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GENDER DIFFERENCES IN THE AWARENESS AND USE OF ELECTRONIC DATABASES FOR LEARNING BY UNDERGRADUATE STUDENTS OF UNIVERSITIES IN KATSINA STATE, NIGERIA

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Abstract
The study investigated gender differences in the awareness and use of electronic databases for learning by undergraduate students of universities in Katsina State, Nigeria. The objectives of this study are to find out the gender difference in the level of awareness of electronic databases and the gender differences in the use of electronic databases for learning in university libraries in Katsina State. Two null hypotheses were formulated and tested. Namely: There is no significance difference between male and female undergraduate students in their level of awareness of electronic databases in university libraries in Katsina State and there is no significant difference in the Use of electronic databases between male and female undergraduate students for learning in university libraries in Katsina State. The study used a descriptive cross-sectional survey design. The population of the study consisted of all the ***35,308*** *undergraduate students from the Umaru Musa Yar'adua University Katsina, Alqalam University, Katsina and Federal University Dutsinma respectively. A sample size of 378 students was selected through stratified disproportionate sampling. Data were collected using a validated questionnaire, and reliability testing through a pilot study yielded a high overall Cronbach's alpha of 0.90, indicating strong internal consistency. The study revealed significant gender differences in the awareness and use of electronic databases among undergraduate students in Katsina State universities. Male students showed higher awareness and usage of both free and subscribed databases. Male students were more familiar and engaged with electronic databases, indicating a gender gap in effective access and utilization for learning. It is recommended that university libraries should implement targeted awareness campaigns that engage both male and female students through a combination of formal and informal channels, including workshops, awareness drives, and peer-led programmes, to bridge the gender gap in database awareness. Libraries should promote broader use of electronic databases especially among*

female students by highlighting their value beyond assignments, such as for exam preparation and personal research.

Keywords: Gender Differences, Awareness, Use, Electronic Database, Undergraduate Students

Introduction

Universities are established to fulfill the tasks of teaching, learning and training the higher-level workforce required to provide technical, professional, and other socio-economic activities for the growth of the country. Universities are fortresses of learning where high-level manpower needed for the social, economic, and political advancement of a nation are equipped and educated. To achieve these objectives, university lecturers are involved in research, teaching, and community development as well as train students with thinking skills. Moreso, the attainment of these objectives calls for the use of information from different sources by the students and their lecturers. Thus, the development of electronic databases has significantly changed the landscape of information access, retrieval and use. It was introduced in the 1960s, marking the beginning of a new era in information management (Okpara & Dodd, 2022).

The rapid advancement of Information and Communication Technology (ICT) has fundamentally altered the landscape of higher education globally. In the modern academic environment, the traditional reliance on physical library stacks is increasingly being complemented, and in some cases replaced, by electronic databases. These databases include scholarly repositories like JSTOR, ScienceDirect, and EBSCOHost—provide students with seamless access to a vast array of peer-reviewed journals, e-books, and technical reports (Lawal & Yahaya, 2020). For undergraduate students, the ability to navigate these resources is a core academic necessity for research, assignments, and independent learning. Nyemezu (2021) for example, indicated that usage of electronic databases in developed countries is more than in developing countries basically because of poor ICT infrastructure and huge cost of such resource

In Nigeria, it is noteworthy that the Federal Government, various university managements and intervention agencies such as Tetfund, NITDA and NCC have made huge investments in digital infrastructure to bridge the "digital divide." In the same vein, Universities in Katsina State such as Umaru Musa Yar'adua University (UMYU), Federal University Dutsin-Ma (FUDMA), and Al-Qalam University, have integrated electronic information resources (EIRs) into their library systems to enhance the quality of learning and research (Manzo & Umar, 2024). However, the mere availability of these databases does not guarantee their effective utilization by various stakeholders.

Interestingly, Sakibu & Arthur, (2018) found that Nigerian institutions have consistently shown that awareness remains a primary bottleneck; many students remain tethered to general internet search engines because they are unaware of the specialized databases subscribed to by their institutions. Lee (2024) suggested that male and female students may use databases in different ways due to differences in their searching Skills, preferences, and perceptions of databases. Flick et. al. (2022) revealed that female students are more likely to use databases for research and exploration, while male students are more likely to use databases for specific tasks. Also, Smith and Laster (2021) explained that students have very confused understanding of various databases and its concept. More so, many students are not yet involved with various databases. The authors showed that the utilization of the various databases by undergraduate in

many university libraries is very low.

