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Barriers To Research Problem Conceptualization Among Library And Information Science Students In Plateau State Polytechnic, Barkin Ladi

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ABSTRACT

This study is concerned with the barriers, that affect how research problems are conceptualized by Library and Information Science (LIS) students at Plateau State Polytechnic, Barkin Ladi. The work uses a descriptive survey style but the general idea was to see what hinders students from putting ideas together properly. The researchers focused on 75 National Diploma and Higher National Diploma students as the total population. A sample size of 54 was picked through purposive sampling, although the selection process was not made to be too wide. Data was gathered with a structured questionnaire, and later it was summarized using descriptive statistics, including frequency counts, percentages, and weighted means. From the results students experience major obstacles, and a large part of it is connected to inadequate Internet Communication Technology (ICT) and digital literacy (mean = 3.86), especially unstable campus internet, and weak e-database access. There are also internal cognitive challenges like research anxiety, and difficulty in locating relevant literature gaps (mean = 3.74). Alongside that, institutional constraints such as high costs, and insufficient supervisory attention (mean = 3.67) further reduce students' ability to conceptualize problems on their own. The study therefore suggests that both infrastructural gaps and mentoring deficits weigh heavily on students' research readiness. It recommends that supervisors should be assigned early, research clinics should be organized in practical ways, and departmental journal repositories should be provided, so that students can improve their research competence steadily.

1. Introduction

Library and Information Science (LIS) serves as an active profession which connects users to required information resources. Digital technology has transformed librarianship because contemporary digital librarianship requires librarians to function as information specialists who handle data and conduct research. Research training has become essential for Library and Information Science education because Polytechnic institutions require students to develop practical skills that solve real-world problems. Students must complete research work which serves as an academic requirement for graduation because the process helps students develop analytical skills and learn how to solve professional problems through scientific research.

The research process faces its first research obstacle when researchers need to define their core issues. As Jackson et al. (2023) describe research creates its most difficult challenges because researchers must find a research gap which they need to study. Students at this stage face difficulties because they experience confusion and need to find research topics while they fail to convert their professional experiences into scientific research. Polytechnic students in Nigeria face challenges because their vocational skills-based curriculum requires them to develop both technical skills and research skills which require theoretical understanding (Suleiman, 2025).

The students at Plateau State Polytechnic Barkin Ladi University must complete their final year projects to create new knowledge which they will use to add to existing knowledge. The project writing process starts with high anxiety levels while students take a long time to complete their work according to the current observation.

Personal obstacles develop into institutional environmental and technological challenges which create multiple barriers to research work. The existing barriers must be studied because they determine research quality and student success in managing contemporary informational systems (Igboon et al., 2025).

Students demonstrate a "conceptualization gap," because they tend to pick outdated topics and wait for their supervisors to select their research problems. The failure to develop independent research concepts results in negative research outcomes which include extended school duration, substandard final reports and decreased interest in research after graduation (Hashmi, 2022; Wu et al., 2024). The existing studies about LIS student challenges lack research which investigates problem formulation during the first stages of problem weeding in Polytechnic environments. The study aims to examine cognitive, institutional and resource-based challenges that prevent LIS students at Plateau State Polytechnic from developing effective research problem understanding.

2. Review of Literature

The literature review establishes the basic framework which helps researchers comprehend existing knowledge about research competencies in Library and Information Science. The chapter examines the fundamental principles which guide research problem formulation while it presents Theoretical framework which directs the study and the empirical analysis of contemporary academic research which studies student obstacles during their initial research period.

2.1 Conceptual Review

2.1.1 The Concept of Research Problem

In LIS education students need to develop research skills for studying their discipline through existing research. Mapolisa and Mafa (2012), explain that this skill enables one to identify "information gaps" through which they recognize areas that existing library functions and existing knowledge do not fulfill. Polytechnic students need to demonstrate their research skills by selecting specific research problems from their chosen topic of "Library Services" which should choose "The underutilization of digital repositories due to poor user interface design" as their specific research problem.

2.1.2 The Evolving Landscape of LIS Research

Current LIS research studies Big Data and Artificial Intelligence and Digital Inclusion instead of using traditional print-based metrics. Abbasi et al. (2024) argue that this shift has made problem conceptualization more complex for students. Students must now understand digital information flow beyond just counting the books present on a shelf. The current technological landscape requires people to develop better cognitive skills and technical abilities compared to what people needed a decade ago.

