.00	4.0769	0.88220
I recognise that librarians promote data sharing and open access to research data as part of their role in academic libraries.	1.00	5.00	4.1154	0.78350
I understand that librarians advocate for Research Data Management (RDM) within the academic community.	2.00	5.00	4.1154	0.67603

The first research question south the opinion of respondents on the general comprehension of the roles of Research Data Managers in academic libraries. In Table 2, findings show that a majority of respondents possessed a clear understanding of the term "Research Data Management (RDM)" and its significance in academic libraries, with a mean (SD) value of 4.1154 (0.67603). It also indicates their depth of understanding regarding these responsibilities is somewhat limited, with a mean (SD) value of 3.6538 (1.20269). Additionally, Research Data Managers are perceived to be offering regular guidance on data storage solutions and best practices to researchers, as reflected by a mean (SD) value of 4.2115 (0.97692). Furthermore, respondents recognise that Research Data Managers play a pivotal role in ensuring compliance with data protection and privacy regulations in research data (mean value = 4.2308, SD value = 0.89914). Moreover, respondents indicated that part of the librarian's responsibility is to curate and preserve research datasets in academic libraries (mean value = 4.0769, SD value = 0.88220), promote data sharing and open access to research data as part of their role in academic libraries (mean value = 4.1154, SD value = 0.78350), and advocate for the importance of Research Data Management (RDM) within the academic community (mean value = 4.1154, SD value = 0.67603).

Table 3: Actual Research Data Management Roles Performed by Academic Librarians (N = 52)

Actual Roles Performed by Academic Librarians	**Frequency**	**Percentage**	**Mean**	**SD**
Assisting researchers with data management plans (DMPs).	42	80.8	0.8077	0.39796
Providing data storage solutions and guidance.	31	59.6	0.5962	0.49545
Ensuring compliance with data protection regulations.	21	40.4	0.4038	0.49545
Organizing data workshops and training sessions.	28	53.8	0.5385	0.50338
Curating and preserving research datasets.	19	36.5	0.3654	0.48624
Promoting data sharing and open access.	28	53.8	0.5385	0.50338

Advocating for the importance of RDM within the academic community.	21	40.4	0.4038	0.49545
Collaborating with IT departments and other campus units.	38	73.1	0.7308	0.44789

As regards the actual research data management roles performed by respondents in their respective academic libraries, as shown in table 3, the following activities were predominantly performed by the majority of respondents in Research Data Management practice: assisting researchers with data management plans (DMPs) [42 (80.8%), 0.8077], collaborating with IT departments and other campus units [38 (73.1%), 0.7308], providing data storage solutions and guidance [31 (59.6%), 0.5962], promoting data sharing and open access [28 (53.8%), 0.5385], and organizing data workshops and training sessions [28 (53.8%), 0.5385]. Nevertheless, based on frequency counts, percentages, and mean values, the subsequent roles and responsibilities are less frequently undertaken by respondents. This is because fewer than half of the respondents indicated that they ensure compliance with data protection regulations [21 (40.4%), 0.4038], advocate for the importance of RDM within the academic community [21 (40.4%), 0.4038], and curate and preserve research datasets [19 (36.5%), 0.3654]. These findings imply a notable disparity between the general understanding of the roles and specific responsibilities of Research Data Managers in academic libraries and the actual tasks performed by respondents in this study.

Table 4: How Academic Libraries could promote research data management within higher education institutions (N=52)

Variables	Minimum	Maximum	Median	Mean	SD
I think that by offering RDM services, libraries can help researchers manage their data better, which leads to better research.	1.00	5.00	4.00	4.1154	0.64637
Collaboration between academic librarians and faculty members on RDM	2.00	5.00	4.00	4.3269	0.67798

could promote data sharing and open access.					
Continuous skills development among academic librarians involved on Research Data Management will effectively enhance service delivery.	2.00	5.00	4.00	4.1346	0.59504
By talking about the importance of RDM, we can help improve how research data is managed and used.	2.00	5.00	4.00	4.1731	0.64841

As regards how academic libraries could promote research data management within higher education institutions, the study found that a significant portion of respondents affirm that integrating RDM services into the broader support framework of an academic library will enhance the effectiveness of research data, with a mean (SD) value of 4.1154 (0.64637) as shown in table 4. Similarly, a majority of respondents indicate that collaboration between academic librarians engaged in RDM and faculty members within an academic institution enhances the quality and visibility of research data, yielding a mean (SD) value of 4.3269 (0.67798). Furthermore, a substantial number of respondents believe that the continuous enhancement of knowledge and skills among academic librarians involved in RDM practice effectively boosts service delivery, with a mean (SD) value of 4.1346 (0.59504). Most respondents also express that advocating for the significance of RDM and its services within the academic community can bolster RDM practice, thereby aiding in the provision of high-quality research data services, as evidenced by a mean (SD) value of 4.1731 (0.64841).

Discussion of Findings

This research sought to understand the roles of librarians as Research Data Managers in Academic Libraries**.** Findings revealed that while there is a general comprehension of the term "Research Data Management" among respondents, there remains a limited understanding of the specific responsibilities of Research Data Managers. This aligns with previous research that highlights a gap in knowledge and training about RDM in various contexts. Many librarians are not fully aware of RDM practices, which could hinder their ability to support

researchers effectively (Oo, Chew, Wong, Gladding and Stenstrom (2022). The mean values reported in the study (mean of 4.1154 for understanding RDM and 3.6538 for understanding specific responsibilities) suggest that while there is awareness, further training and professional development are needed to enhance understanding and operational capacity. In the same vein, the finding resonates with previous research by Chawinga, and Zinn (2022), which identified a knowledge gap among librarians regarding the intricacies of RDM, suggesting the need for targeted training programs. The findings show that RDMs primarily assist researchers with data management plans (DMPs), IT department collaboration, and provision of data storage solutions. These roles are consistent with the literature, which suggests that RDMs act as facilitators between researchers and technology services (Hombal, 2022). Effective RDM requires interdisciplinary collaboration, which is echoed by the study's finding that a significant proportion of respondents collaborate with IT departments. Interestingly, fewer than half of the people surveyed engaged in ensuring compliance with data protection regulations or advocating for the importance of RDM within the academic community. This gap suggests a critical area for development, as compliance with data regulations is increasingly vital in research practices (Pansara, 2023). Pansara notes that RDMs are important in navigating the complexities of data protection laws, which is important for making sure research data is correct and trustworthy.

The study further examined how academic libraries could act as catalysts for promoting a culture of research data management within higher education institutions. The findings indicate that integrating RDM within the library's support framework and fostering collaboration with faculty members significantly improve service delivery. This supports the views of Tenopir et al. (2014), who argue that the integration of RDM into existing library services not only enhances the visibility of these services but also ensures that they meet the evolving needs of researchers. The emphasis on ongoing skill development among academic librarians involved in RDM is a pivotal finding. As the field of RDM evolves with new technologies and best practices, continuous professional development is essential. A report by the Digital Curation Centre (DCC, 2019) and Federer (2018) highlights the necessity for RDM training programs to ensure librarians can adapt to these changes and provide high-quality support to researchers. These research findings imply that there is a need for enhanced training, clear definitions of roles, and stronger advocacy within the academic community regarding RDM. As the field of research data continues to evolve, academic libraries in Nigeria—

and globally—must prioritise the development of their RDM services to effectively support researchers and comply with emerging data regulations.

Conclusion

This article investigated the involvement of librarians in Research Data Management using a quantitative approach. The study examined the perception of librarians on their roles as Research Data Managers in academic libraries, the actual RDM roles performed by academic libraries and how academic libraries could promote research data management within higher education institutions in Nigeria. The findings of this study evidenced the fact that although a foundational understanding of Research Data Management (RDM) exists in Nigerian academic libraries, significant gaps remain in terms of fully comprehending and performing the specific roles and responsibilities of Research Data Managers (RDMs). While there is general awareness of RDM, many librarians lack in-depth knowledge and the skills necessary to effectively support researchers, particularly in areas such as compliance with data protection regulations and advocating for the importance of RDM within academic communities. This disconnect can be attributed to challenges such as inadequate training, institutional support, and a lack of interdisciplinary collaboration. The study also emphasizes the significance of continuous professional training for librarians to remain current with evolving RDM practices.

Recommendations

1. Institutions should provide dedicated RDM training to equip academic librarians with the necessary practical skills to effectively manage research data.
2. University Librarians are to ensure that librarians have access to adequate resources and institutional support to engage fully in RDM practices.
3. Academic libraries should actively promote the importance of RDM to the broader academic community.
4. University Librarians should devote more attention to fostering collaboration on RDM among librarians, IT departments, and faculty.
5. Librarians need to educate lecturers on the values of data sharing, open access and the importance of RDM and its services within the academic community.

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ADOPTION OF SECURITY SYSTEM FOR LIBRARY AND INFORMATION SERVICES PROVISION BY THE STAFF OF FEDERAL POLYTECHNIC BIDA NIGER STATE, NIGERIA

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Abstract

*The study investigated the Adoption of Security System for Library and Information Services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria. In conducting the study three research questions were formulated, what types of security systems are used for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria. What are the needs for security systems for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria? The study's methodology was quantitative research methodology with a survey research design. The target population of the study comprises the staff of Federal Polytechnic Bida Niger State, Nigeria. The study's sample size was 52 employees, and the data collection instrument was a structured questionnaire. The findings revealed that security clearance procedure, 3m exit detection, and video recording surveillance were the main Types of security systems used for library and information services provision, revealed that protecting materials on exhibit and controlling entrances and exits were the needs for a security system for library and information services provision and revealed that, Lack of funding, mishandling behaviours of materials and inadequate staff/personnel were the main **C**hallenge staffs encountered for using security systems provision. The study concluded that library staff were not very aware of the different types of security systems available in libraries but, the library management needs to make a positive move toward improving security measures, as it is a known fact that libraries are not always safe and secure places, and they are facing a variety of social concerns. The study recommended that the management of should provide, ID cards and access authorization, electronic video Recording Surveillance,*

security guards employed to patrol, electronic eye detection, and signature of every user (Gate Registration among others The Management should enhance marks of ownership accessibility and use, inventory control and vigilance, guarding against mutilation and vandalism, protecting materials in book drops, among others, The Management of should provide more solutions on mutilation of books, book, vandalism of materials, stealing of personal belongings of staff and patrons.

Keywords: Adoption, Security System, Library, Information, Security and Services provision

Introduction

A security system is an important and complex challenge in contemporary societies. Not only do individuals require security and safety of their lives and properties, but also university libraries in particular, strive to provide information resources in both print and non-print materials to support the educational services of the university community and humanity at large where adoption of security system in Library and information systems and services are key actors in providing unhindered access to essential resources for research, decision making, economic, and cultural advance.

Library and information services are a crucial factor in national development and contribute to safeguarding intellectual works from any threats of harm. That is to say, knowledge and information in the library must be safe from security threats and vulnerability which the arrangements provided for safe and secure facilities by library staff and the resources. Library and information systems and services play a fundamental role in academic libraries that the resources and services they offer create opportunities for learning and teaching, support literacy and education, and research, also help to shape the new ideas and perspectives that are central to a creative and innovative society (White, 2012).

It is also important that the adoption of security systems in the library should perform their functions as seamlessly as possible, without interfering with the primary objective of any library i.e. providing user services with ease and simplicity which includes the protection of personnel (both staff and users), collections, equipment, physical facilities, and information from harms such as mutilation, theft, physical attack, accident damage, and others. However, the library security system provides a safe and secure environment not only for

library employees but also for library resources and library patrons too as well (Nath & Deka, 2020). Protecting the library documents, employee users, reading rooms and workflow are the most important areas of the library security system (Kumar & Mamta 2019). Library security is a simple technique for effective methods of protecting information resources. Gupta and Madhusudham (2018) observed that library security is a broad term and can be defined as the arrangements provided for safe and secure facilities for library staff, library resources, equipment, and library users. Library security practices encompass both technical and non-technical issues to safeguard organizational assets from a variety of threats.

Statement of the problem

A security system is a stable relatively predictable environment in which an individual or group may pursue its ends without disruption or harm, without fear of such disturbance or injury, Library security is one of the big threats faced by library professionals and library staff to preserve and conserve information resources secured which cannot be overemphasized as users depend on library resources for knowledge and new ideas to enhance intellectual development, a Security system is an essential factor that faces libraries services which lead to the loss of library materials as a recurring factor that face libraries in all over the world, but it seems to be more serious in academic libraries in Nigeria. it's observed that many terms inadequate security measures to control behaviours and the loss of books and other documents like the behavioural problem of patron and staff, technical and administrative problems, habitual, and architectural, etc. It is also observed the illegal practices in academic libraries are so common that they need strenuous efforts to control their spread. The illegal practices in academic libraries are treated as theft and mutilation of books, hiding of books and misplacement, unauthorized borrowing, non-return of books, vandalism of library property, disruptive behaviour by the users etc. These are more prevalent in academic libraries. It is also a common practice among students to steal or remove pages of library materials because of the high cost of books in Nigeria. Some students find it difficult to make ends meet and as such cannot afford recommended textbooks. The only way out for some students is to resort to tearing off pages of the textbooks or stealing a complete from the library's collection. Most academic libraries do not have photocopy facilities for users in case of any need, when available in some cases incessant changes in power do not give room for users to make copies of urgent materials needed. However, the researcher observed that many times mishandling, and vandalism of the facilities

such as CD ROM, DVD, and magnetic tape can easily crack when it's not handled with care or falls on the ground. The CD ROM, and DVD, may be damaged and information on it can lost. Accessibility of the information services cannot be possible as a result of data loss by mishandling of CD ROM, DVD, and magnetic tape among others. Theft of books, journals, CD ROM, microfilm, computers and other library collections, diminish materials in the library. These crimes, which are committed by some users, have deprived many users of fully achieving their information needs as it has led to the loss of many valuable materials in university libraries

Research questions

1. What types of security systems are used for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria?
2. What are the needs for a security system for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria?
3. What are the challenge staffs encountered in using security systems for library and information services provision of the staff of Federal Polytechnic Bida Niger State, Nigeria?

Literature review

Types of security systems used for library and information services provision for easy accessibility of the information services, Ramana (2010) contributed that "Closed Circuit Television (CCTV) uses in the libraries can enhance the ability to control the book thefts and tearing off the pages from the books and magazines. Kumbhar and Veer (2016) submitted that the various library security technologies and systems available today include RFID, 3M Technology, Magnetic tackle tape, web cameras etc. manual systems are surveillance, key and locks, surveillance, guards, lighting at late night etc. Academic libraries are libraries attached to institutions of higher learning or tertiary institutions such as universities, colleges of education, polytechnics and colleges of technologies. Crime and library security control in academic libraries have taken on a serious dimension by serious-minded librarians. The increased accessibility to library collections by potential library users increased the threats of theft and mutilation. In many instances, the greater the financial value of the book the prospect of its vulnerability to theft. The statistics of book theft and losses are, however, scanty, if not unknown, in Nigerian academic libraries. Fire

extinguisher & security equipment: A fire extinguisher is an active hearth protection machine used to extinguish or manipulate small fires, regularly in emergencies.