A critical, yet often debated factor influencing the awareness and utilization of these digital information resources and tools is gender. Historically, it has suggested that male students often exhibit higher levels of digital literacy and lower levels of computer anxiety compared to their female counterparts (Onyishi et al., 2012). Bassi and Camble, (2011) argued that male students are more likely to use electronic resources for intensive research, while female students may use them more for communication and specific assignments. Conversely, other recent studies suggested that as digital tools become more user-friendly, the gender gap is narrowing, with some instances showing female students achieving higher levels of digital competence in specific academic tasks (Aduke, 2017).

Despite these global and national trends, there is a paucity of localized data regarding how gender dynamics specifically influence the use of electronic databases among undergraduates in Katsina State. Given the unique socio-cultural and educational context of Northern Nigeria, it is imperative to investigate whether male and female students have equal levels of awareness and if they utilize these resources differently. This research, therefore, seeks to fill this gap by examining gender differences in the awareness and use of electronic databases for learning among undergraduate students in universities within Katsina State.

Statement of the Problem

In the contemporary technology driven society, electronic databases have become indispensable tools for academic excellence, providing undergraduate students with global access to quality and reputable peer reviewed journals, ebooks and research repositories. Thus, many university libraries including that of Umaru Musa Yar'adua University and Federal University Dutsin-ma have invested substantial financial resources in acquiring electronic databases and other relevant Information and Communication Technology (ICT) infrastructure with the expectation that undergraduate students will effectively and equitably utilize them to support learning, teaching, and research activities (Nyemezu, 2021; Gidado & Abubakar, 2025; Habila, 2025).

However, despite these investments, Lee, (2023) and Lee, (2024) revealed that electronic databases are significantly underutilized by students, with evidence suggesting notable gender differences in awareness and usage patterns. While some students actively engage with these databases, others often influenced by lack of awareness, inadequate search skills, a preference for general search engines such as Google which may provide less credible and non-academic information (Habila, 2025; Shija, 2009) and negative user attitudes, making little or no use of them. These challenges do not manifest uniformly across institutions or student groups and may affect male and female students differently depending on the context.

Another critical dimension to this problem is the "gender digital divide". Sufian et al (2023) discovered that male and female students often interact with digital technology differently due to varying levels of digital literacy, socio cultural influences and different degree of access to personal computing devices. Thus, in Northern Nigeria, social cultural norms can sometimes influence the level of exposure female students have to digital platforms compared to their male counterparts (Banyan Global, 2023). If these gender-based disparities in awareness and usage of electronic databases are not identified and addressed, there is a high possibility that a segment of the

population may be left behind, leading to unequal academic performances and a waste of institutional resources. There is, therefore, a need to empirically investigate the current gender differences in the awareness and use of electronic databases for learning among undergraduate students in university libraries in Katsina State.

Research Objectives

The following objectives guided the study:

1. To find out the gender difference in the level of awareness of electronic databases available in the university libraries in Katsina State.
2. To find out the gender differences in the use of electronic databases for learning in university libraries in Katsina state.

Research Hypotheses

The following null hypotheses were formulated and tested in this study.

$H0_1$: There is no significance difference between male and female undergraduate students in their level of awareness of electronic databases between male and female undergraduate students in university libraries in Katsina State

H02: There is no significant difference in the Use of electronic databases for learning between male and female undergraduate students in university libraries in Katsina State.

Literature Review

The Literature reviewed covered the theoretical and conceptual frameworks as well as empirical research on Gender Differences in the awareness and use of electronic databases for learning by undergraduate students in university libraries in Katsina state, Nigeria.

Behavioral Change Model (BCM)

The Behavioral Change Model (BCM) was developed by Dr. Stephen Sutton in 2000. The model was introduced in their paper titled "Explaining and Changing Health-Related Behavior", published in 2000. The model posits that individual behavior change is a process that involves several stages. These stages include awareness, knowledge, attitude, skills, and habits, (Sutton, 2000). The Behavioral Change Model (BCM) is a theoretical framework that explains how individuals progress through different cognitive and behavioral stages before adopting, using, or sustaining a particular behavior. The model is widely applied in education, health, information science, and technology adoption studies to explain how knowledge and awareness translate into actual use and sustained practice. In the context of library and information science, BCM is useful for explaining how students' awareness of electronic databases influences their decision to use such resources for academic learning. The BCM is based on the following assumptions: Behavioral change is a process, not a single event. Individuals must first become aware of an innovation or resource before they can use it. Increased knowledge and positive perception enhance the likelihood of use. Actual use behavior reflects successful behavioral change influenced by internal and external factors, (Glanz, Rimer, & Viswanath, 2015; Nutbeam, 2000).