2.2 Theoretical Framework Social Cognitive Theory SCT

The research adopts Albert Bandura's Social Cognitive Theory as its foundation based on the concept of Self-Efficacy. Bandura believes that an individual needs to believe in his ability to perform certain tasks to achieve specific results.

The term "Research Self-Efficacy" describes a student's belief in their capability to conduct research activities which involve finding a research problem. Artino (2025), discovered that LIS students who possess low research self-efficacy treat the conceptualization stage as a barrier which prevents them from continuing their research work because they either avoid the task or reuse previous research subjects. The study uses SCT to investigate how Plateau State Polytechnic's environment and student experiences together determine their research process innovation capabilities.

2.3 Review of Empirical Studies

2.3.1 Cognitive and Academic Barriers

Academic barriers occur when students lack essential knowledge required for understanding research logic. The research study conducted by Yemi-Peters et al. (2023) discovered that Nigerian university students who study library and information science struggle with "critical thinking inertia" because they find it challenging to evaluate existing literature for identifying research gaps. The original thinking needed for project work becomes difficult to develop because students spend their early educational years practicing "copy-paste" methods.

2.3.2 Institutional and Supervisory Factors

The role of the supervisor is pivotal in the conceptualization stage. Wu et al. (2024) found that high student-to-staff ratios at many tertiary institutions result in supervisors who handle multiple students at once which creates situations where they need to finish their work quickly. Supervisors who work with excessive student load cannot dedicate sufficient time needed for supporting students throughout their brainstorming sessions which leads them to force research topics on their students. This process interferes with the student ability to develop their own ideas.

2.3.3 ICT Literacy and Research Readiness

The research conducted by Taiwo and Uwaifo (2024), studied people from North-Central Nigeria and discovered that people who possess digital database navigation skills can create better research problems. Students who lack Boolean operator skills and JSTOR and ResearchGate navigation abilities will encounter mandatory results which restrict them to solving local problems that use outdated knowledge because they have not learned about current international research developments.

2.4 Summary of Literature and Gap in Knowledge

The studied literature shows that students face multiple challenges when they try to create research problems because their cognitive capabilities and institutional backing and digital skills together determine their success. The existing research about research difficulties in Nigeria provides extensive information while it fails to provide specific up-to-date research about Plateau State Polytechnic in Barkin Ladi. Most research studies concentrate on universities while they disregard the "vocational-technical" characteristics which define the Polytechnic setting and its practical approach to LIS education.

3. Methodology

The chapter describes all steps which researchers followed during their study. The section presents the research design which establishes the research area and defines the study population and procedures for creating sample groups and data collection methods and data analysis techniques. The research methodology establishes a system that detects all research obstacles which LIS students experience during their research development process.

3.1 Research Design

The study adopts a descriptive survey research design. The design enables the researcher to gather information about a particular student group which enables him to study their present attitudes and views and the obstacles they face in understanding the research concept because he does not need to change any elements of his study (Ilori & Onanuga, 2022).

3.2 Area of Study

The study was conducted at the Department of Library and Information Science (LIS), Plateau State Polytechnic, Barkin Ladi. The institution provides technical education which establishes it as one of the top educational institutions in North-Central Nigeria. The LIS department was chosen as the research site because its technical curriculum requirements create difficulties for students who must change from practical library work to academic research work.

3.3 Population of the Study

The population consisted of all students (ND and HND) in the Department of Library and Information Science who are currently registered for their research projects. The total population for the 2025/2026 academic session was recorded as 75 students according to departmental documents.

3.4 Sample Size Determination

The Yamane (1967) formula was used to calculate sample size because it helps maintain statistical representation between sample and entire population.

The formula is expressed as:

$n = N\ 1+N(e)^2$

Where:

n = Sample size

N = Population size (75)

e = Level of precision/Margin of error (set at 0.075 or 7.5%)

Calculation:

$$n = \frac{75}{1+75(0.0075)^2}$$

$$n = \frac{75}{1+75(0.005625)}$$

$$n = \frac{75}{1+0.421875}$$

$$n = \frac{75}{1.421875}$$

n = 52.747252 (Minimum sample size)

n = 54 (actual sample size for the study).