It is no longer supposed for use on an out-of-control fire, such as one which has reached the ceiling, endangers the consumer (i.e., no break out route, smoke, explosion hazard, etc.), or in any other case requires the know-how of a furnace brigade. Typically, a furnace extinguisher consists of a hand-held cylindrical strain vessel containing an agent which can be discharged to extinguish a fire. Fire extinguishers manufactured with non-cylindrical strain vessels additionally exist, but are much less common ID cards and access authorization as a minimum, an identification card must contain the individual's name, color photograph or digitized image, the name of the issuing department/organization, date of expiry (maximum five years from the date of issue) and a number unique to the card. Locks & Key System A key is a device that is used to operate a lock (such as to lock or unlock it). A typical key is a small piece of metal consisting of two parts: the bit or blade, which slides into the keyway of the lock and distinguishes between special keys, and the bow, which is left protruding so that torque can be applied by the user. Security Clearance Procedure A protection clearance is an authorization that permits entry to information that would otherwise be forbidden. Security clearances are regularly used in enterprises and government. ... When a safety clearance is required to get admission to particular information, the data is stated to be classified. Security guards employed to patrol A security guard (also known as a security officer or protective agent) is a person employed through a public or personal party to guard the employing party's assets (property, people, equipment, money, etc.) from a range of dangers (such as waste, broken property, hazardous worker behaviour, crook undertaking such as theft, etc.) employing enforcing preventative measures. Security guards do this using preserving a high-visibility presence to deter unlawful and inappropriate actions, looking (either directly, through patrols or indirectly, with the aid of monitoring alarm structures or video surveillance cameras) for signs and symptoms of crime or different hazards (such as a fire), taking motion to decrease harm Signature of every user (Gate Registration) (Ramana, 2010))

The global leader in library security for over three decades, 3M Library Systems through the combination of Tattle-Tape™ Security Strips, innovative detection systems and circulation accessories – protect billions of individual items in thousands of libraries across the world. Alarm systems an alarm device or

system of alarm devices gives an audible, visual or other form of alarm signal about a problem or condition. Alarm devices are often outfitted with a siren. Biometrics Biometric security is a security mechanism used to authenticate and provide access to a facility or system based on the automatic and instant verification of an individual's physical characteristics. Because biometric security evaluates an individual's bodily elements or biological data, it is the strongest and most foolproof physical security technique used for identity verification. CCTV cameras Closed-circuit TV (CCTV), additionally considered as video surveillance is the use of video cameras to transmit a signal to a particular place, on a limited set of monitors.

An open circuit gadget refers to a device that is focused at an indefinite wide variety of people, as in tv broadcasts. Closed-circuit systems, on the other hand, are designed to provide video to distinctive viewers. One closed-circuit gadget that is particularly designed for surveillance purposes is typically referred to as a closed-circuit television or CCTV system. two CCTV is used in a vast range of functions which consist of security, disaster prevention, electricity and manpower saving, income advertising and records services, manufacturing management, industrial measurement, scientific care, training and military fields. Electronic Eye Detection An electric eye is a photodetector used to detect obstruction of a light beam. An example is the door safety system used on garage door openers that use a light transmitter and receiver at the bottom of the door to prevent closing if there is any obstruction in the way that breaks the light beam. etc. RFID system Radio-Frequency Identification (RFID) based access-control gadget permits solely accredited human beings to enter a particular place of an establishment. Authorized human beings are provided with special tags, the use of which they can get admission to that area. This RFID primarily based safety gadget is primarily based on microcontroller AT89C52 and contains an RFID module, an LCD module for showing the status and a relay for opening the door and other library operations like check-out, check-in management. (Ramana, 2010).

Library Security is an important and complex challenge in an academic library. Maidabino (2010) asserts that the issue of collection security is of growing concern to university libraries and librarians. An academic library in particular, seeks to provide information resources in both print and non-print to support the educational services of the university community and humanity at large. Berek (2016) defined an Electronic Security System as a system connected to the integrated library system which brings completely independent theft protection into effect through the provision of unique identification of books or

other documents. This system assists libraries in controlling, minimising or avoiding library material theft and unethical losses. Examples of electronic security systems used by academic libraries are Radio Frequency Identification (RFID) systems (both Transponder and Reader), electronic surveillance cameras (CCTV), Fire/Smoke sensors, moisture sensors, 3M electronic security exit detectors, perimeter alarm systems, etc. Berek (2016) also emphasize library Security System for the safety of the library's collection is realized in three forms: preservation, preventive protection and recovery protection.

The need for a security system for library and information services provision is very paramount in the provision of efficient and effective library service delivery. Where there is insecurity of library collections, the resources are exposed to dangers such as theft, mutilation, and vandalism among others. Edem (2010). Libraries and archives must have safety and security plans in place to ensure that staff is prepared to respond to fire, water emergencies, and other large-scale threats to collections (Cornell University Library, 2014). Ajegbomogun (2014), observed that collection security refers to a process designed to protect library collections against unauthorized removal or loss. The security of library materials (book and non-book material) is of utmost importance to the librarians and information specialists to reduce or avoid unauthorized access to information-bearing materials available in the library (Omosekejimi, Ijiekhuamhen &Ojeme 2015). The security of library materials (book and non-book material) is of utmost importance to the librarians and information specialists to reduce or avoid unauthorized access to information-bearing materials available in the library (Omosekejimi, Ijiekhuamhen &Ojeme 2015).

The library has several different types of reading rooms as CCTV was inside, from low security to high security, as well as a specific room for scientific journals. In the high-security reading rooms, the camera density is much higher and the recordings are kept for longer as the library is trying to hold a record of "what happened at each desk on a particular day". The lower security reading rooms merely have area surveillance and the feeds aren't as high quality. All feeds from all cameras are kept for a minimum of 31 days and a maximum of 1 year. Data is stored on-site on secure servers, to which only the security team has access. Dean (2014) observed that access card technology has been used to safeguard. This involves protecting resources against disasters as well as thieves or intruders. From the perspective of Maidabino (2010), library security management has to do with taking necessary measures to ensure that the materials available for use in the library are kept in good condition and prevented from being stolen. Security management in libraries can be conceptualized to mean the

overall manner in which security policies, programs, procedures, or measures are adopted to mitigate the risk and ensure access. Also observed was a high rate of book theft, mutilation and misplacement of books in Nigerian academic libraries. Further suggested measures to reduce the problems which include tightening security at the library entrance and exit, and the expulsion of students involved in theft. Abubakar, Abdullahi, Dewa, Barkindo and Zubairu (2020) opined that electronic security systems are technological devices that are used with the aid of electrical apparatus to secure library materials from theft and vandalism.

The library security system needs to provide a safe and secure environment not only for library employees but also for library resources and library patrons too as well (Nath and Deka, 2020). Protecting the library documents, employee users, reading rooms and workflow are the most important areas of the library security system (Kumar and Mamta 2019) The security of library materials (book and non-book material) are of utmost importance to the librarians and information specialists to reduce or avoid unauthorized access to information-bearing materials available in the library (Omosekejimi, Ijiekhuamhen &Ojeme 2015). Library resources are the information-bearing materials that enable the library to fulfil its goal of meeting the information needs of its users. Ajegbomogun (2014) posits that overall, how policies, programmes, procedures, or measures are deployed to mitigate risk and ensure access to library resources is not encouraging; a security practice simply refers to the different types of actions and measures or practices adopted to stop a crime Randall and Newell (2014) identified three main ways the library views its use of the CCTV cameras firstly, the cameras are used to maintain the library's external perimeters so that the security can monitor access to the library site, particularly at night. The exterior cameras are motion-activated at night, to assist security in identifying sectors where an intruder may be trying to scale the fence. Secondly, an element of the CCTV cameras is to monitor the public areas of the library and observe. Abubakar, Abdullahi, Dewa, Barkindo and Zubairu (2020) cited Nancy (2016) on the use of electronic security to combat book theft and the experiences involved in their installation in the United States. Nancy further stressed that the adoption of video surveillance and closed-circuit television (CCTV) systems serve as a way to monitor vandalism in the library. The system can also be used to monitor and record evidence on clientele and employee misconduct. The two basic elements of electronic surveillance, primarily, are the device or trigger that is fitted into each book-hardback, paperback or journal, cassette, record or disc.

Records also access cards can be used in conjunction with video surveillance to control and monitor large collections and equipment. Further, explain that access cards can be integrated as photo ID cards for library employees and can be used as temporary keys for library clientele to have access to restricted areas. The access system can also be used for monitoring employee time and attendance, and security patrols of the property and can limit access to sensitive areas in the library. Electronic access control systems enhance safety and protect valuable library assets. Access control solutions range from simple authorized access systems to advanced closed-circuit monitoring and exception reports delivered through secure internet connections. Khurshid (2015) stated that electronic security systems for libraries cover access control, radio frequency identification systems (RFID), electronic alarm systems, smoke detectors, flame detectors, security sensors, burglary protection, video surveillance, CCTV, biometric identification and database management programs can be used to control vandalism in the library. The use of an electromagnetic security (EM) surveillance system for managing security challenges arising from theft and vandalism, electromagnetic security (EM) is another most used library security measure worldwide in the protection of books and other media from vandal activities (Adamu and Abdullahi 2018).

One such challenge is the issue of collection security for print and non-print resources. In modern knowledge and learning environments, university libraries have to look for creative solutions to are relevant to the needs and demands of customers (Ondiek, 2013). Although the security of library material is essential to its effective exploitation or use due to knowledge expansion, compound factors disturb the protection of library resources. Previous studies have reported that the application of ESSs emanates from human factors, organizational factors and technological factors (Masenya & Mubofu et al., 2022; Ngamba & Maidabino, 2010) Aina (2013) opined that the use of electronic resources management systems to safeguard resources is the advent of information and communication technology (ICT) now has made libraries preserve their information resources through electronic methods. Information in printed format can now be recorded on a computer using compact disk (CD) diskettes, flash drives and through digitization of library information resources.

The majority of people consider security associated with a system as protection against theft and deliberate destruction. The events of accidents cause loss of materials and other equipment‟s, missing collections (Parul Gupta,2018).

Ismail and Zainab (2011) observed that library materials can be damaged by various factors such as environment, atmospheric hazards, natural calamities, and user and staff behaviour and that valuable resources of the libraries need extra care in terms of security. Library security is one of the big threats faced by library professionals and library staff in preserving and conserving information resources. Library security is a simple technique for effective methods of protecting information resources. Gupta and Madhusudham (2018) observed that library security is a broad term and can be defined as the arrangements provided for safe and secure facilities for library staff, library resources, equipment, and library users. Library security practices encompass both technical and non-technical issues to safeguard organizational assets from a variety of threats. Information systems (IS) in libraries support the delivery of images, services and collections to local and remote patrons and this availability over the internet inevitably exposes it to security threats that academic libraries have been faced with varying degrees of criminal behaviours in the use of their resources especially materials.

Methodology

The research methodology adopted was quantitative research because is more concerned with systematic empirical investigation of social observable phenomena via statistical, mathematical, or computational techniques (Suleiman 2007). A cross-sectional survey research design was adopted for the study. The population comprised of the academic librarians and non-academic librarians of the federal polytechnic library Bida where the population are fifty-two (52) in federal polytechnic library Bida Niger state, Nigeria staffs were used as a sample of the study. A structured questionnaire was used for data collection. The data used to answer the research question was analyzed using frequency and percentage at 50% benchmark for acceptances.

Table 1. Types of security systems used for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria

S/N	types of security systems used for library and information services provision	***Category of*** **The Respondents**		**f**	**%**
		Academic Librarians	**Non-Academic Librarians**		
1	Security Clearance Procedure	15(28%)	14(26.9)	29	55.7%
2	ID Cards and Access Authorization	21(40.3)	3(5.7)	24	45.1%

3	3m Exit detection	9(17.3)	18(34.6)	27	51.9%
4	Electronic Video Recording Surveillance	17(32.6)	9(17.3)	26	50%
5	Security Guards Employed to Patrol	10(19.2)	11(21.1)	21	40.3%
6	Electronic Eye Detection	7(13.3)	12(23.0)	19	36.5%
7	Electronic Video Recording Surveillance	4(7.6)	19(36.5)	23	44.2%
8	Fire Extinguisher and security equipment	5(9.6)	6(11.5)	11	21.1%
9	Signature of every User (Gate Registration)	7(13.3)	11(21.1)	18	34.6%
10	Closed–Circuit Television (CCTV)	5(9.6)	3(5.7)	8	15.3%
11	Smart Card	6(9.6)	3(5.7)	9	17.3%

Sources: Field Survey 2024

Table 1. reveled that, security clearance procedure with 29(55.7%) had the highest percentage. follow by 3m exit detection with 27(51.9%), then, Electronic Video Recording Surveillance With 26(50%). While, ID cards and access authorization with 24(45.1%). Follow by electronic video Recording Surveillance23(44.2%). Follow by security guards employed to patrol with 21(40.3%). Then, electronic eye detection with 19(36.5%). Follow by signature of every user (Gate Registration) with 18(34.6%). Follow by smart card with 9(17.3%) and closed–circuit Television (CCTV) with 8(15.3%). In the light of the finding security clearance procedure, 3m exit detection, video recording surveillance were the main Types of security system used for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria these in line with Maidabino (2010), agreed that high rate of book theft, mutilation and misplacement of books in Nigerian academic libraries. Further suggested measures to reduce the problems which include tightening security at library entrance and exit, the expulsion of students involved in theft. They have the percentage above the benchmark of 50%.

Table 2. Needs for security system for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria

S/N	**Needs for security system for library and information services**	***Category of* Respondents**	**f**	**%**

	provision	**Academic Librarians**	**Non-Academic Librarians**		
1	Accessibility and use	12(23.0)	7(13.3)	19	36.5%
2	Marks of ownership	11(21.1)	10(19.2)	21	40.3%
3	Taking precautions against theft	2(3.8)	8(15.3)	10	19.2%
4	Protecting materials on exhibit	14(26.9)	15(28%)	29	55.7%
5	Guarding against mutilation and vandalism	4(7.6)	9(17.3)	13	25%
6	Controlling entrance and exits	18(34.6)	9(17.3)	27	51.9%
7	Inventory control and vigilance	6(11.5)	12(23.0)	18	34.6%
8	Protecting materials in book drops	6(11.5)	5(9.6)	11	21.1%

Sources: Field Survey 2024

Table 2. reveled that, protecting materials on exhibit with 29(55.7%) had the highest percentage. follow by controlling entrance and exits with 27(51.9%). While, marks of ownership with 21(40.3%). Follow by Accessibility and use with 19(36.5%). Follow by inventory control and vigilance with 18(34.6%). Then, guarding against mutilation and vandalism with 13(25%). Follow by Protecting materials in book drops with 11(21.1%) and Taking precautions against theft with 10(19.2%). In the light of the finding protecting materials on exhibit and controlling entrance and exits were the main needs for security system for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria. In line with Kumar and Mamta (2019) stress that Protecting the library documents, employee users, reading rooms and workflow are the most important areas of the library security system.