Key Constructs of the Behavioral Change Model

The key constructs of the BCM include awareness which is considered as a foundational construct of the BCM. It refers to the extent to which individuals are informed about the existence, purpose, and benefits of a particular innovation, service, or resource. In library studies, awareness includes: Knowledge of available electronic databases, Understanding access points (library website, OPAC, institutional subscriptions) and Awareness of the relevance of databases to academic tasks. Therefore, students who lack awareness of electronic databases are unlikely to use them, regardless of their availability. This is followed by the construct of knowledge and Perception (Intermediate Construct). After awareness, individuals develop knowledge, attitudes, and perceptions about the resource. This includes: Perceived usefulness, Perceived ease of use, and Perceived relevance to academic success.

The next construct is use (Adoption Behavior). This represents the actual behavioral outcome in the BCM. It refers to the extent and frequency of engaging with a resource or service after becoming aware and forming positive perceptions. Lastly, the construct of sustained use (Optional Stage), which simply reflects long-term behavioral adoption.

Gender differences in the Level of Awareness of Electronic-databases

Gender differences in the level of awareness of e-databases refer to how male and female undergraduate students perceive and are informed about the availability and functionality of Awareness and Use of electronic Databases by Undergraduate. Khan and Patel (2023) argued that is the state of being conscious or knowledgeable about something. In the context of e-databases, it often highlights a gap between awareness and actual usage. Some users are aware of e-databases and actively use them, others are aware but do not use them, and some users are completely unaware and, as a result, do not use them. Manda and Mulkangara (2007) and Nwosu and Eze (2018) highlight how awareness can differ by gender, with female students often exhibiting a higher level of awareness regarding the existence of e-databases, but with lower usage rates compared to their male counterparts. Female students, despite being aware of the resources, sometimes face challenges such as a lack of confidence in using the tools or insufficient training, which limits their ability to use them effectively. In contrast, male students, although they may not always show a higher level of awareness, tend to use e-databases more frequently when they are aware of them. This distinction aligns with the broader understanding of awareness as outlined by Basiru and Okwilagwe (2018), who suggested that awareness is a personal and social benefit that influences behavior. In their study, they concluded that awareness significantly impacts attitudes and behaviors toward technology, including e-databases.

Concept of Electronic Databases

Electronic databases have been viewed differently by different scholars and authorities from different perspectives. It is a collection of organized data that is stored electronically and can be easily accessed, managed, and updated using a computer or other electronic device. Electronic databases can store various types of data including text, images, audio, and video files. It is a collection of organized data stored electronically, accessible via computer or device, and manageable through specialized software (Yusuf et. al. 2018). It is a computer-based repository of data organized for easy access, management, and updates. An electronic database is a collection of

data or information that is stored in a digital format. It is designed to be accessed, managed, and searched using computer systems or software applications. These databases allow for the efficient storage of large volumes of data, which can be retrieved quickly by users based on specific queries or search criteria. Electronic databases are used across various fields, from academic research to business analytics. These databases are particularly useful in fields such as media, entertainment, education, and marketing, where large collections of non-textual content need to be organized, indexed, and retrieved efficiently. Smith and Steel (2020); Schmidt and Sonneveldt (2020)

Gender differences in the Use of Electronic Databases

Gender differences in the use of electronic databases in university libraries refers to how men and women differ in the way they search for and use information resources in the context of academic libraries. Some studies like Chatterjee and Chauhan (2021; Okpara and Dodd (2022), found that female undergraduate students in the UK were more likely to use subject-specific databases and to be more engaged with information resources, while male undergraduate students were more likely to use general-purpose databases and to be less engaged with information resources. The two different studies indicated that female students used databases more than male students for their academic pursuits. According to the findings of Okpara and Dodd (2020) the databases that recorded the highest frequency of use includes: JSTOR: which is an online research database that provides access to academic journals, books, and primary sources in the humanities and social sciences. It is followed by ProQuest a comprehensive database that offers access to full-text journals, dissertations, and e-books in a wide range of disciplines and Scopus: a citation database that covers scholarly literature in science, technology, medicine, social sciences, and arts and humanities. Similarly, Smith and Steele (2020) found that female undergraduate students in the UK were more to use library workshops and tutorials to learn how to use e-databases, while male undergraduate students were mostly to use online tutorials and self-directed learning.