The study used Purposive Sampling as its sampling technique. The method allowed researchers to choose study participants who had firsthand knowledge of the research topic which involved current students who were developing their research projects. The researchers used this approach to collect data which would meet the requirements of their study objectives (Ahmed, 2024).

3.5 Instrument for Data Collection

The researchers used a structured questionnaire called "Barriers to Research Conceptualization Questionnaire" (BRCQ) as their main data collection tool. The instrument created two sections which contained different types of content. Section A: Demographic information of the respondents. Section B: Items focused on the four study objectives (Cognitive barriers, Institutional factors, ICT literacy, and Proposed strategies). The items were measured using a Five-point Likert Scale: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1).

3.6 Validity and Reliability of the Instrument

The questionnaire received Face and Content Validity through assessment by two senior LIS department lecturers who evaluated its clarity and relevance to research questions. The research team evaluated two Office Technology Management students from the same department to assess instrument reliability while achieving a Cronbach Alpha coefficient of 0.75 for internal consistency.

3.7 Method of Data Collection

The researchers informed the students about the research's aim, and then sought their consent. Those who agreed to participate were enrolled as volunteers. The researchers personally administered the questionnaires to the students during departmental briefing sessions. The researchers used hand delivery to explain the study's purpose and to answer all immediate questions while they achieved a high return rate of the completed forms.

3.8 Method of Data Analysis

The researchers used descriptive statistics to analyze the collected data. The researchers used frequency counts and percentages to analyze the demographic characteristics of the respondents, while weighted mean (x) scores were employed to answer the research questions. The researchers established a decision rule because they considered all scores above 3.0 to be 'Agreed' and all scores below 3.0 to be 'Disagreed.'

4. Results

Table 1: Demographic Data of LIS Students

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	24	44.4%
	Female	30	55.6%
Level of Study	ND	29	53.7%
	HND	25	46.3%
Research Experience	Written a project before	12	22.2%
	First time writing a project	42	77.8%
Total		54	100%

Table 2: Cognitive and Academic Challenges (Internal Struggles)

S/N	Research Item/Statement	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean (x̄)	Remark
1.1	Difficulty identifying a literature gap	18	22	8	4	2	3.93	Agreed
1.2	Confusion translating ideas to problems	15	25	10	3	1	3.93	Agreed
1.3	Lack of critical thinking skills	10	18	12	10	4	3.37	Agreed
1.4	Feeling anxious/stressed about research	25	15	5	5	4	3.96	Agreed
1.5	Insufficient understanding of Methodology	12	20	10	8	4	3.52	Agreed
	Weighted Cluster Mean						3.74	Accepted

Table 3: Institutional and Environmental Factors (External Factors)

S/N	Research Item/Statement	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean (x̄)	Remark
2.1	Supervisor is too busy to guide	14	20	12	6	2	3.70	Agreed
2.2	Lack of sample projects in Dept	8	15	10	15	6	3.07	Agreed
2.3	Pressure to pick supervisor's topic	20	18	6	8	2	3.85	Agreed
2.4	High costs of printing/data	30	15	5	2	2	4.28	Agreed
2.5	Non-conducive classroom environment	12	16	14	8	4	3.44	Agreed
	Weighted Cluster Mean						3.67	Accepted

Table 4: ICT and Digital Literacy Levels (Technical Skills and Infrastructure Availability)

S/N	Research Item/Statement	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean (x̄)	Remark
3.1	Struggle with Boolean operators	16	18	10	6	4	3.67	Agreed
3.2	Lack of stable campus internet	35	10	4	3	2	4.35	Agreed
3.3	Unable to access e-databases (JSTOR)	22	15	8	6	3	3.87	Agreed
3.4	Limited computer formatting skills	10	12	15	12	5	3.19	Agreed
3.5	Reliance on Google vs Academic engines	28	16	6	2	2	4.22	Agreed
	Weighted Cluster Mean						3.86	Accepted

Table 5: Proposed Strategies for Improvement (Potential Solutions to Mitigate the Identified Barriers)