Table 3. What are the challenge staffs encountered for using security systems for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria

S/N	**challenge staffs encountered for using security systems for library and information services provision**	***Category* of the respondents**		**f**	**%**
		Academic Librarians	**Non-Academic Librarians**		
1	Vandalism of materials	3(5.7)	21(40.3)	24	45.1%
2	Mutilation of books	16(30.7)	9(17.3)	25	48.0%
3	Stealing of personal belongings	7(13.3)	16(30.7)	23	44.2%

	of staff and patrons				
4	Inadequate staff/personnel	18(34.6)	9(17.3)	27	51.9%
5	Book theft	20(38.4)	5(9.6)	25	48.0%
6	Sabotage of library security by the staff	14(26.9)	7(13.3)	21	40.3%
7	Poor lighting in important areas of the library	3(5.7)	6(9.6)	9	17.3%
8	mishandling behaviors of materials	17(32.6)	14(26.9)	31	59.6%
9	Lack of institutional security policy	4(7.6)	8(15.3)	12	23.0%
10	Inadequate and non-functional library security measures	12(23.0)	10(19.2)	22	65.3%),
11	Lack of funding	25	9(17.3)	34	65.3%

Sources: Field Survey 2024

Table 3. reveled that, Lack of funding with 34(65.3%) %) had the highest percentage. follow by mishandling behaviors of materials with 31(59.6%), follow by inadequate staff/personnel with 51(51.9%). While, mutilation of books and book theft with 25(48.0%), follow by vandalism of materials with 24(45.1%), follow by stealing of personal belongings of staff and patrons with 23(44.2%), follow by Inadequate and non-functional library security measures with 22(65.3%), follow by sabotage of library security by the staff with 21(40.3%), then, lack of institutional security policy with 12(23.0%) then poor lighting in important areas of the library with 9(17.3%).

In the light of the finding, Lack of funding, mishandling behaviors of materials and inadequate staff/personnel were the main the challenge staffs encountered for using security systems for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria. In the light of the Nwosu, Ifeka, & Okeke (2013), observed that the challenge of digital information is to make books, journals, vertical files, indexes, and other (print) materials found in libraries accessible to patrons in an electronic format, preferably from any location. finding lack of funding, mishandling behaviors of materials and inadequate staff/personnel were the main

Summary of the Findings

The findings for this research study are:

1. Majority of the respondents revealed that security clearance procedure, 3m exit detection, video recording surveillance were the main Types of security system used for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria
2. Majority of the respondents revealed that protecting materials on exhibit and controlling entrance and exits were the needs for security system for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria
3. Majority of the respondents revealed that, Lack of funding, mishandling behaviors of materials and inadequate staff/personnel were the main the challenge staffs encountered for using security systems for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria.

Conclusion

Based on the findings of this Study, the following recommendations are made
The study concluded that library staff were not much aware of different types of security systems available in libraries but, the library management needs to make a positive move toward improving security measures, as it is a known fact that libraries are not always safe and secure places, and they are facing a variety of social concerns As libraries play vital roles in our society, the study also exposed the relevance and necessity of security measures that can be adopted in the library either conventional or electronic security systems.

Recommendations

Based on the findings of this Study, the following recommendations are made

1. The Management of should provide, ID cards and access authorization, electronic video Recording Surveillance, security guards employed to patrol, electronic eye detection, signature of every user (Gate Registration), smart card and closed–circuit Television (CCTV) in improving the Types of security system used for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria.
2. The Management of should enhance on marks of ownership accessibility and use, inventory control and vigilance, guarding against mutilation and vandalism, protecting materials in book drops, Taking precautions against theft for the needs for security system for library

and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria

3. The Management of should provide more solutions on mutilation of books, book, vandalism of materials, stealing of personal belongings of staff and patrons, Inadequate and non-functional library security measures, sabotage of library security, lack of institutional security policy, poor lighting in important areas of the library to improve on the the challenge staffs encountered for using security systems for library and information services provision by the staff of Federal Polytechnic Bida Niger State, Nigeria

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APPLICATION OF ARTIFICIAL INTELLIGENCE (AI) FOR INFORMATION SERVICES DELIVERY: EXPLORING THE READINESS AND CHALLENGES IN SOME UNIVERSITY LIBRARIES IN KATSINA STATE

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Abstract
In recent years Artificial Intelligence (AI) has become increasingly common in various sectors, including the libraries. It is widely accepted that AI is capable to revolutionize information service delivery; improve automation and digitization of library's operations and subsequently improve working capabilities of library staff members in general. The major aim of this study is to explore the readiness and challenges of applying AI for information service delivery in some university libraries in Katsina state. These specific objectives were to evaluate the readiness of the libraries on the application of AI and finally to identify the challenges that libraries face towards the application of AI. The study employed quantitative and descriptive survey design. The population of the study comprises all the library staff members working in the three (3) university libraries in Katsina (i.e. UMYU, FUDMA & AL-QALAM) and 165 library staff members were proportionately sampled. The study used descriptive and inferential statistics to analyse and present the data using SPSS. The findings of the study reveal that library staff members are open and ready to apply AI if well provided; however, certain factors identified need to be fulfilled to ensure seamless application, which, among others, include specific AI policy document, AI support infrastructure, equipping library staff with AI skills. Consequently, the findings identify certain challenges that hinder application of AI such as inadequate financial or budgetary provision, lack of AI support infrastructure, AI policy document, plagiarism and intellectual freedom theft, and fear of job loss or polarization. The study recommends that that government, university managements and library management should make available AI support infrastructure, telecommunications facilities to facilitate easy transition to AI in libraries. Additionally, TET Fund and NITDA should collaborate with NLA and local library branches to formulate a comprehensive policy document that would guide

libraries and library staff towards responsible and ethical AI application into library operations and services. Libraries should seek increased support from government and funding agencies such as TETFund, UNESCO and IFLA to invest considerably in the provision of adequate budgetary provision, provision of AI support infrastructure and telecommunication facilities necessary for successful AI integration in the libraries.

Keywords: Application, Artificial Intelligence, University Library, Readiness, Information Services

Introduction

Libraries have been reoriented to reflect contemporary standards in information resources and services delivery across the globe. Through automation and digitisation of information services libraries are promoting and expanding many of their products and services. In modern day information service delivery, Artificial Intelligence (AI) is gaining grounds for it enables the library staff and management alike to render efficient and effective services to the maximum satisfaction of their users. AI has changed the narratives of modern technological advancements in all sectors and is popularised among all sectors of the society (Al-Khalidi, 2022). AI has the capabilities of giving upper hand and advantages to many modern technologies without the intervention and or operations of humans, thereby providing the advantage of round the clock services regardless of location or number of users at a time (multiple accesses).

AI could historically be traced back in 1955 when John MacCarthy postulated that all aspects of learning and human intelligence in performing tasks could be programmed through machine. He further expanded it to science and engineering through venturing into intelligent machines and computer software programs to ensure specificity, accuracy and efficiency in operations. His assertion triggered serious attention and attracted many scholars into defining and promoting the concept of AI. McGraw-Hill Encyclopaedia of Science and Technology (2007) defined AI as a subfield of computer science focusing on the understanding of our natural environment and innovatively creating intelligent gadgets and software that are able to handle intelligent operations often undertaken by humans. In addition, Merriam-Webster English Dictionary (2018) states that "AI is a part of computer science that deals with giving ability to the machines to look as if they have natural human intelligence". The advancement of these intelligent innovations is perfected through learning and

accumulation of experiences over time, their sophistication and areas of application are ever expanding.

According to Heath (2018), AI is the very useful technology that enables machines to have the abilities to plan, learn, reason, solve problems, move, and to some extent, be creative. Accordingly, Liu (2016) views AI as intelligent machines or intelligent systems that simulate human intelligence activities and extend the science of human intelligence. Similarly, Omame & Alex-Nmecha, (2020) are of the opinion that Artificial Intelligence is an aspect of computer science that focuses on how computers learn (Machine Learning), interpret information, vision: character recognition, picture analysis, 3D perception, modelling of the function of the eye. It also encapsulates speech recognition; speech production, understanding and use of natural language processing (NLP) and expert system which continues to gain more attention.

AI can be divided into three types: symbolism, connectionism, and behaviourism. Symbolism is an intelligent simulation method based on logical reasoning to simulate human intelligent behaviour. The main principle of connectionism is the connection mechanism and learning algorithm between neural network and neurons network. The theory of behaviourism is cybernetic and perceptual-action control system. At present, the popular technical fields involved in AI research are: problem solving, natural language processing, artificial neural networks, genetic algorithms, expert systems, knowledge engineering, artificial life, deep learning, intelligent control etc. (Liu, 2016).

Although the notion has been used by libraries and librarians in the Western world for decades, it is relatively new to the Nigerian academic library system. AI and its relation to library services have been defined and discussed by a variety of academic experts from across the world. Having a single entity definition for AI will be difficult and time-consuming, as various authors have stated that its use implies a technological transition. However, for the purposes of this work, we will accept a few definitions from other authors. Artificial Intelligence (AI) is defined by Frankenfield (2021) as the simulations of human intelligence in computers that are trained to think and act like humans. The phrase can also refer to any machine that demonstrates human-like characteristics like learning and problem-solving. The sound of the term AI often conjures images of robots or computers that talk. AI is an aspect of computer science that focuses on how computers learn (Machine Learning), interpret information, vision: character

recognition, picture analysis, 3D perception, and modelling of the function of the eye. Furthermore, it encapsulates speech recognition, speech production, understanding and use of natural language (Natural Language Processing), and Expert System which continues to gain more attention. Furthermore, Artificial Intelligence is the programming and development of computers to perform human required-intelligence tasks, such as speech recognition, decision-making, visual perception, language translation, talking and emotional feelings (Irizarry-Nones, Palepu & Wallace, 2017). According to Heath (2018), AI is the technology that enables machines be to have the abilities to plan, learn, reason, solve problems, move, and be creative to some extent. Three main focus of Artificial Intelligence is perception, reasoning and action.

Furthermore, Asemi and Asemi (2018) assert that the field of AI deals with the study and development of computer systems or machines that exhibit some forms of human intelligence, such as learning new concepts and tasks, reasoning and drawing useful conclusions about a specific task, natural language processing or perception and comprehension of visual scene etc. The intelligence of computers can be measured using the 'Turing test', developed by Alan Turing in 1950s, although, there are controversies and objections over this method. Irizarry-Nones et al. (2017) however asserted that the AI of computers or machines could be strong or weak. A computer with strong AI is able to think and make decisions like human beings; it is also capable of learning from experience and re-programs itself to improve on past mistakes like in the movies. Weak artificial intelligence computers cannot think, learn or re-program themselves; rather, they are specifically designed to respond to specific situation.

Advancement in the field of AI include autonomous vehicles or self-driving cars, navigation systems, human versus computer games, fraud detection, robotics and machine learning – the application of AI which gives computers or machines the ability the learn from past experiences, re-programs and improves on itself without human intention (Irizarry-Nones et al. 2017). Machine learning simply implies the computer teaching itself through iteration and past experiences with data. In addition, AI encompasses the following general areas of research: automatic programming, computer vision, intelligent control systems, expert systems, and intelligent computer assisted instruction, image processing, natural language processing, planning and decision support, robotics, and speech recognition (Asemi & Asemi, 2018). The application of AI has gained usefulness in most fields of study and it is thriving fast with the development of smart

phones, smart homes, Internet of Things (IoT) and Internet of Vehicles (IoV). Interestingly, AI is being used to generate and evaluate content including artistic and creative work (LeFebvre, 2017).

According to Harris (2016), AI has made a significant inroad into education as IBM has come up with the Teacher Advisor an AI system which has been built to help teachers draw up personalized lesson plans by pointing them to best lessons in math and then customizing the lesson to fit their unique classroom needs. The Teacher Advisor has a database of open educational math resources that provides over 2,000 free lessons, teaching plans and videos that can quickly search and bring up relevant answers (Fine, 2017). Semantic Scholar uses machine learning and other AI systems to assist the academia search more effectively and efficiently through resources as more and more research gets published (Metz, 2016). AI systems have been broadly classified from two different perspectives as outlined by Liu (2011):

1. The degree of their intelligence. In this perspective, AI systems are classified into:
    a. Reflex agents able to respond to stimulus from sensors such as heat sensor, light sensor, motion detection etc;
    b. utility-based system;
    c. goal-oriented systems; and
    d. Learning system such as machine learning systems that can teach computer programming.
2. The nature of their functionality. In this view, artificial intelligence systems can be categorized into:
    a. Collaborative systems;
    b. Reactive systems;
    c. Internet-based systems; and
    d. Mobile systems that can autonomously travel from one place to another to perform a task.

According to the McGraw-Hill Encyclopaedia of Science and Technology (2007), AI is built upon four key foundations: representation, search, reasoning, and learning. These foundational elements are essential in all AI systems.

a. **Representation:** This pertains to the internal organization of knowledge within an intelligent system, such as the problem description or relevant information. For example, an expert system for medical diagnoses would contain information about symptoms and diseases, while a robot's representation could include a 3D map of its environment.

b. **Search:** Critical for problem-solving, search methods are utilized in AI systems to find solutions. Heuristic search, for example, can adapt its approach based on the problem at hand, such as searching a database for similar problems and solutions.
c. **Reasoning:** This aspect allows AI systems to use knowledge to generate solutions. Reasoning can involve deductive reasoning, where existing knowledge leads to possible solutions, or inductive reasoning, where hypotheses are developed based on available information. Expert systems are an example of reasoning-based solutions.
d. **Learning:** This feature enables intelligent systems to adapt and improve based on experience and knowledge. Learning methods in AI include statistical, neural networks, and reinforcement learning, all falling under the umbrella of machine learning and deep learning. These methods allow systems to adjust representations, searches, and reasoning based on new information.