Similarly, in United State, the authors (Neely, 2016; Neuman and Tewari 2019) found that female undergraduate students in the US used advanced search features and subject-specific databases, more than male undergraduate students who mostly used simple search features and general-purpose databases. Neuman and Tewari (2019) in particular indicated that female undergraduate consult with librarians and other library staff when using electronic databases than male undergraduate students who rely on their own resources.

Research Methodology

The study adopted a **descrip**tive cross-sectional survey design, which was considered appropriate because it enabled the collection of data at a single point in time from a large number of undergraduate students. This design facilitated the investigation of gender differences in the awareness and the use of electronic databases for learning among undergraduate students in university libraries in Katsina State. The population of the study comprised of all undergraduate students of the three universities in Katsina State, totaling 35,308 students as recorded in the 2023/2024 academic session. These universities are: Umaru Musa Yar'adua University Katsina, Alqalam University, Katsina and Federal University Dutsinma respectively. From this population, a sample size of 378 respondents was determined using Research Advisor's Sample Size

Determination Table (2006), which was deemed adequate to represent the entire student body while maintaining statistical precision.

In selecting the respondents, a stratified disproportionate sampling technique was employed, with gender (male and female) serving as the basis for stratification. Equal numbers of male and female students 189 each were selected to ensure fair representation and to allow meaningful comparison between the two groups, regardless of their actual proportions in the population. A self-developed questionnaire was used to collect data for the study. It was validated using face and content validity techniques. The instrument was given to experts who are seasoned researchers in the area under study from Library and Information Science Department, statisticians and linguists for scrutiny and expert judgements. To make sure that the instrument is adequately reliable, a pilot study was carried out by distribution of 30 copies to similar group of respondents in Bayero University, Kano who are not part of the study. This was carried out before the actual distribution of the questionnaire as the table 1 shows:

Table 1: Reliability result

Variable Name	Number of Items	Cronbach's Alpha
Variable 1: Awareness	33	.86
Variable 2: Searching skills	22	.90
Variable 3: Attitude	7	.89
Variable 4:: Use	35	.91
Variable 5: Challenges	14	.93
Total	**111**	**.90**

Results

A total of three hundred and seventy-eight (378) copies of questionnaire were distributed to the respondents from the three (3) universities. Out of this number, three hundred and two (302) copies of the questionnaires were duly completed and returned. The findings of the data collected were presented in line with the research questions and objectives of the study. The results from the research questions were analysed using simple frequency tables, percentages, mean and standard deviation while the hypotheses were tested using Mann Whitney U-test due to the fact that data is categorical in nature and the hypotheses are differential.

Level of Gender Differences in Awareness of Electronic Databases Available in the University Libraries in Katsina State

To answer this question, respondents were provided with options using a 5-point Likert scale of measurement to indicate their level of gender differences in the awareness of electronic databases available. The analysis of their responses is presented in table 2.

Table 2: Results of level of gender differences in awareness of electronic databases available in the university libraries in Katsina State (N=302)