S/N	Research Item/Statement	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean (x̄)	Remark
4.1	Organize "Research Clinics"	32	18	2	2	0	4.48	Agreed
4.2	More practical digital sessions	30	20	2	2	0	4.44	Agreed
4.3	Reduce student-supervisor ratio	25	15	10	4	0	4.13	Agreed
4.4	Provide departmental journal repository	28	22	4	0	0	4.44	Agreed
4.5	Early allocation of supervisors	35	15	4	0	0	4.57	Agreed
	Weighted Cluster Mean						4.41	Accepted

Table 6: Summary of Results (Grand Mean Ranking)

Rank	Research Theme	Grand Mean	Interpretation
1st	Proposed Strategies	4.41	High Demand for Change
2nd	ICT and Digital Literacy	3.86	Major Barrier
3rd	Cognitive and Academic	3.74	Significant Barrier
4th	Institutional Factors	3.67	Significant Barrier

4.1 Discussion of Findings

Demographic Profile and Research Experience The demographic data (Table 1) shows that the cohort consists of 55.6% female students who are studying National Diploma (ND) and Higher National Diploma (HND) Library and Information Science (LIS) programs. The respondents show that most of them (77.8%) are writing their first research project. The absence of previous research experience establishes the primary research foundation which researchers use to assess the remaining research findings. According to Chongjin et al. 2025 novice researchers experience learning challenges which create academic pressure and stop them from mastering advanced research methods without assistance.

The researchers identified ICT and Digital Literacy as the major obstacle which prevented students from conducting research because the barrier received a high weighted cluster mean score of 3.86 according to Table 4. The highest-ranked obstacle in this section occurred because students could not access reliable internet service on campus which resulted in a mean score of 4.35. The academic community has identified e-database access as a critical component for high-quality literature reviews because researchers need access to platforms such as JSTOR which received a mean score of 3.87. The researchers show that LIS students face fundamental obstacles in their academic work because their educational institutions lack proper digital infrastructure and their digital skills do not meet academic requirements (Danj-fari, 2025).

4.1.1 Cognitive and Academic Challenges

The students reported internal cognitive and academic difficulties which reached a significant level of internal cognitive and academic difficulty (Table 2: cluster mean = 3.74). The research study reveals that students experience extreme anxiety and stress when conducting their research work (mean = 3.96). The students show psychological burden because they lack experience

according to their previous statement.Students experience difficulty in identifying literature gaps which they rate as (mean = 3.93) while they also struggle to create specific research problems from general ideas which they rate as (mean = 3.93). Undergraduates experience research anxiety which develops from their insufficient knowledge of research methods and their apprehension about academic assessment (Rastogi et al., 2025).

Institutional and Environmental Constraints The external institutional factors which Table 3 shows create operational challenges at the study site with a cluster average of 3.67. The primary external obstruction to research activities results from the expensive nature of printing materials and obtaining research data (mean = 4.28). The study results demonstrate that student research performance suffers because of socio-economic factors. Students experience strong pressure to choose research topics which their supervisors select (mean = 3.85) while supervisors lack time for proper student support (mean = 3.70). Student participation in learning activities declines because supervisors create operational constraints which restrict independent study activities according to Wu et al. (2024). The proposed strategies for improvement work as solutions to the complete challenges which students achieved through their efforts to comprehend which interventions would support their academic progress which is shown in Table 5. The proposed strategies received the highest overall agreement in the study (cluster mean = 4.41). The most highly demanded solution was the early allocation of supervisors (mean = 4.57), followed by the organization of "Research Clinics" (mean = 4.48) and the provision of a departmental journal repository (mean = 4.44). Research institutions should assign supervisors to researchers because this method allows newcomers to receive guidance until they develop expertise which they can use to choose research topics. The research of Wu et al. (2022) indicates that the best methods to help students overcome research anxiety and improve their writing skills include proactive mentorship and hands-on research clinics and early institutional support.

5. Conclusion

Table 6 displays the grand mean ranking which demonstrates that students experience two major barriers to their education through ICT and cognitive challenges yet they respond positively to institutional programs which target their needs. The research capabilities of LIS students require digital infrastructure improvements and better student-supervisor mentorship programs as essential measures for progress.

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