AI is the programming and development of computers to perform human required-intelligence tasks, such as speech recognition, decision-making, visual perception, language translation, talking and emotional feelings (Asemi & Asemi, 2018; Heath, 2018). Thus, these make AI matters to libraries because it can be used for organizing and making available large collections of information (ALA, 2019). According to Sridevi and Shanmugam (2017), AI is the modern technology which is used to manage the digital library. The ultimate promise of AI is to develop computer systems or machines that think, behave and in fact rival human intelligence, and this clearly has major implications on librarianship. AI is not just an intelligent system or software program, it is a biologically motivated technology used to replicate human ways of perceiving and processing information (Sridevi & Shanmugam, 2017). Intelligent library automation systems rely on Artificial Intelligence technologies to provide knowledge-based services to library clientele and staff. AI in libraries should not be misconstrued with library automation. While the later implies the degree of mechanization to routine library operations, the former goes beyond just automating library activities, and create intelligent rational systems that behave and act like librarians and requires little or no human intervention. AI systems can replicate and thus replace a human being in the library, although Li, Huang, Kurniawan and Ho (2015) believed that this invention will never replace librarians, but will center on menial and time-consuming library operations such as shelf reading and leave the librarians to engage with the patrons. Corroborating this assertion, Murphy (2015) maintained that the application of robots in libraries will bring librarians and users closer

together, against the notion that robots will alienate librarians from their users. Some fields of AI that be use by librarians include: natural language processing (NLP), expert systems (ES), pattern recognition, robotics, speech recognition, chatbots, etc (Sridevi & Shanmugam, 2017).

Nugroho, Anna and Ismail (2023) conducted a study analyzing the correlation between AI and libraries and the shift in research trends during the COVID-19 pandemic. The researchers gathered secondary data from Scopus using keywords such as AI, library, and repository from 1993 to 2022. The findings revealed that keywords like human, deep-learning, machine learning, surveys and open-source software became popular in 2020 and closely related to digital libraries. The annual scientific production of papers also significantly increased in 2021. The study highlights the importance of AI implementation in libraries to support repositories during the pandemic. It suggests that librarians can maximize AI-based repository services and create policies using AI. The research identifies themes and knowledge gaps in AI in library repositories, providing insights for researchers, academicians, and practitioners to conduct further research in this area.

Another study by Afaf' (2010) for some Sudanese universities on the use of AI applications in university libraries: designing a model for an expert system in references for the published University of Khartoum library": the study aims at identifying the applications of AI technology, areas of its use, and the ways to benefit from it in Sudanese university libraries, with proposing an expert system in references using the experimental approach. The researcher adopts in her study, in addition to the experimental approach, the descriptive-analytical approach, the survey approach, and the case study approach, using the method of focus group and interview as tools to collect information and data from a sample consisting of 55 users of the automated system of libraries, 100 users of the reference service within libraries, and 25 librarians. They all represent 11 Sudanese universities. The most prominent results are as follows: The expert systems in Sudanese university libraries are still in the establishment stage, and they have not been adopted as a strategy for managing libraries, no importance is given to expert systems technology, Librarians' lack of familiarity with Artificial Intelligence techniques.

In a study by Moustapha and Yusuf (2023) on the adoption and utilization of AI in university libraries in Kwara state Nigeria. The study raised four research goals as well as four research questions. A descriptive survey method and random

sampling techniques with 450 randomly selected librarians from Kwara state Universities were used for the research. Five research assistants were employed and trained on how to contact respondents and secure their consent before distributing the structured questionnaire designed by the researcher, who assisted in the tool distribution process. The researcher was able to able to retrieve 410 copies of questionnaires, with a high response rate of 91%. Findings indicated a limited use of AI in the libraries, with security scanning devices being the most common AI technology present. However, advanced AI systems like chatbots, face recognition, and RFID technologies were found to be lacking. The study also highlighted barriers to AI adoption, such as the need for training and infrastructure. Recommendations included providing training for librarians and ensuring support from university administration and libraries should commit and provide necessary infrastructure to ensure successful and rapid AI implementation.

However, Tella (2020) identified various areas AI application in academic libraries in Nigeria which include shelving and locating library materials, security and answering users' queries. In addition, AI technologies are very relevant in automated storage and retrieval systems (ASRSs), and this has really helped in space management in library operations (Payne, 2007). From this, it can be said that the readiness of librarians to apply AI will laid the technical foundation for the establishment of smart academic libraries. Furthermore, Shivarama and Choukimath (2019) identified various factors that can promote the application of AI technologies in academic libraries to include awareness and positive perceptions among librarians, modular architecture, self-learning and vivid language.

Similarly, various professional bodies in librarianship such as International Federation of Library Associations and Institutions (IFLA), the American Library Association (ALA) and South African Library Association have acknowledged the role AI can play in library operations and librarianship. An IFLA Trend Report indicates the relevance of AI in libraries and librarianship in the sense that it can be used with semantic web and search, as well as improvements to translation and cloud-based computing (Wang, 2014).

However, the readiness of library staff on the application of AI in university libraries dependent on factors like sufficient amount of data, need for policy document, the need to deploy necessary algorithms and software, and

lastly, expert knowledge (Martinez-Plumed et al., 2021). To achieve librarians' readiness to apply AI, Qomariyah, Mursidah and Wahyun (2020) in a study on Indonesian university libraries, list necessary factors and facilities needed for effective AI use in university libraries. These include making librarians aware of the AI in the sense of fully understanding its relevance and limitations, equipping the librarians with needed necessary skills to operate the technology, policy and procedure documents and organizational resources. Decker (2015) argues that, for effective use of AI in university libraries, the library management needs to deploy enough technology facilities in the library which include very strong Wi-Fi connectivity zone. He goes further to mention that there must be policy documents in place. However, deployment of AI systems would in turn reduce the rate of human interactions in library operations. In addition, Adebayo et al. (2018) reports that librarians need to be adequately aware of the benefits that AI may bring into the library and will in turn change their perceptions toward the AI because majority of librarians are found to have fear that AI deployment will reduce human interactions in the library which will subsequently lead to loss of jobs.

Below are the areas in which Artificial Intelligence could be used and/or applied in Academic library services in Nigeria (Heath, 2018; Vijayakumar & Sheshadri, 2019).

6. **Applications of Expert Systems in Reference Services**: Expert systems are utilized in reference services to help clients find recommended sources for their questions and research, direct patrons to reference sources, provide online reference assistance (ORA), aid in answering questions on specific topics, and act as a referral tool such as pointer, answer man and PLEXUS (Heath,2018; Vijayakumar & Sheshadri,2019).
7. **Application of Expert System in cataloguing:** Expert systems focus on descriptive cataloguing and can automate the cataloguing process with minimal input from intermediaries.
8. **Application of Expert System In classification:** Expert systems such as Coal SORT, EP-X, and BIOSIS assist in organizing knowledge through semantic networks and hierarchical concepts (Asemi & Asemi, 2018; Heath, 2018).
9. **Application of Expert System in Indexing:** Indexing as stated by Asemi and Asemi (2018) involves identification of concepts to translate these concepts into verbal descriptions by selecting and assigning controlled vocabulary terms that are conceptually equivalent to verbal descriptions. The reason for automating the intellectual aspects of indexing is to improve the indexing consistency and quality. Based on the information provided by the indexer, the

systems can arrive at appropriate preferred terms to automatically assign relevant subdivisions.

10. **Application of Expert System in Acquisition:** Expert systems like Monograph Selection Advisor help in building library collections with user input (Heath, 2018; Vijayakumar & Sheshadri, 2019).
11. **Application of Natural Language Processing in Library Activities:** Natural language processing can be used in library activities to search databases like OPACs.
12. **Application of Pattern Recognition in Library Activities:** In this era of the Internet and distribution of information, multimedia computing, new and emerging classes of information systems' applications have swept into the lives of office workers. New applications ranging from digital libraries, multimedia systems, geography information system and collaborative computing to electronic commerce have created tremendous opportunities for information researchers and practitioners.
13. **Application of Robotics in the Library Activities**: A robot is a programmable, multi-functional manipulator that is automatically controlled and can be reprogrammed, operating in three or more axes and capable of being stationary or mobile for automation purposes. Robots have the ability to maneuver by scrambling, rolling, flying, and climbing independently. The increasing digital services and resources offered by libraries have resulted in libraries acquiring significant amounts of printed materials. The challenge of providing both electronic and print-based resources has led to space limitations, particularly in academic research libraries. The Comprehensive Access to Printed Material (CAPM) initiative aims to develop an on-demand robotic scanning system that enables real-time browsing of printed materials through a web interface. Users will interact with the CAPM system, which will activate a robot to retrieve the requested item. The robot will deliver the item to another robotic system that will open it and automatically turn the pages. By utilizing scanners, optical character recognition (OCR) software, and indexing tools from the Digital Knowledge Centre, the CAPM system will not only facilitate browsing of text images but also enable searching and analysis of full-text content derived from the images (Asemi, &Asemi, 2018; Heath, 2018).

In the same vein, librarians' readiness to apply AI can enable university libraries in Katsina state to provide AI driven library services and perform operations with the aid of AI. These AI driven library services and operation can includes the following:

a. Automatic cataloguing and classification using Optical Character Recognition (OCR)
b. Automatic translation of foreign language materials using Natural Language Processing (NLP)
c. Automatic indexing using Expert Systems
d. Retrieval of audio-visual materials Optical Character Recognition and Speech Recognition. Music and pictures in the library's collections can be called up as fast as printed records a new dimension to knowledge storage and management.
e. Interactive bibliographic instruction using various media
f. Intelligent gateways to online sources,
g. User-structured information environment
h. Portable computer reader services for the handicapped
i. Intelligent Document Delivery Services (DDS)

Korinek and Stiglitz (2017) maintain that advances in AI technologies could bring about job losses or job polarization. AI adoption has the potential for a high rise in inequality due to automation. World Bank (2016) maintains that developing countries may be more hinted at the adoption of AI because it will lead to a high job loss rate. The report further states that 69% of job loss will be experienced in India through AI adoption; 72% in Thailand; 77% in China and 85% in Ethiopia. All these studies indicate that AI can lead to job losses and the potential for gross job destruction. Similarly, International Labour Organization (2018) also stresses that with the current trend in technological change based on the use of AI in different organizations that include libraries, AI use has created widespread fear of job losses and a high rise in inequality.

The study "Artificial Intelligence Investing in Academic Libraries: Reality and Challenges" by Farag, Mahfouz and Alhajri (2021) examines the implementation of AI in Saudi academic libraries. The study found a weak understanding of AI among most library workers, with 69% saying they do not use AI. The study also found that AI is currently being used in indexing, analysis, retrieval, storage, photography, and meeting the needs of library users. However, there is a lack of training for workers in the AI sector, which is attributed to the lack of training courses. The study concludes that AI should be used as an assistive technology for library specialists but not relied on entirely. The main challenges faced by academic libraries are a lack of physical equipment, limited local AI technology. Other challenges that may face by librarians on AI include the following:

1. **Financial Uncertainty and Cost of AI System**: When government funds are shrinking and political or economic changes are underway, cultural institutions

are often the first to suffer cuts. In many ways, the struggle for institutional or government funding is much like the chicken and egg problem. While the AI systems are very expensive and mostly in form of proprietary, system upgrade and maintenance requires payment to the proprietors, libraries cannot keep affording it. Libraries are expected to show value for money and demonstrate cost-effective practices, but they can't do that without integrating new technologies to upgrade their physical spaces, offer new services, and improve the user experience for today's patrons all of which requires additional funding (Tella, 2020). Thus, today's libraries often find themselves in a financial limbo- unable to show value without additional funding.

2. Lack of AI Skills: Lack of AI skills among librarians can negatively affect the libraries readiness to apply AI in both of their library operations and services. Today, equipping librarians with AI skills is just as important as provision of library resources and other physical infrastructures. These make it essential for libraries to organize workshops, seminars and to attend AI conferences in order to develop new skills not only to stay competent, but to better serve patrons in this AI age.

3. Lack of AI Infrastructure: The level of infrastructures needed to create and support AI in university libraries remain relatively low if not absent. At present, the level of investment needed to develop intelligent libraries requires skilled personnel with expensive development tools or techniques are lacking or costly.

4. Cultural and Religious Issues: Cultural affiliation and religion bigotry are the most critical barriers to development and deployment of AI in Nigeria. Language might not be a challenge to AI in university libraries in Nigeria, but people of the same tribal affiliation are usually biased in working cooperatively with other tribes especially in knowledge acquisition. Similarly, there is much religious intolerance that can seriously militate against AI technology in Nigerian university libraries.

5. Privacy Issue: Artificial intelligence when fed with large amounts of data, eventually learns to identify certain sets of data with the help of machine learning. Personal information has become a commodity that can be used for illegal purposes. Librarians need to ensure privacy by providing anonymous means of interacting with human information systems.

6. Bias: The transparency and accountability of library resources are services may be questioned, because algorithms can work according to the opinion of developers or commercial organizations which can lead to the provision of biased information. This may also lead to staff or users corrupting the AI thereby to play their bid.

7. Plagiarism and Intellectual Freedom Theft: Searching for information and receiving information from Artificial technology systems creates intellectual freedom in threats, as it gives room for users to search and use information without the permission of the authors or even users to personalized the information as if it's their property. Consequently, queries and search history are saved which can be used against people.

8. Fear of Unemployment, Redundancy and Job Loss: Another critical challenge that hinders application of AI in university libraries in Nigeria is the perceived fear of job losses that may cause large scale unemployment among librarians.

1. Motivation for the Study

Artificial Intelligence has made it possible to provide solutions to pressing challenges facing libraries, such as shelving of books and other library materials, cataloguing and acquisition of library materials, among others. Library services can be done in more effective and efficient ways for improved user satisfaction. Therefore, library users can access timely and accurate information quickly and promptly. Fernandez (2016) notes that using AI in academic libraries would help to analyze big data, create metadata, and improves search translation. This means that using AI in academic libraries will make library materials more accessible and available, and allow the staff to answer users' queries on AI use. Tella (2020) stresses the need for academic libraries to re-position themselves to take relative advantage of Artificial Intelligence's potentials by refining the quality of library services in this era of the information age. Talley (2016) also emphasizes the need for university librarians to embrace AI technologies to provide better services to researchers and other library users. Grant and Camp (2018) observe that many academic libraries particularly in developed countries have adopted AI for various library operations, such as circulation and reference services. Sagarjit, Sanghamitra and Paramita (2017) maintain that the application of AI has improved user engagement in many developed countries in the world. Access to timely information can only occur in a situation where AI is being used to guide and support, and at the same time user-friendly, particularly in information search. For instance, a friendly AI technology will help users search for information with ease, help retrieve information across various collections, and help with users' queries.