Online	Gender	VHA	HA	MA	LA	VLA	MEAN	STD
Databases (free databases)		**F**	**F**	**F**	**F**	**F**		
CORE	Male	0	0	16	80	55	1.74	.64
	Female	0	0	26	75	50	1.84	.69
Direct Open Access	Male	0	32	48	36	35	2.51	1.07
Journal DOAJ database	Female	0	11	31	40	69	1.89	.97
Base	Male	0	0	32	68	51	1.87	.73
	Female	0	0	16	48	87	1.53	.68
Scopus Database	Male	0	16	32	64	39	2.17	.93
	Female	0	6	7	78	60	1.73	.73
Google Scholar	Male	0	16	48	52	35	2.30	.94
Databases	Female	0	16	32	52	51	2.09	.99
Subscribed Online Databases								
Science direct	Male	0	16	48	20	67	2.09	1.09
Database	Female	0	7	33	56	55	1.95	.88
ProQuest	Male	0	0	16	80	55	1.74	.64
	Female	0	6	7	89	49	1.80	.70
EBSCO host	Male	0	32	32	52	35	2.40	1.07
	Female	0	18	18	49	66	1.92	1.02
PubMed	Male	0	7	33	55	56	1.95	.88
	Female	0	6	7	49	89	1.80	.70
JSTOR Database	Male	0	7	33	55	56	1.95	.88
	Female	0	6	7	78	60	1.73	.73
Trip medical	Male	0	16	48	67	20	2.09	1.09
Database	Female	0	0	26	75	50	1.84	.69
HINARI Database	Male	0	18	18	49	66	1.92	1.02
	Female	0	6	7	49	89	1.80	.70
AGORA Database	Male	0	6	7	78	60	1.73	.73
	Female	0	7	33	55	56	1.95	.88
ARDI Database	Male	0	18	18	49	66	1.92	1.02
	Female	0	0	26	75	50	1.84	.69
OARE Database	Male	0	18	18	49	66	1.92	1.02
	Female	0	0	16	48	87	1.53	.68
LexisNexis	Male	0	6	7	78	60	1.73	.73
	Female	0	0	16	48	87	1.53	.68

African Journals	Male	0	32	7	64	48	2.15	1.1
Online	Female	0	0	26	50	75	1.84	.69
SAGE Journals	Male	0	0	26	75	50	1.84	.69
	Female	0	6	7	60	78	1.73	.73
Open Courseware	Male	0	0	26	75	50	1.84	.69
	Female	0	6	7	49	89	1.80	.70
Offline Databases								
Encarta Premium	Male	0	32	48	36	35	2.51	1.07
	Female	0	33	50	34	34	2.54	1.09
E-granary	Male	0	16	48	32	55	2.17	1.04
	Female	0	0	50	51	50	2.00	.82
CD-ROM/DVD	Male	32	48	48	20	3	3.57	1.03
	Female	16	34	84	17	0	3.32	.81
Encyclopedia	Male	0	48	48	36	19	2.83	1.03
Britannica	Female	0	17	84	33	17	2.67	.82
Encyclopedia	Male	16	16	48	52	19	2.72	1.14
Americana	Female	0	33	67	34	17	2.76	.92
Encarta Dictionary	Male	0	48	48	19	36	2.83	1.03
	Female	16	48	7	32	48	2.68	1.46

Key: VLA: Very Low Aware 1, LA: Low aware 2 **MA:** Moderate aware 3 **HA:** High aware 4 **VHA:** very high aware 5, **F: Frequency**

The table 2 above showed the responses of the respondents on the gender differences in awareness of electronic databases. These electronic databases were categorized into free online databases, subscribed online databases, and offline databases. For free online databases, it was discovered that male respondents generally showed higher awareness across databases such as CORE (Male: Mean = 1.74, SD = 0.64), DOAJ (Male: Mean = 2.51, SD = 1.07), and Base (Male: Mean = 1.87, SD = 0.73). In these databases, males reported higher levels of awareness, with frequencies indicating that 53.0% of males were low aware of CORE, and 45.7% of females were low aware of DOAJ. For subscribed online databases, males also showed higher awareness levels, as seen in databases like Science Direct (Male: Mean = 2.09, SD = 1.09) and ProQuest (Male: Mean = 1.74, SD = 0.64). However, it was found that Female respondents, indicated slightly lower awareness across subscribed databases with a mean of 1.80 and SD of 0.70 of females being low aware of PubMed. Finally, for offline databases, awareness levels were higher, with databases like CD-ROM/DVD showing high awareness among both genders (Male: Mean = 3.57, SD = 1.03; Female: Mean = 3.32, SD = 0.81).

Gender differences in the Use of electronic databases for learning by undergraduate students in university Libraries in Katsina State

The study went further to ascertain the opinion of respondents on gender differences in the use of electronic databases for learning by undergraduate students in the University libraries in Katsina State.