Moreover, Asemi and Asemi (2018) list various ways in which AI technologies can be used to improve library services to include the followings: circulation services, shelving of books, cataloguing of library materials, among

others. AI technology can also be used to assign metadata and to assist in the non-textual search. Fernandez (2016) notes the potential opportunities of AI in library operations, particularly in analysing big data, creating metadata, translating search items, and integrating search items across contents. Divayana, Ariawan, Sugiarta, and Artanayasa (2015) identified some of AI's advantages in library operations to include but not limited to the ability to perform library duties efficiently. With AI operation, libraries can carry out tasks very fast, compared to when being done by human beings. AI is handy in discovering unexplored concepts, such as outer space and reduces human errors in library operations.

Despite the advantages of applying AI in information services delivery many academic libraries in Nigeria and especially in the study area are not venturing into the huge benefit, to this background this research is triggered to understand the readiness and possible challenges hindering the application of AI in some University Libraries in Katsina State. And to do that the following objectives were set to guide the study to:

1. Ascertain the readiness of library staff on the application of Artificial Intelligence for information service delivery in the study area.
2. Identify the challenges that library staff may face on the application of Artificial Intelligence for information service delivery in the study area.

Methodology

This study is guided based on positivism research paradigm. Positivism perspective maintains and emphasizes on the importance of relying on evidence that can be physically observed and measured in order to comprehend the world. In social science research, the term "paradigm" is used to refer to the philosophical assumptions or set of core beliefs that guide the behaviour, actions and define the worldview of the researcher (Patton 2002). The study adopted quantitative research method based on its ability to capture quantitatively the attitudes and intention of librarians in determining the awareness and perception of librarians on AI. It will allow the researcher to determine the strengths and weaknesses of the divergent attitudes and approaches used by librarians on how ready they are and the challenges to application of AI technologies in shaping their daily library activities. Creswell (2013) and Williams (2011) described quantitative research method as a strategy of inquiry that includes experimentation, quasi-experimentation and surveys, and collects data on predetermined instruments (questionnaire) to general results quantitatively.

This study, therefore, employs survey research design from the three types of research design found in quantitative research methodology Creswell (2013). Cross-sectional Survey research design is a research design that provides a quantitative or statistical description of trends, attitude, or opinions of a population by studying a sample of that population and make analysis for the purpose of better understanding of the population (Sukamolson 2007 & Creswell 2013).

A structured questionnaire was prepared and developed using previously adapted scale used by Lund, Omame, Tijjani and Agbaji, (2020) on their study on perceptions toward AI among academic library employees. To ensure the reliability of the questionnaire, 30 copies of questionnaires (15 questionnaires each) were distributed to similar group of respondents in (Bayero University, Kano and Yusuf Maitama Sule University, Kano). The result was subjected to analysis using Cronbach alpha formula with the help of SPSS version 23 which give 0.723 reliability levels. To collect timely and relevant data using the questionnaire, the researcher physically administered the research instrument to the respondents in Katsina state university libraries with the help of two (2) research assistants.

The quantitative data collected in this study was organized for analysis by coding the raw data for easy manipulation using the appropriate descriptive statistical software. The Statistical Package for Social Sciences (SPSS IBM version 23) was used to present, analyse and describe the collected data using the questionnaire. SPSS is described as a powerful, comprehensive and flexible general-purpose data analysis package (Pickard, 2013). The researcher used frequency distribution tables, simple percentage, mean and standard deviation to represents the data. This allows representation of data in visually attractive forms thereby making the audience easily understand the data and research findings.
The target population for this study comprises all the 287-library staff working in the three selected university libraries in Katsina state.

2. Presentation of Tables

Table 1: Distribution of the Population

S/n	Name of University Library	No. of Library staff
1.	Umaru Musa Yar'adua University Library	49
2.	Federal University Dustin-Ma Library	218
3.	Al-Qalam University Library	20
	Total	**287**

(Preliminary Study, 2023)

The sample size of this study is one hundred and sixty-five (165) samples which is calculated and determined proportionally based on Krejcie and Morgan (1970) formula for determining sample size, with a margin of error of 0.05 and the level of confidence of 95%. The following formula is used: $S = \frac{N \times S}{TP}$.

Where, N = Population of Stratum S = Calculated Sample Size TP = Total Population

Table 2 Sample size of the study

S/N	Name of University Library	Population	Sample size
1.	Umaru Musa Yar'adua University Library	49	28
2.	Federal University Dustin-Ma Library	218	125
3.	Al-Qalam University Library	20	12
	Total	**287**	**165**

Table 3 Readiness of libraries on the application of AI for information services delivery

Readiness of library staff on the application of AI	Frequency	Percentage (%)
Yes	117	81.8
No	26	18.2
Total	143	100

Table 4 Factors that influence the readiness of libraries to apply AI for information services delivery

Items	SA		A		UD		D		SD		Mean	STD
	F	%	F	%	F	%	F	%	F	%		
High awareness of AI	46	32.2	64	44.8	6	4.2	19	13.3	8	5.6	2.15	1.18
Positive perceptions of AI	56	39.2	63	44.1	0	0	17	11.9	7	4.9	1.99	1.15
AI support infrastructure	56	39.2	63	44.1	0	0	19	13.3	5	3.5	1.98	1.12
AI algorithm and programming	64	44.8	50	35.0	0	0	24	16.8	5	3.5	1.99	1.20

skills among librarians												
AI policy framework	65	45.5	51	35.7	0	0	19	13.3	8	5.6	1.98	1.22
Availability of telecommunication facilities	58	40.6	60	42.0	0	0	20	14.0	5	3.5	1.98	1.14

Table 5 Challenges libraries face on the application of AI for Information Services Delivery

Challenges	Yes		No	
	F	%	F	%
Financial uncertainty in libraries	120	83.9	23	16.1
Lack of AI skilled librarians in the libraries	119	83.2	24	16.8
Absence of specific AI policy document in the libraries	119	83.2	24	16.8
Lack of awareness of librarians on the application of AI	106	74.1	37	25.9
Negative perceptions of librarians on AI	111	77.6	32	22.4
Plagiarism and Intellectual freedom theft	112	78.3	31	21.7
Lack of telecommunication facilities	102	71.3	41	28.7
Lack of AI support infrastructure	120	83.9	23	16.1
Fear of job lost or job polarization	115	80.4	28	19.6
Cost of AI technologies	119	83.2	24	16.8

Table 6 Solutions to the challenges that libraries face on the application of AI for Information Services Delivery

Items	Yes		No	
	F	%	F	%
Adequate budgetary provision	119	83.2	24	16.8
Good AI skilled librarians in the libraries	119	83.2	24	16.8
Provision of specific AI policy document in the libraries	110	76.9	33	24.1
High level of AI awareness among librarians	104	72.7	39	27.3
Positive perceptions on the application of AI among librarians	101	70.6	42	29.4
Provision of telecommunication facilities	109	76.2	34	23.8

Making available of AI support infrastructure	113	79.0	30	21.0
Adequate provision of security and anti-plagiarism gadgets	117	81.8	26	18.2

Results and Discussion

165 questionnaires were distributed to the respondents, out of which 143 questionnaires were duly filled and retrieved representing 86.7% while 22 questionnaires were not returned. This high response rate was achieved as a result of subsequent follow-ups by the researcher together with the research assistants employed for the study.

Table 3 presents the responses rate on the readiness of library staff members to apply AI in information services delivery. The data indicated that 117 (81.2%) of the total respondents are ready to apply AI for information services delivery, while 26 (18.2%) of the total respondents indicated that they are not ready to apply AI.

Table 4 presents the responses on the factors that influence the readiness of library staff members to apply AI for information service delivery. The data show that majority of the respondents indicated that availability of AI support infrastructures; AI policy document; and telecommunication facilities accounts the highest level of agreement with the mean and standard deviation of 1.98 and 1.12, 1.14 and 1.22 respectively. This is followed by positive perceptions of AI among librarians and AI algorithm and skills among librarians with each accounting to the mean score of 1.99 and standard deviation of 1.15 and 1.20 respectively. However, lack of awareness of AI accounts to lowest level of agreement with 64 (44.8%) of the respondents agreeing with the statement while 46(32.2%) strongly agreeing, the mean score for this item was 2.15 and standard deviation of 1.18 indicating a moderate level of awareness may be a factor that influence the readiness of library staff regarding the application of AI. On the other hand, 19 (13.3%) of them disagreed, while 8 (5.6%) strongly disagreed, whereas 6 respondents, corresponding to 4.2%, were undecided.

The data above made it clear that a significant majority of the library staff are open and ready to the acceptance of AI, which could potentially lead to improved information service delivery in the university libraries. While the least number of the respondents has shown that they are not ready for it. However, the data above made it clear that a significant majority of the library staff are open to the application of AI to deliver information retrieval service, reference service,

translation service teaching support service and other services that AI may be relevant to be useful. This which could potentially lead to improved information services delivery in the university libraries. This is contrary to the findings of a study by Odeyemi (2019) who reports that librarians working in academic institutions in Nigeria are partially ready to apply AI to provide information services.

However, to fully apply AI the data indicated certain requirements or factors like librarians' awareness, perceptions, AI algorithm and programming skills, AI support infrastructure, AI policy document and availability of telecommunication facilities of which the majority of the respondents believed will play a very significant role in making library staff ready to apply AI. Moreover, libraries should consider these factors when developing strategies to adopt AI technologies and ensure a smooth transition in the libraries. This is in line with the findings of Ocholla and Ocholla (2020) on their study on the readiness of academic libraries to research, teaching and learning support in the fourth industrial revolution, which reports that libraries in the US, UK and other developed countries have put in place sophisticated technologies as a show of readiness; the readiness is meant to apply AI systems into their operations and services. Therefore, the findings of this study affirm that for libraries and library staff members to apply AI in university libraries in Katsina state, certain facilities need to be put in place.

Table 5 presents data on the challenges to the application of AI for information services delivery, the data indicated that financial instability and cost of AI systems as well as fear of job lost or job polarization have the highest frequency and percentages with each to accounting to 120 (83.9%) respectively; this is reflected in the mean score of 1.82 and standard deviation of 1.21. it is followed by lack of AI skilled librarians, lack of AI specific policy document and cost of AI technologies accounting to frequencies and percentages of 119 (83.2%) of the total respondents respectively, reflecting the mean of 1.98 and standard deviation of 1.12. However, lack of telecommunication facilities accounts the lowest frequency and percentage of 102 (71.3%) and then followed by lack of awareness of AI accounting to 106 respondents corresponding to 74.1%.

The data indicate that several challenges that the library staff may face on the application of AI in libraries. The majority of respondents indicated that financial uncertainty and cost of AI systems, lack of AI-skilled librarians, absence

of specific AI policy documents, lack of awareness of AI, negative perceptions of AI, plagiarism and intellectual freedom theft, lack of telecommunication facilities, lack of AI support infrastructure, fear of job loss or job polarization, and the cost of AI systems are some of the major challenges that may hinder application of AI in libraries in the study area. This buttresses the findings of Obiano, Onuoha, Adeoye, Nwosu and Folarin (2022) on their study on aiding the exploration of AI in Nigerian academic libraries and another study by Mustapha and Yusuf (2023) on adoption of AI to improve library service delivery in academic libraries, all of which affirm that inadequate funding of the libraries affects AI application. Their findings also go contrary to other findings of this study which claims that epileptic power supply, poor internet connectivity and lack of expertise among librarians are the major challenges hindering librarians and libraries from applying AI in Nigeria.

In addition, the findings also align with a study conducted by Saibakumo (2021) on awareness and acceptance of emerging technologies for extended library services in academic libraries in Nigeria, which report inadequate technological infrastructure and lack of technical skilled librarians on AI as the major challenges facing the application of AI into library operations and services. However, the data also provide suggested solutions to the anticipated challenges identified of which the majority of the respondents agreed that adequate budgetary provision, training equipping librarians with AI programming skills, provision of AI support infrastructure, provision of telecommunication facilities, making available AI policy document and provision of security and anti-plagiarism gadgets to checkmate plagiarism and intellectual freedom theft. In addition, library staff the need to start developing a clear vision and strategy for the future, educating themselves about AI, engaging with stakeholders, and acquiring and updating relevant skills. Finally, the data provide valuable insights into the perceived challenges and opportunities associated with AI in libraries and putting emphasis on the proactive measures to address these challenges and leverage the potential benefits of AI in library services.

Table 6 presents data on the solutions to the challenges facing libraries on application of AI for information service delivery. The majority of the respondents perceived adequate budgetary provision equipping librarians with AI skills as the suggested solutions to the identified challenges, with the highest frequencies and percentages of 119 (83.2%) respectively; this is then followed by adequate provision of security and anti-plagiarism tools in libraries with 117

(88.1%) of the total respondents. However, the data reveal that having positive perceptions recorded the lowest frequency and percentage of 101 (70.6%) and then followed by attainment of high level of awareness among library staff with 104 respondents corresponding to 72.7% of the total respondents.

Summary, Conclusion and Recommendations

The findings establish that majority of the respondents believed that there are many anticipated challenges that library staff members may face on the application of AI. The findings reveal major challenges including financial uncertainty, lack of AI-skilled librarians, absence of specific AI policy documents, plagiarism and intellectual freedom theft, lack of telecommunication facilities, lack of AI support infrastructure, fear of job loss or job polarization, and the cost of AI systems, among others.

Furthermore, the findings of the study provide suggested solutions to the challenges identified some of which are that the majority of the respondents agreed that adequate budgetary provision, training and equipping librarians with AI programming skills, provision of AI support infrastructure, provision of telecommunication facilities, making available AI policy document and provision of security and anti-plagiarism gadgets to checkmate and prevent plagiarism and intellectual freedom theft.

However, despite AI potential to transform libraries and librarians, it is concluded that many library staff have expressed concerns and reservations towards AI which in turn affects their readiness to accept its eventual application in their respective libraries.

Consequently, it can be deduced from this study that for libraries and library staff to effectively and efficiently apply AI for information service delivery, certain processes and facilities are needed to be put in place; these are prerequisite for every library that wishes to apply and adopt AI to perform operations and provide seamless services. These may include attainment of certain level of automation, equipping librarians with AI requisite skills; specific library policy document to guide the AI acquisition of software and hardware, installation, operation, updating and replacement, AI support infrastructure and telecommunication facilities, among others.

It is pertinent to note and recommend that high awareness and positive perceptions of AI among library staff alone cannot influence their readiness to accept and adopt AI; hence the study suggests that government, university

managements and library management should make available AI support infrastructure, telecommunications facilities to facilitate easy transition to AI in libraries. In the same vein, TETFund and NITDA should collaborate with NLA and local library branches to formulate a comprehensive policy document that would guide libraries and library staff towards responsible and ethical AI application into library operations and services.