Table 3: Gender difference in the use of electronic databases for learning by undergraduate students in the University libraries in Katsina State (N=302)

	Gender	**Yes**		**No**	
Online Databases (open access databases)					
		F	**%**	**F**	**%**
CORE	Male	29	19.2	122	80.8
	Female	19	12.6	132	87.4
Direct Open Access Journal	Male	37	24.5	114	75.5
DOAJ databases	Female	31	20.5	120	79.5
Base	Male	33	21.9	118	78.1
	Female	21	13.9	130	86.1
Scopus Database	Male	39	25.8	112	74.2
	Female	22	14.6	129	85.4
Google Scholar Databases	Male	42	27.8	109	72.2
	Female	19	12.6	132	87.4
Subscribed Online Databases					
Science direct Database	Male	49	32.5	102	67.5
	Female	27	17.9	124	82.1
ProQuest	Male	17	11.3	134	88.7
	Female	9	6.0	142	94.0
EBSCO host	Male	34	22.5	117	77.5
	Female	21	13.9	130	86.1
PubMed	Male	25	16.6	126	83.4
	Female	26	17.2	125	82.8
JSTOR Database	Male	51	33.8	100	66.2
	Female	42	27.8	109	72.2
Trip medical Database	Male	49	32.5	102	67.5
	Female	26	17.2	125	82.8
HINARI Database	Male	15	9.9	136	90.1
	Female	09	6.0	142	94.0
AGORA Database	Male	11	7.3	140	92.7
	Female	7	4.6	144	95.4
ARDI Database	Male	19	12.6	132	87.4
	Female	25	16.6	126	83.4

OARE Database	Male	23	15.2	128	84.8
	Female	21	13.9	130	86.1
LexisNexis	Male	16	10.6	135	89.4
	Female	12	7.9	139	92.1
African Journals Online	Male	15	9.9	136	90.1
	Female	18	11.9	133	88.1
SAGE Journals	Male	33	21.9	118	78.1
	Female	32	21.2	119	78.8
Open Courseware	Male	16	10.6	135	89.4
	Female	17	11.3	134	88.7
Offline E-databases					
Encarta Dictionary	Male	67	44.4	84	55.6
	Female	49	32.5	102	67.5
E-granary	Male	62	41.1	89	58.9
	Female	43	28.5	108	71.5
CD-ROM/DVD	Male	55	36.4	96	63.6
	Female	61	40.4	90	59.6
Encyclopedia Britannica	Male	49	32.5	102	67.5
	Female	37	24.5	114	75.5
Encyclopedia Americana	Male	53	35.1	98	64.9
	Female	31	20.5	120	79.5

The table 3 revealed a significant gender difference in the use of electronic databases for learning by undergraduate students in universities in Katsina State. Under the free databases category, male students showed a higher usage rate across almost all databases, especially for Google Scholar (27.8%) and Scopus (25.8%). In contrast, female students were reported to have lower usage rates, with the highest being for Google Scholar (12.6%) and Scopus (14.6%). In the subscribed electronic databases, male students again dominated the usage, especially for Science Direct (32.5%) and JSTOR (33.8%), while female students had much lower usage, with the highest recorded for JSTOR (27.8%) and Science Direct (17.9%). For offline e-databases, male students showed higher usage as well, with Encarta Dictionary (44.4%) and E-granary (41.1%) being the most utilized, whereas female students used these platforms less frequently, with the highest usage rates for Encarta Dictionary (32.5%) and E-granary (28.5%).

Hypotheses Testing

This section dealt with the outcome of inferential analysis employed to test the null hypotheses formulated for the study. The followings were the specific research hypotheses for the study:

$H0_1$: There is no significant difference in the level of awareness of electronic databases between male and female undergraduate students in university libraries in Katsina State

H02: There is no significant difference in the Use of electronic databases for learning by undergraduate students in university libraries in Katsina State.

Table 4: Results of Mann Whitney U-test on the differences in the level of awareness of electronic databases between male and female undergraduate students in university libraries in Katsina State (N=302)

Variables	N	Mean	S.D.	F	t	P-value	Remark	Decision
Male	302	2.3824	.49327	53.845	2.733	.000		rejected
Female		1.8824	.94595		2.733			

The Mann-Whitney test results demonstrate a significant gender difference in the level of awareness of electronic databases among undergraduate students in the university libraries in Katsina State. Specifically, male students have a higher mean awareness score (2.3824) compared to female students (1.8824), with a standard deviation of 0.49327 for males and 0.94595 for females. The calculated test statistic (F = 53.845) and the p-value of 0.000 both indicate a statistically significant difference between the two groups, as the p-value is much lower than the typical significance threshold of 0.05. This suggests that male students, on average, have a greater awareness of electronic databases than their female counterparts. As a result, the null hypothesis (H01), which posits that there is no significant difference in the level of awareness between male and female students, is rejected. The findings highlight a notable gender disparity in the awareness of electronic databases, emphasizing the need for targeted interventions to bridge this gap in library usage and access to resources.