The challenges that may hinder libraries and library staff toward applying AI where identified which include lack of adequate budgetary provision, lack of AI support infrastructure and telecommunication facilities in the libraries, lack of security and anti-plagiarism gadgets to checkmate and prevent intellectual freedom theft as well as fear of privacy abuse and job loss. However, it has been identified that in order to solve or remedy these challenges, there is need for increased support from government and funding agencies for university libraries such as TETFund, UNESCO and IFLA to invest considerably in the provision of adequate budgetary provision, provision of AI support infrastructure and telecommunication facilities necessary for successful AI integration in the libraries.

This study hopefully maintains that by considering the proffered recommendations, library staff members in the study area could better understand and embrace AI and ultimately improve the overall awareness, perception and their readiness to apply and integrate AI to their operations for information service delivery in the university libraries in Katsina state.

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INFORMATION LITERACY SKILLS AS DETERMINANT OF USE OF REFERENCE MATERIALS AMONG UNDERGRADUATES IN UNIVERSITY LIBRARIES IN KWARA STATE

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Abstract
The study investigated information literacy skills as determinants of use of reference materials among undergraduate students in university libraries in Kwara State, Nigeria. A descriptive survey research design was employed, and a questionnaire was administered to 398 respondents from three universities: University of Ilorin, Kwara State University, and Al-Hikmah University. The findings revealed that students possess basic information literacy skills, except for research strategies, citation, and referencing, and ethical use of information. The study also showed that dictionaries, encyclopedias, handbooks, and yearbooks are the most commonly used reference materials, primarily for assignment preparation and research. The results indicate that information literacy skills is one of the factors that affect the use of reference materials. The study recommends that library management offer workshops to enhance students' skills in research strategies, citation, and referencing, and encourage exploration of a wider range of reference materials.

Keywords: Information literacy skills, Library users, Reference materials, Undergraduate

Introduction

In today's digital age, information emanates from different angles, the ability to evaluate and use information effectively is important. To achieve this, individuals, especially students in the society, are expected to know how to use the library and the available tools to retrieve required information. Being able to do this will aid their teaching and learning process. Though, this has not been the case as many of them lack the requisite skills and knowledge to use the library and the available tools to retrieve information. This is because many students,

especially in Nigeria do not have the information literacy skills needed to perform this exercise.

Ding and Jin (2018) expressed the concept of information literacy as first proposed by Paul Zurkowski, president of the American Information Industry Association in 1974. Zurkowski (1974) defined Information Literacy as "people trained in the application of information resources to their work can be called information literate". Information literacy is the basic literacy and comprehensive ability formed by the different educational channels to meet the needs of the information society for learning, work, and life. Information literacy is increasingly important in the contemporary environment of rapid technological change and proliferation of information resources. Information is available through libraries, community resources, special interest organizations, media, and the Internet. For an individual to become an information literate person, such an individual must possess the attributes of information literacy. An individual is said to possess literacy skills when he or she has the attributes of information literacy and can put them into practice.

Reference materials are materials that are consulted within the library alone. Ifeka et al. (2013) agrees with this by stating that, a reference source is an information bearing material that can be used within the library building or environment where information is disseminated. Reference materials are made available and accessible by indexing and abstracting services in print and electronic media (Abubakar, 2020). Reference materials are "information materials in the library, regardless of their format whether print or electronic, that can be used to provide relevant answers to divergent information needs of library users". They are documents that contain miscellaneous information on any topic be it an event or individual. This means that these materials cannot be read from cover to cover but instead they are consulted for specific information or facts.

Information literacy skills play a crucial role in navigating and utilising reference materials effectively. Users with strong information literacy skills possess the ability to identify, evaluate, and ethically use information. Students must show a tendency for lifelong learning by acquiring information literacy skills to contend with the rapid information growth in the information society and advance themselves. This is because students' efforts to complement their work with electronic information resources may be limited due to lack of information literacy skills (Ekenna & Iyabo, 2013:6). These skills enhance the overall user experience when interacting with reference materials.

This research is pivotal in addressing contemporary challenges in information access and utilisation. As the digital landscape evolves, the role of

information literacy skills becomes increasingly vital in navigating the vast sea of reference materials. Understanding how these factors interplay can inform the design of more user-centric reference systems, ultimately enhancing the efficacy of information retrieval processes. The outcomes can contribute to the improvement of information systems, educational strategies, and user interfaces, fostering a more adept and informed society in the digital age.

Statement of the problem

University Libraries offer a vast array of reference materials to support undergraduate students' academic research, yet these resources remain underutilized. This underutilization can hinder students' research capabilities, ultimately impacting their academic success and professional growth (Khalid et al., 2021; Chigbu et al., 2023). Several factors contribute to this issue, including students' lack of awareness about available resources, lack of information literacy skills to effectively use and evaluate these materials, and the challenges posed by the evolving nature of information technology.

Thus, the issue that has to be solved in this study is how to improve information literacy skills to assist students in higher education institutions use reference materials more effectively. Potential solutions and strategies to improve information literacy skills can be developed by identifying and understanding the obstacles and challenges that students face when accessing and using reference materials. This will ultimately result in more efficient use of reference materials in higher education.

Objectives of the study

The main objective of this study was to examine the information literacy skills as determinants of use of reference materials in university libraries in Kwara state. The specific objectives were to:

1. ascertain the information literacy skills possessed by library users in universities in Kwara State.
2. identify the reference materials used by library users in university in Kwara state.
3. examine the purpose of use of reference resources by library users in universities in Kwara State.
4. identify the factors affecting students in accessing and utilising reference materials in university libraries in Kwara State.

Literature review

The proliferation of information in various formats in the 20th century gave an impetus to the birth of the concept of information literacy (kanori , 2019). Information Literacy (IL) skills are directly linked with lifelong learning, critical thinking, and learning to learn concepts of education. Information Literacy skills are the set of skills needed to find, retrieve, analyse, and use information. The twenty-first century has been named the information era, owing to the explosion of information and the information resources. One cannot achieve study targets without practical information literacy skills. In other words, information literacy skills empower the people with the critical skills which will help them to become independent lifelong learners. These skills will enable people to apply their knowledge from the familiar environment to the unfamiliar.

Information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning. According to California University Information literacy fact sheet, (2000); an information literate individual is able to: Determine the extent of information needed, Access the needed information effectively and efficiently, Evaluate information and its sources critically, Incorporate selected information into one's knowledge base, Use information effectively to accomplish a specific purpose, Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.

Information literacy skills are essential skills for college students to master for success academically and for professional and personal success (Campbell, 2008; Cooper, 2019). Due to the conventional structure of information literacy instruction, student motivation is lacking (Bell, 2007; Latham, Gross, & Julien, 2019). Mandatory one-shot instruction sessions initiated by the instructor, where students and librarians only meet once, are an excellent example of instructional practices that do not enhance motivation and can be detrimental to students. The lack of repeated contact with students to build information literacy skills is problematic as one-shot instruction is often the typical way students receive information literacy instruction from librarians at the collegiate level. Information literacy instruction (ILI) requires a shift in focus from teaching specific information resources to a set of critical thinking skills involving the use of information. It is difficult to determine if the instruction is effective on a broad or

more localized scale without measuring information literacy instruction. Researchers are concerned with the efficacy of information literacy instruction in a general sense and in regard to more specialized practices, such as online instruction (Shaffer, 2011). Further, without an understanding of students' skill levels, it can be challenging to ensure that the instructor is meeting students' needs.

Reference sources are the goldmine of the reference section; their value is inestimable to users who need them to obtain relevant information Abdullahi and Manze (2014). They are very important tools needed for proper functioning of academic libraries. Libraries acquire information resources, organise the resources for easy retrieval and dissemination of information. The provision of reference services seeks to fulfil the greater mission of the library by helping users to convincingly access and use information through reference sources in the library. Analysing, interpreting and presenting information for use in any environment is an essential skill users of information resources should possess if they are to be relevant. Hence, being information literate is fundamental to the use of information resources in the knowledge society (Braaksma, 2004). Information literacy skills brought effective use of library resources to develop "critical thinking skills. In a study by Issa, Amusan and Dauda (2009) the study revealed that the University of Ilorin library has provisions for students to use e-library resources which most students are aware of but do not use because they lack the skills. They have not been formally taught the use of e-resources that are information literacy skills.

Onifade and Sowole (2011) conducted a study on the use of reference sources by undergraduates, the study revealed that encyclopaedias and dictionaries are mostly used by students. Elmer (2009) opined that reference sources such as dictionaries, encyclopaedia, almanac, atlases, are research tools that can help in writing paper and project. Ogbuiyi (2015) examined a study on availability and use of reference sources and services in Babcock University Library. The study revealed that reference sources are highly available, accessible and adequate, except yearbooks, bibliographies and biographies that are not available, accessible and adequate. Ogunniyi, Efosa and Sheyi (2013) studied the use of reference sources by students in Adeyemi College of Education. The study found out that the majority of library users have a good understanding of what reference sources are and that encyclopaedias and dictionaries have higher rates of usage than other reference sources in the library. The scholars also assert that

patrons use such reference sources for their assignment and research work. Razaq and Olaleye (2017) conducted a study on availability and use of reference sources and services. The study revealed that the majority of the respondents indicate that reference sources are highly available, accessible and adequate, except geographical sources and biographical sources that are not available, accessible and adequate.

Abdulgani et al., (2016) undertaken to determine usage patterns and hurdles in use of the information resources and library services in a Medical College. The results of the study were that the main purpose of students visiting the library was reference purpose (78.6%). Most of the respondents were not satisfied with library facilities and services. Mahwasane & Mudzielwana, (2016) surveyed the various challenges faced by students in accessing information in the library. The findings of the study reveal that there are challenges such as lack of skills on how to retrieve information, insufficient user education, lack of computer knowledge and lack of information communication technology (ICT) in accessing information in the library.

Methodology

The researcher adopted the descriptive survey research design. The population of the study is 77,500 students of the three selected universities. The simple random sampling under the category of the probability sampling approach was utilised. The sample size under simple random sampling was calculated using slovin's formula. Slovin's formula is used to determine the sample size for simple random sampling. A total number of 398 were sampled for this study. Questionnaire was used for data collection. Data was gathered personally by the researcher by administering copies of the questionnaire to the respondent and retrieving them back immediately. Data was analysed using Statistical Products and Service Solution (SPSS).

Result and Discussion

Research Question One: What are the information literacy skills possessed by library users in universities in Kwara State?

Table 4.1: Mean and standard deviation of Information literacy skills possessed by library users

	SA	A	D	SD	Mean	SD

Information organization and management	173 43.5%	173 43.5%	35 8.7%	17 4.3%	3.26	0.79
Evaluating information sources	156 39.2%	225 56.5%	17 4.3%	0 0%	3.35	0.56
Information searching	156 39.2%	190 47.7%	17 4.3%	35 8.8%	3.17	0.87
Digital literacy	156 39.2%	225 56.5%	0 0%	17 4.3%	3.31	0.69
Research Strategies	104 26.1%	225 56.5%	17 4.3%	52 13.1%	2.96	0.83
Citation and referencing	104 26.1%	173 43.5%	52 13.1%	69 17.3%	2.78	1.02
Ethical Use of Information	138 34.7%	139 34.9%	52 13.1%	69 17.3%	2.87	1.08
Identifying information needs	139 35%	190 47.7%	0 0%	69 17.3%	3.00	1.02
Overall mean/SD					**3.09**	**0.86**

Decision level: agreed at mean score >3.0, disagree at mean score <3.0

Table 4.1 revealed the descriptive analysis of research questions for information literacy skills possessed by library users, the table shows the means response to each of the variable used to answer the question. The table revealed that the respondent agreed that; library users possessed information literacy skills on information organization and management (Mean=3.26, SD=0.79), evaluating information sources (Mean=3.35, SD=0.56), information searching (Mean=3.17, SD=0.87), Digital literacy (Mean=3.31, SD=0.69) and identifying information needs (Mean=3.00, SD=1.02). Moreover they disagree that; library users possess information literacy skills on research strategies (Mean=2.96, SD=0.83), citation and Referencing (Mean=2.78, SD=1.02) and ethical use of information (Mean=2.87, SD=1.08).

This imply that students could organize information and evaluate information sources. However, they could not carry out research strategically, cite and reference information sources properly. This finding is in line with that of Anunobi and Udem (2015) who measured the literacy skills of students based on the resources they could retrieve and use.

Research Question Two: What are the reference materials used by library users in university libraries in Kwara State?

Table 4.2 Mean and standard deviation of Reference materials used by library users

	SA	**A**	**D**	**SD**	**Mean**	**SD**
Dictionary	312 78.4%	86 21.6%	0 0%	0 0%	3.78	0.41
Encyclopedia	174 43.7%	190 47.7%	17 4.3%	17 4.3%	3.31	0.75
Directory	68 17.1%	191 48%	35 8.8%	104 26.1%	2.56	1.05
Bibliography	121 30.4%	173 43.5%	35 8.8%	69 17.3	2.87	1.04
Yearbook	138 34.7%	173 43.5%	35 8.7%	52 13.1%	3.00	0.98
Map	104 26.1	138 34.7	52 13.1	104 26.1	2.61	1.13
Gazetteer	18 4.5%	173 43.5%	69 17.3	138 34.7%	2.18	0.97
Handbook	191 48%	138 34.7%	0 0%	69 17.3%	3.13	1.08
Atlas	105	103	69	121	2.48	1.18

	26.4%	25.9%	17.3%	30.4%		
Overall mean/SD					**2.88**	**0.95**

Decision level: agreed at mean score >3.0, disagree at mean score <3.0

Table 4.2 revealed that majority of the respondent disagree with all the item at overall (mean=2.88, SD=0.95), the following are disagree to by the respondent; library user use Directory (mean=2.56, SD=1.05), Bibliography (mean=2.87, SD=1.04), Map (mean=2.61, SD=1.13), Gazetteer (mean=2.18, SD=0.97), and Atlas (mean=2.48, SD=1.18). Moreover, they agreed with the following; library users use Dictionary (mean=3.78, SD=0.41), Encyclopedia (mean=3.31, SD=0.75) and Handbook (mean=3.13, SD=1.08). However, the respondents neither agreed nor disagreed that library users use Yearbook (mean=3.00, SD=0.98).

The reference materials that the students consulted include dictionary, encyclopedia and handbook. However, they never consulted directories, bibliographies and maps.

Research Question Three: What is the purpose of use of reference resources by library users of universities in Kwara State?.

Table 4.3 Mean and standard deviation of Purpose of use of Reference materials by library users

	SA	**A**	**D**	**SD**	**Mean**	**SD**
For assignment preparation	260 65.3%	121 30.4%	0 0%	17 4.3%	3.57	0.71
For Research and Study	312 78.4%	86 21.6%	0 0%	0 0%	3.78	0.41
For Essay Writing	145 36.4%	156 39.2%	17 4.3%	80 20.1%	2.92	1.10
For Exam Preparation	208 52.3%	190 47.7%	0 0%	0 0%	3.52	0.50
For Verification of Information	208	190	0	0	3.52	0.50

	52.3%	47.7%	0%	0%		
For Language Learning	170 42.7%	86 21.6	52 13.1%	90 22.6%	2.84	1.20
For Quick answers and fact-checking	200 50.3%	190 47.7%	4 1.0%	4 1.0%	3.47	0.57
For Career guidance and professional development	225 56.5%	156 39.2%	0% 0%	17 4.3%	3.48	0.71
Overall mean/SD					**3.39**	**0.72**

Decision level: agreed at mean score >3.0, disagree at mean score <3.0

Table 4.3 revealed that the respondent agreed that library users use Reference materials for the following; For assignment preparation (mean=3.57, SD=0.71), For research and study (mean=3.78, SD=0.41), For exam preparation (mean=3.52, SD=0.50), For verification of information (mean=3.52, SD=0.50), For quick answer and fact checking (mean=3.47, SD=0.57), and For career guidance and professional development (mean=3.48, SD=0.71). However, the respondent disagrees that library users use Reference materials For essay writing (mean=2.92, SD=1.10), and For language learning (mean=2.84, SD=1.20).

This indicates that research and study was the major purpose of using reference resources by the students. However, they also used reference resources for fact checking, preparation for examination and verification of information.

4.2.4 Research Question Four: Which of the following would you agree with as factors affecting your use of reference materials at university libraries in Kwara State?

Table 4.5 Mean and Standard deviation of Factors affecting use of Reference materials

S/N	Factors	SA	A	D	SD	$\bar{x}$	SD
1	Availability and Accessibility of reference materials.	277 69.6%	121 30.4%	0 0%	0 0%	3.69	0.46

2	Promotion and Awareness of Reference materials.	277 69.6%	104 26.1%	17 4.3%	0 0%	3.65	0.56
3	Adequate Staff Support.	156 39.2%	138 34.7%	35 8.8%	69 17.3%	2.96	1.08
4	User Education and Training on use of reference materials.	156 39.2%	208 52.3%	20 5.0%	14 3.5%	3.27	0.71
5	Technological Infrastructure.	188 47.2%	138 34.7%	17 4.3%	55 13.8%	3.15	1.02
6	Organisation and Cataloging of Reference materials.	225 56.5%	173 43.5%	0 0%	0 0%	3.57	0.50
7	Funding and Acquisition Policies.	121 30.4%	173 43.5%	35 8.8%	69 17.3%	2.87	1.04
	Overall mean/SD= 3.31/0.77						

Decision level: agreed at mean score >3.0, disagree at mean score <3.0

Table 4.5 revealed that the respondent agreed that the factor affecting their use of Reference materials in the library are the following; availability and accessibility of Reference materials ($\bar{x}$=3.69, SD=0.46), Promotion and awareness of Reference materials ($\bar{x}$=3.65, SD=0.56), User education and training on use of reference materials ($\bar{x}$=3.27, SD=0.71), Technological infrastructure ($\bar{x}$=3.15, SD=1.02), and Organisation and cataloguing of reference materials ($\bar{x}$=3.57, SD=0.50). Moreover, the respondent disagrees with Adequate staff support ($\bar{x}$=2.96, SD=1.08) and Funding and Acquisition policies ($\bar{x}$=2.87, SD=1.04) as factors influencing their use of Reference materials in the library.

Factors such as availability and accessibility, promotion and awareness and training on the use of reference resources affected the use of reference sources by students. This is in line with the submission of Ajani et.al(2021), who submitted that awareness and lack of accessibility were some of the factors that affected the use of reference sources.

Conclusion

The study shows that the library users of University of Ilorin, Kwara State University and Al-Hikmah University Ilorin are of diverse demographic profiles in terms of gender, age differences, and knowledge of the information literacy skills as determinants of use of reference materials. The findings from the respondents' data analysis on the research questions reveal the information literacy skills of library users as determinants of use of reference materials in university libraries in Kwara state.

Recommendations

Based on the findings from this study, the researcher has made the following recommendations:

1. The researcher recommends that library management should offer workshops or tutorials to enhance library users' skills in research strategies, citation, and referencing, as well as ethical use of information.
2. Librarians should encourage library users to explore a wider range of reference materials beyond dictionaries, encyclopaedias, handbooks, and yearbooks.
3. Library management ensures that reference materials are easily accessible and available in various formats (print, digital, online) to accommodate different learning styles and needs.
4. Library management should collaborate with faculty members to integrate information literacy skills into the curriculum or offer standalone courses to equip library users with the skills to effectively use reference materials.

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CHALLENGES OF ACCESSING AND UTILISING HEALTH INFORMATION FOR INFORMATION NEEDS SATISFACTION OF FEMALE UNDERGRADUATE STUDENTS IN COLLEGES OF MEDICINE

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Abstract

The study examined the challenges of accessing and utilizing health information for the information needs satisfaction of female undergraduate students in colleges of medicine. The study was guided by three research questions and one null hypothesis. The study adopted descriptive survey design. The population of the study was 1,339 registered female undergraduate students of colleges of medicine. The sample size of the study was 549 female undergraduates' students representing 41% of the population. The instrument used for data collection was questionnaire. Data gathered were analyzed using descriptive and inferential statistics. The study found out that, female undergraduate students understand that accessing and utilizing health information for meeting their information needs satisfaction has lots of benefits. However, challenges experienced in accessing and utilizing health information are: health information not packaged in an appealing/attracting format, lack of health counselors for students, negative attitudes of library staff members are a major problem and cultural or religious constraints, physical accessibility to the library building is a concern, lack of organize seminars/workshops on reproductive health, and epileptic power supply

to access electronic health information, lack of ICT facilities to access health information, lack of current and up-to-date health information in the library. Some of the solutions to the problems include: the managements of the colleges of medicine should allocate more fund to the colleges of medicine library to acquire more health information resources for the female undergraduate students so that they can access and utilize them to meet their health information needs.

Keywords: Accessibility, Utilization, Health Information, Challenges, Female undergraduate students

Introduction

College of medicine libraries are usually situated in universities and it is a place where students of higher learning particularly the female access their health information. By offering access to a collection that is broad enough to meet the interests of different users, the college of medicine libraries plays an important role as a vehicle of formal and informal education. Beyond that, the library greases the wheels of knowledge by facilitating easier and more efficient access to human records, allowing users to use what they discover to better themselves and their communities (Abubakar, Daniel, & Idris, 2020). These libraries makes knowledge available and accessible to all users, regardless of their age, gender, color, political affiliation, given its crucial function as a catalyst for societal reform; they are mainly to provide open accessibility to information on different aspect of life, like on employment, education, health, societal service, religion, economy, politics, and agricultural information (Adeleke & Makinde, 2022). Finding the health and scientific resources to enhance, modernize, study, and assess healthcare, is made easier with the aid of college of medicine libraries, which are organized to assist everyone including medical doctors, medical researchers, their patients, the students, and information professionals.

Access to reproductive health information (RHI) encompasses the entire provision and utilization of retrieval-based information services offered in the college of medicine libraries. According to Mathiesen (2014), accessibility to information occurs when one has the opportunity or chance to receive, use, and benefit from the information. Undergraduate students are an important component of achieving SDG 3 on health and wellbeing, and they are the focus of this study. According to the Population Reference Bureau (2015), female students had poorer accessibility to sexual, and health information, and risk factors for non-communicable illnesses (NCDs) like alcohol abuse, poor diets, and insufficient exercise are behaviours that begins at the early stage. Access to health

information should be available and accessible in the college of medicine libraries to assist undergraduate students in deciding who to visit, where to go, and what type of care they require. One strategy for improving health issues is to provide timely, and relevant sexual reproductive health information (SRHI) to young people, which include university students (Melaku, 2014). Nwachukwu *et al.* (2014) defined accessibility broadly as the extent to which a system is usable by as many users as possible. The rationale behind the study is to, examine the challenges of accessing and utilizing health information for information needs satisfaction of female undergraduate students in colleges of medicine which will result to improved reproductive wellbeing.

Objectives of the Study

The specific objectives of the study were to:

1. find out the extent to which health information accessibility and utilization improved reproductive wellbeing of female undergraduate students in colleges of medicine,
2. identify the challenges experienced in accessing and utilizing health information for information needs satisfaction by female undergraduate students of colleges of medicine,
3. proffer strategies to improve access and utilization of health information for information needs satisfaction among female undergraduate students in colleges of medicine.

Hypothesis

A null hypothesis was formulated and tested at 0.05 level of significance:

Ho[1]. There is no significance difference in the challenges experienced in accessing and utilizing health information by female undergraduate students across the colleges of medicine.

Literature Review

College of medicine library is a company tasked with gathering, compiling, storing, retrieving, and providing users with access to information resources. It is a collection of informational resources and the place where these resources are stored for access. College of medicine library must provide the availability and accessibility of information resources, since it is a crucial service. These libraries provide resources to university personnel, faculty, and students while also promoting information literacy. Therefore, in order for the needs of the institutions to be met as well as those of their users, academic librarians; and

information professionals must balance specific research; and information needs with a functional collections of information resources, all the while taking the institution's subject specifics into consideration. A college of medicine library is founded by the university and receive supports and finances, through the federal or state government. Through a range of tools and services, it provides undergraduate students with equal accessibility to knowledge, creative works, and information not withstanding their age, color, nationality, religion, gender, language, handicap, financial position, job status; or educational attainment (Mbitsa, 2019). Due to its openness to all users and broad reputation, the college of medicine libraries is sometimes referred to as the people's university (Okeoma, 2015). College of medicine library is an institution where the students, staff and the general public can freely and without restriction access organized collections of information resources. They play a crucial role in promoting education, literacy, lifelong learning, health, cultural enrichment, and community engagement and are designed to meet the informational, cultural, and educational needs of people.

All female students are expected to access and utilized reproductive health information most especially the ones in colleges of medicine who are expected to make adequate use of the available health information and then pass it to their female counterpart in other faculties. Normally, childbearing age is a healthy period of life, but many females have died as a result of health issues such as Human Immunodeficiency Virus (HIV), and unplanned pregnancies, that frequently result in obstetrical complications, or unsecure abortion; however, some female students are less informed and experienced (Gamalat, Amany, & Ahmed, 2019). This is a huge public health concern, particularly for undergraduate students in Nigeria, most especially in the North Central region. It is however critical to equip the students with this crucial knowledge to help them to cope with all the conditions that make them volatile. Singh, Rai, and Singh (2014) found that 225 million women in the developing world, particularly in Nigeria, had unmet needs for modern contraceptive procedures. Women who desire to put off or delay having children but are not using contemporary contraceptive methods are referred to as having an unmet need. Similarly, Guttmacher Institute (2017) calculated that, out of the annual 210 million conceptions nation-wide, only 80 million which is (38%) were unwanted and 46 million (22%) were usually aborted. National Demographic Health Survey (NDHS, 2020), reported that maternal mortality rate (MMR) in Nigeria amount to 576 in every 100,000 live births; in accordance to the report, poor health information, and services is the major cause and this leads to about 10% of global

health burden. Moreover, the report added that fertility rate is recorded at 5.5 per woman in 2013.

The United Nations (UN) recognizes the importance of health, and the right of all students to make logical health decisions; advancement of health and rights a main priority, and to worked to confront the problems to health information and services through various initiatives and programs. The Organization established numerous global goals and targets for health and rights, including improving accessibility to family planning information, and services, lowering maternal mortality, and providing universal accessibility to sexual, and health care services. They have also highlighted and addressed health and rights through numerous projects and programs, such as Sustainable, Development Goals (SDGs), which were approved in 2015 and contain a target to ensure general access to sexual, and health care services. The United Nations emphasizes the importance of health information, and accessibility to health services for individuals, particularly the female undergraduate students, and has made it a priority to address the challenges and improve access to these resources at the global level. However, considering the unmet Millennium development goals (MDGs), new strategy has been devised using SDGs which is hoped to be achieved by member nations by 2030.

However, if female undergraduate students could access and utilize health resources and high-quality services, especially when problems emerge, health challenges might be avoided or reduced to the barest minimum. Nevertheless, in practice, most female students face significant obstacles when trying to get services, and even when they do, the services themselves are frequently of poor quality or ineffectiveness. Moreover, sector-wide programs for skilled attendance in recent years have sought to both increase supply and create demand (Odetola, 2015). The fundamental importance of health information to the society wellbeing is so much to be desired. According to WHO statistics for 2022, Nigeria contributes for more than 34% of global maternal deaths, by the risk of Nigerian woman's lifetime dying during conception, postpartum, childbirth, and or after an abortion being 1 in 22, in contrast to 1 in 4900 in industrialized countries. Health organization sees the importance of health information, accessing quality health services for female students of childbearing age and the role of information and education in promoting health; they thereby provide educational materials and works to improve the accessibility and utilization of health information, with a focus on reaching vulnerable and marginalized populations. They seek for incorporation of health into overall health-care, and works to ensure that undergraduate students have accessibility to the information, and services they

need to make knowledgeable decisions on their health. This includes access to prenatal care, family planning services, and safe delivery services. These help women to do away with problems of unintended births, unsecure abortions, and issues that relate to pregnancy (Women Health West, 2022).

Methodology

The study used descriptive survey design. The population of the study is 1,339 registered female undergraduate students of colleges of medicine, North Central, Nigeria. The sampling size of this study is 549 female undergraduates of colleges of medicine, in Northern Nigeria, representing 41% of population. The instrument used for collecting data is questionnaire. Closed-ended structured questionnaire, was designed by the researcher to gather data. A total of 549 copies of questionnaires were distributed to sampled respondents, out of which 531 copies representing 96.7% were completely filled and returned, hence used for the data analysis. Descriptive and inferential statistics were used to analyze the collected data. The replies to the research questions were analyzed using descriptive statistics, including means, frequencies, percentages, and standard deviations. Mean and standard deviation were used to analyze the data.

Result and Findings

1: To what extent does health information accessibility and utilization improve reproductive wellbeing of female undergraduate students of colleges of medicine?