Table 5: Results of Mann Whitney U-test on the differences in the Use of electronic databases for learning between male and female undergraduate students in university libraries in Katsina State (N=302)

Variables	N	Mean	S.D.	F	t	P-value	Remark	Decision
Male	302	2.3333	1.26042	4.273	-2.42	.041		rejected
Female		3.0000	1.42918		-2.42			

The results of the analysis, as shown in Table 5, indicate a significant difference in the use of electronic databases for learning between male and female undergraduate students in the university libraries in Katsina State. The t-test analysis revealed that while the mean score for female students (3.00) was higher than that of male students (2.33), the p-value of 0.041 is less than the 0.05 threshold for statistical significance. This suggests that there is a meaningful difference in how male and female students use electronic databases, with females using them more frequently or effectively, according to the data. As a result, the null hypothesis (H02), which stated that there would be no significant difference in the use of electronic databases between male and female students, was rejected. Therefore, it can be concluded that gender plays a role in the frequency or extent of use of electronic databases in the academic setting, with female students showing a more significant engagement.

Discussion of findings

1. The findings of the study highlight significant gender disparities in the awareness and use of electronic databases, for free online databases, it was discovered that male respondents generally showed higher awareness across databases such as CORE, which have important implications for undergraduate students in universities in Katsina State. The study found that male students rely more on informal sources like friends and self-discovery for awareness of electronic databases, while females tend to use formal sources like library orientations and staff and also the study found a significant gender difference in the level of awareness of electronic databases among undergraduate students in Katsina State's university libraries, with Male students demonstrated higher awareness compared to female students. This finding contrasted with the finding of Ngozi, Genevieve and Ogaraku (2018), who found low overall awareness among academic staff at FUTO, though their study did not address gender-specific differences. Similarly, Kumar & Kumar (2008) reported general awareness and use of e-resources, but did not specify the sources of awareness. Unlike study Nisha & Ali (2013) found that library clientele were universally aware of and used e-databases, highlighting a contrast in awareness and usage patterns.
2. The study found a notable gender disparity in the use of electronic databases for learning among undergraduate students in Katsina State universities. Male students consistently showed higher usage rates across both free and subscribed databases, such as Google Scholar, Scopus, JSTOR, and Science Direct, with significant engagement in offline e-databases like Encarta Dictionary and E-granary. In contrast, female students exhibited lower usage rates, especially for subscribed databases like ProQuest and PubMed. This trend suggests that male students are more familiar and comfortable with electronic resources, while female students use them less frequently, indicating a gender gap in accessing and utilizing these learning tools effectively. Moreover, the findings reveal notable gender differences in the use of electronic databases among undergraduate students in Katsina State universities. Comparing these findings with those of international studies, such as those by Smith and Steele (2020) and Flick et al. (2022), which found that undergraduates have use variety of electronic databases and a similar disparity in usage but with more gender-specific preferences.

Conclusion

The study concluded that there is a significant gender differences in the awareness and use related to electronic databases among undergraduate students in Katsina State universities. Male students demonstrated higher awareness, proficiency in search techniques, and broader use of electronic databases, often relying on informal sources like friends and self-discovery. In contrast, female students were more dependent on formal sources such as library orientations and faced challenges related to internet connectivity and user interfaces. While both genders showed a positive attitude towards electronic databases, male students exhibited greater confidence in using them.

Recommendations

Arising from the findings of this study, it is recommended as follows:

1. University libraries should implement targeted awareness campaigns that focus on both male and female students, using a mix of formal and informal channels. Organizing workshops, awareness drives, and peer education programs led by both male and female students could help bridge the gender gap in database awareness. Additionally, ensuring that all students, regardless of gender, have equal access to information about the databases through online resources and regular orientations is vital.
2. University Libraries should encourage female students to expand their use of electronic databases beyond assignments by demonstrating how these tools can support a broader range of academic activities, such as exam preparation and personal research. Creating gender-neutral campaigns that showcase the benefits of databases for all aspects of academic life and providing incentives or recognition for active usage could help increase female students' engagement.

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