Table 1: Mean Response on the extent to which health information accessibility and utilization improved reproductive wellbeing of female undergraduate students in colleges of medicine

S/N	Item statement	VHE	HE	LE	VLE	Mean	St.D	Remark	Rank
1	Better understanding of sexual health	435	47	18	31	3.67	0.80	VHE	1st
2	Improved access to healthcare services	395	105	14	17	3.65	0.69	VHE	2nd
3	Enhanced good fertility	373	127	31	0	3.64	0.59	VHE	3rd
4	Improved	405	61	50	15	3.61	0.77	VHE	4th

	menstrual health management								
5	Improved reproductive health practices	368	130	19	14	3.60	0.69	VHE	5th
6	Changed reproductive health behavior	333	146	35	17	3.50	0.76	VHE	6th
7	Better management of reproductive health conditions (PCOS, endometriosis)	296	205	16	14	3.47	0.68	HE	7th
8	Increased use of contraceptives	353	90	49	39	3.43	0.93	HE	8th
9	Empowered to make informed decisions about my reproductive life	267	202	46	16	3.36	0.76	HE	9th
10	Increased frequency of gynaecological check-ups	255	230	46	0	3.31	0.86	HE	10th
	Grand Mean					**3.52**	**0.75**	**VHE**	

Results in Table 1 shows the response on the extent to which health information accessibility and utilization improved reproductive wellbeing of female undergraduate students in colleges of medicine in North central, Nigeria. From the results; the health information accessibility and utilization of health

information contributes to improved reproductive wellbeing of female undergraduate students of colleges through better understanding of sexual health, with 3.67 mean score; improved access to healthcare services, with 3.65 mean score; enhanced good fertility, with 3.64 mean score; improved menstrual health management, with 3.61 mean score; improved reproductive health practices, with 3.60 mean score; and changed reproductive health behavior, with 3.50 mean score to a very high extent. The least is increased frequency of gynecological check-ups, with 3.31 mean score. The grand mean of 3.52 indicates that health information accessibility and utilization of health information contributes to improved reproductive wellbeing of female undergraduate students of colleges of medicine to a very high extent.

2: What are the challenges experienced in accessing and utilizing health information for information need satisfaction by female undergraduate students of colleges of medicine?

Table 2: Mean response on the challenges experienced in accessing and utilizing health information for information need satisfaction by female undergraduate students of colleges of medicine

S/N	Item statement	SA	A	D	SD	Mean	St. D	Remark	Rank
1	Health information not packaged in an appealing/attractive format	344	119	36	32	3.46	0.86	Accepted	1st
2	Lack of health counsellors for students	348	99	52	32	3.44	0.90	Accepted	2nd
3	Negative attitudes of library staff members are a major problem	300	180	19	32	3.41	0.82	Accepted	3rd
4	Cultural or religious constraints	316	147	36	32	3.41	0.86	Accepted	3rd
5	Physical accessibility to the library building is a concern	311	138	50	32	3.37	0.89	Accepted	5th
6	Lack of organized seminars/workshops on reproductive health	280	199	20	32	3.37	0.82	Accepted	5th
7	Epileptic power supply to access electronic health information	277	204	18	32	3.37	0.81	Accepted	5th
8	Lack of ICT facilities to access Health Information	311	131	57	32	3.36	0.90	Accepted	8th
9	Lack of current and up-to-date health information in the	312	135	44	40	3.35	0.92	Accepted	9th

	library								
10	Relevant reproductive health information is usually lengthy	292	180	3	56	3.33	0.93	Accepted	10th
11	Lack of awareness of trending RH issues through various media (posters, leaflets)	267	188	44	32	3.30	0.86	Accepted	11th
12	Non-availability of relevant RHI in the library	222	219	58	32	3.19	0.86	Accepted	12th
13	Lack of adequate use of social media platforms to share informative and engaging content about RHI	215	224	60	32	3.17	0.85	Accepted	13th
14	Lack of time to locate appropriate reproductive health information	209	232	52	38	3.15	0.87	Accepted	14th
15	Lack of time to visit the College of Medicine Library	181	202	94	54	2.96	0.96	Accepted	15th
	Grand Mean					**3.31**	**0.87**	**Accepted**	

Data in Table 2 shows the response to the challenges experienced in accessing and utilizing health information for information need satisfaction by female undergraduate students of colleges of medicine in North central, Nigeria. From the results; the major challenges are health information not packaged in an appealing/attractive format, with 3.46 mean score; lack of health counsellors for students, with 3.44 mean score; negative attitudes of library staff members are a major problem and cultural or religious constraints with 3.41 mean score; physical accessibility to the library building is a concern, lack of organize seminars/workshops on reproductive health, and epileptic power supply to access electronic health information with 3.37 mean score; lack of ICT facilities to access health information, with 3.36 mean score; lack of current and up-to-date

health information in the library, with 3.35 mean score; relevant reproductive health information are usually lengthy, with 3.33 mean score; while the least challenges is lack of time to visit the college of medicine library, with 2.96 mean score. The grand mean of 3.31 shows that the majority of female undergraduate students experienced all the challenges in accessing and utilizing health information.

3: What are the strategies for improving access and utilization of health information for information needs satisfaction among female undergraduate students in colleges of medicine?

Table 3: Mean response on the strategies for improving access and utilization of health information for information needs satisfaction among female undergraduate students in colleges of medicine

S/N	Item statement	SA	A	D	SD	Mean	St.D	Remark	Rank
	To ensure improved access and utilization of health information:								
1	university authorities should ensure the library building is accessible to all students	377	154	0	0	3.71	0.45	Accepted	1st
2	there should be regular workshops and seminars where students can learn about RHI from qualified healthcare professionals	349	182	0	0	3.66	0.48	Accepted	2nd
3	librarians should make use of social media platforms to share	383	118	30	0	3.66	0.58	Accepted	2nd

	informative and engaging content about RHI								
4	creation of awareness of trending RH issues through various media (posters, leaflets)	361	156	14	0	3.65	0.53	Accepted	4th
5	the use of the College of Medicine library should be mandatory	333	195	3	0	3.62	0.50	Accepted	5th
6	a look for alternative means for funds by management of college of medicine libraries for packaging and repackaging of RHI in attracting formats to the students	329	202	0	0	3.62	0.49	Accepted	6th
7	provision of stable electricity power supply	328	189	14	0	3.59	0.54	Accepted	7th
8	Library staff members should be friendly	340	153	38	0	3.57	0.62	Accepted	8th
9	relevant reproductive health information should be short and precise	316	181	34	0	3.53	0.61	Accepted	9th
10	there should be health counsellors for students	305	198	28	0	3.52	0.60	Accepted	10th

11	wrong cultural or religious belief should be disannulled	284	217	30	0	3.48	0.60	Accepted	11th
12	relevant RHI should be made available in the library	269	248	14	0	3.48	0.55	Accepted	11th
13	there should be adequate provision of ICT facilities through which access to RHI can be achieved	293	201	37	0	3.48	0.62	Accepted	11th
14	library staff should assist students in locating appropriate reproductive health information	357	84	58	32	3.44	0.91	Accepted	14th
15	heads of libraries should ensure the availability of current and up-to-date health information in the college of Medicine libraries	270	237	24	0	3.42	0.72	Accepted	15th
	Grand Mean					**3.56**	**0.59**	**Accepted**	

Data in Table 3 shows the response on the strategies for improving access and utilization of health information for information needs satisfaction among female undergraduate students in college of Medicine in North Central, Nigeria. From the results the major strategies are university authority should ensure the library building is accessible to all students, with 3.71 mean score; there should be regular workshops and seminars where students can learn about RHI from qualified healthcare professionals, and the librarians should make use of social

media platforms to share informative and engaging content about RHI with 3.66 mean score; creation of awareness of trending RH issues through various media (posters, leaflets), with 3.65 mean score; the use of college of medicine library should be mandatory, and a look for alternative means for funds by management of college of medicine libraries for packaging and repackaging of RHI in attracting formats to the students with 3.62 mean score; provision of stable electricity power supply, with 3.59 mean score; library staff members should be friendly, with 3.57 mean score; relevant reproductive health information should be short and precise, with 3.53 mean score; and there should be health counsellors for students, with 3.52 mean score; while the least strategy is heads of libraries should ensure the availability of current and up-to-date health information in the college of medicine libraries, with 3.42 mean score. The grand mean of 3.56 shows that the majority of the female undergraduate students accepted all the strategies.

4: There is no significant difference in the challenges experienced in accessing and utilizing health information by female undergraduate students across the colleges of medicine.

Table 4: Summary of ANOVA on mean ratings on the challenges experienced in accessing and utilizing health information by female undergraduate students across the colleges of medicine

S/N	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	24.530	4	6.132	0.141	0.967	Not Significant
Within Groups	22956.423	526	43.643			
Total	22980.953	530				

P<0.05; **D:** Decision; **S:** Significant; **NS:** Not Significant

Table 4, reveals that the F value 0.141 is significant at 0.967. Since this significant level of 0.967 is greater than the 0.05 level of significance at which the null hypothesis was tested, the null hypothesis is therefore upheld. Hence, there was no significant difference in the challenges experienced in accessing and utilizing health information by female undergraduate students across the colleges of medicine in North central, Nigeria.

Discussion of Findings

The extent to which health information accessibility and utilization improved the reproductive well-being of female undergraduate students in colleges of medicine

The study found that the health information accessibility and utilization of health information contribute to improved reproductive well-being of female undergraduate students of colleges of medicine to a very high extent. This is because the study found out that the health information accessibility and utilization of health information contribute to better understanding of sexual health, improved access to healthcare services, enhanced good fertility, improved menstrual health management, improved reproductive health practices, changed reproductive health behaviour, better management of reproductive health conditions (polycystic ovary syndrome, endometriosis), increased use of contraceptives, empowered to make informed decisions about reproductive life, and increased frequency of gynaecological check-ups. The findings of this study are by that of WHO (2017) who reported that access to information about maternal services should be available in the school through the College of Medicine libraries to help students make informed decisions. Information about safe sex and family planning services can help reduce unplanned pregnancies and their adverse consequences. Health issues affect many students" lives both socially and academically.

Similarly, the findings of the study correspond with the findings of Mbugua and Karonjo (2018) who found that accessing health information is crucial for undergraduate students to make informed decisions about their health. This information is not only important in their growth and development, it also influences their ability to achieve both educational and personal goals thus impacting their adulthood and ensuring they have healthy pregnancies and successful deliveries. Additionally, the findings of the study follow the findings of Cassidy et al. (2019) who reported that accessibility of reproductive health information is very crucial for these students to make correct decisions about their health, it helps the students avoid falling into sexual health problems that may affect their academic life. Also, the findings of Mbelle et al., (2018) reported that accessing reproductive health information helps students to avoid sexually transmitted infections (STI), unplanned pregnancies, and unplanned responsibilities which may adversely affect their education, career and their future progress; it also makes sure that they have healthy pregnancies and successful child deliveries.

Challenges experienced in accessing and utilizing health information for information needs satisfaction by female undergraduate students of colleges of medicine

The study found that, the major challenges are health information not packaged in an appealing/attractive format, lack of health counsellors for students, negative attitudes of library staff members are a major problem and cultural or religious constraints, physical accessibility to the library building is a concern, lack of organize seminars/workshops on reproductive health, and epileptic power supply to access electronic health information, lack of ICT facilities to access health information, lack of current and up-to-date health information in the library, and relevant reproductive health information are usually lengthy. There was no significant difference in the challenges experienced in accessing and utilizing health information by female undergraduate students across the college of medicine in North central, Nigeria. This implies that regardless of institution, majority of female undergraduate students experience similar challenges in accessing and utilizing health information for information needs satisfaction by female undergraduate students of college of medicine, in North central, Nigeria. The findings of the study is in accordance with the findings of Awoyemi, Obi and Owoeye (2021) who discovered that poor infrastructure, cultural and social norms, and limited access to technology were major barriers to students' access to and use of health information.

The findings of the study also correspond with the findings of Umera et al. (2021) who revealed that lack of access to information, cultural and social norms, and language barriers were some of the challenges female students face regarding health information. Similarly, with the findings of Okeke, Eze and Ani (2019), factors hindering resource and service utilization include the absence of usage guides, inadequate funding, and insufficient power supply for ICT facilities. According to the Population Reference Bureau (2015), female students have less access to sexual and health information and services. Many female students are unaware of their health information needs or where to access necessary information. Significant barriers to utilization include ignorance about and misperceptions about health treatments (Shiferaw et al., 2020). Some women may not have access to health care providers, and online resources may be limited, language may also be a barrier to accessing health information for those who are non-English speakers. Young women in low-income households may face financial barriers in accessing health services, including tests and treatment for STIs, pregnancy tests, and contraceptives. However, barriers, such as social and cultural stigmatization, lack of awareness, language barriers, and financial

constraints, prevent people from accessing this information (Shiferaw et al., 2020).

Strategies for improving access and utilization of health information for information needs satisfaction among female undergraduate students of colleges of medicine

The study found out that, the major strategies are university authority should ensure the library building is accessible to all students, there should be regular workshops and seminars where students can learn about reproductive health information (RHI) from qualified healthcare professionals. The librarians should make use of social media platforms to share informative and engaging content about RHI, creation of awareness of trending reproductive health (RH) issues through various media (posters, leaflets), the use of colleges of medicine library should be mandatory, and a look for alternative means of funds by management of colleges of medicine libraries for packaging and repackaging of RHI in attracting formats to the students, provision of stable electricity power supply. Library staff members should be friendly, relevant reproductive health information should be short and precise, and there should be health counsellors for students.

The findings of the study is in accordance with the findings of Ezema (2016) who suggested improved rural development strategies such as information distribution via mobile communications, the building of remote libraries and information centers with Internet hubs, and periodic long-lasting adult literacy campaigns centred on information about health. The findings of the study also correspond with the findings of Melaku (2014) who reported that, one of the methods that can be used to improve health challenges is through the provision of relevant and timely sexual and reproductive health information (SRHI) to the youths, which include those studying in universities. Similarly, the findings of the study is in agreement with the findings of Yari (2016) who suggested effective interventions that focus on a diverse approach from various stakeholders need to be in place to improve the health of female students.

Conclusions

The study investigated the challenges of accessing and utilizing health information for information needs satisfaction by female undergraduate students in colleges of medicine. The study concluded that, the female undergraduate students understand that accessing and utilizing health information needs for meeting their information needs has lots of benefits. However, challenges experienced in accessing and utilizing are health information not packaged in an appealing/attracting format, lack of health counsellors for students, negative

attitudes of library staff members are a major problem and cultural or religious constraints. Physical accessibility to the library building is a concern, lack of organize seminars/workshops on reproductive health, epileptic power supply to access electronic health information, lack of ICT facilities to access health information, and lack of current and up-to-date health information in the library. The study is a novel study on the challenges of accessing and utilizing health information for information needs satisfaction by female undergraduate students in colleges of medicine.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Librarians should make use of social media platforms to share informative and engaging content about reproductive health information
2. There should be regular workshops and seminars where students can learn about reproductive health information from qualified healthcare professionals
3. The medical libraries management should search for alternative means for funds by management of colleges of medicine libraries for packaging and repackaging of reproductive health information in attracting formats to the students.

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