

# Web-based Information-Seeking Behaviour as Determinant of Electronic Information Resources Utilisation by Medical Students in Federal Universities in South-west, Nigeria

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## Abstract

*This study examined web-based information-seeking behaviour as determinants of electronic information resources (EIR) utilisation by medical students in Federal Universities in South-west, Nigeria. The study adopted a descriptive survey design, and a sample of 324 medical students was selected using a stratified sampling technique. A self-developed questionnaire was used to collect data from 324 respondents, of which 301 copies were filled out and returned. Data collected for the two research questions were analysed using frequency counts, percentages and mean, while inferential statistics of multiple linear regression were used to test the only null hypothesis of the study. The study found that the overall extent of EIRs utilisation by medical students is high (overall average mean = 2.98, SD = 0.41). The results further showed that medical students in federal universities in South-West, Nigeria exhibit a high level of web-based information-seeking behaviours (overall average mean*

*= 3.11, SD = 0.27). The results of the tested hypothesis confirmed that web-based information-seeking behaviour has no significant influence on electronic information resources utilisation by medical students in federal universities in South-West, Nigeria (Adj.  $R^2 = .0000$ ,  $F(8, 292) = 0.990$ ,  $p > 0.05$ ). The study recommends that universities should integrate digital literacy training into medical education curricula to improve students' ability to effectively navigate and utilise institutional EIRs. Also, workshops and hands-on training should be organised regularly to teach students how to access, search, and retrieve academic information from electronic databases.*

**Keywords:** Information-seeking Behaviour, Web-based Information-seeking Behaviour, EIR, Medical Students.

## Introduction

In recent times, information has been considered an ultimate weapon and people have used information in their day-to-day social, cultural and economic and business life. In this information age, the integration and intelligent use of information is a prerequisite to success at all levels and an inability or deficiency in information usage imposes heavy penalties on individuals and at the organisational, social and global levels (Almarabeh, Majdalawi, and Mohammad, 2016). This means that our lives today are based on information. Over the years, higher institutions of learning have adopted the use of the web and its related technologies for teaching and learning. Due

to this, university students have to depend heavily on the Internet to get the information they need. In other words, educational institutions have increasingly embraced the utilisation of the World Wide Web and the technology associated with it for the purposes of instructing students, acquiring knowledge, and searching for specific information. Consequently, the shift in information-seeking behaviours among university medical students can be attributed to several factors, including technological advancements, environmental influences, and the digitisation of information. These factors have collectively compelled medical students to heavily rely on the Internet as a primary source of information. Therefore, to succeed in this information era, one requires a variety of information, especially in electronic formats.

It is important to note that the extent to which medical students effectively utilise these resources is influenced by many factors, which include web-based information-seeking behaviour. The concept of web-based information-seeking behaviour refers to how individuals search, retrieve and utilise information from the large pool of information sources (Ismail and Kareem, 2011). This behaviour comprises various cognitive and motivational processes that influence how medical students approach online searching, assess information relevance, and make decisions based on the findings. Therefore, in understanding the factors that shape web-based information-seeking behaviour, it is essential to examine its role in determining the extent to which medical students utilise EIR. In addition to this, it is noteworthy that the relationship between web-based information-seeking behaviour and EIR utilisation is not solely determined by individual characteristics. However, Wilson (1981) identifies the aspects that impact information-seeking and simultaneously highlights the diverse problems associated with this process. The Wilson Model of Information-seeking Behaviour, as expanded upon by Ellis et al., outlines various indicators or components that characterise the information-seeking process. Ellis et al. extended Wilson's original model by incorporating additional stages and factors. The indicators of information-seeking behaviour according to the Ellis model include *Starting*, that is, recognising an information need, *Chaining*, which involves exploring related topics and sources, *Browsing*, that is, skimming through sources for an overview, and *Differentiating*, which involves evaluating sources' credibility and relevance. Others

include *Monitoring*, which involves keeping track of new information, *Extracting*, that is, taking notes, or saving relevant information. Also, *Verifying* is to ensure the accuracy and reliability of information, while *Ending* information to address the initial need.

In the context of medical education, where staying abreast of the latest clinical guidelines, research, and treatment modalities is critical, web-based information-seeking behaviour is vital for lifelong learning and professional development. Therefore, as medical students increasingly rely on web-based tools to fulfil their academic and clinical information needs, it is pertinent to understand the determinants of their information-seeking behaviour for enhancing the utilisation of electronic information resources. It is against this backdrop that this study aimed to investigate web-based information-seeking behaviour as a determinant of electronic information resource utilisation among medical students in federal universities in the Southwest, Nigeria.

### Statement of the Problem

The utilisation of electronic information resources (EIRs) has become increasingly important in medical education, providing students with access to up-to-date research, clinical guidelines, and medical knowledge essential for their academic and professional development. However, despite the availability of EIRs in many federal universities in South-West Nigeria, the extent to which medical students effectively utilise these resources remains suboptimal. One of the key factors influencing the utilisation of EIRs is web-based information-seeking behaviour, which involves how students search, retrieve, evaluate, and use online information for academic purposes. There is a growing concern regarding the varying levels of web-based information-seeking behaviours among medical students in South-West Nigeria. Medical students who exhibit poor web-based information-seeking behaviour may fail to fully engage with available EIRs, thereby limiting their access to valuable medical knowledge. Conversely, students who adopt effective web-based searching techniques are more likely to maximise their potential for academic success (Okoh and Ijiekhuamhen, 2016). However, despite the fact that many studies have highlighted the importance of web-based information-seeking behaviour in medical education, it was observed that there is limited empirical evidence focusing on medical students in the federal universities of South-West Nigeria. This research

gap hampers a comprehensive understanding of how web-based information-seeking behaviour influences EIR utilisation among medical students in this region. Therefore, this study aims to investigate web-based information-seeking behaviour as determinant of electronic information resources among the medical students in federal universities in South-west, Nigeria.

### Objectives of the Study

The main objective of this study is to investigate web-based information-seeking behaviour as determinant of electronic information resource utilisation among medical students in federal universities in Southwest, Nigeria. Specifically, the study will:

- 1 Determine the extent of EIRs utilisation by medical students in federal universities in South-West, Nigeria;
- 2 Find out the web-based information-seeking behaviour of medical students in federal universities in South-West, Nigeria;
- 3 Determine the influence of web-based information-seeking behaviour on EIRs utilisation by medical students in federal universities in South-West, Nigeria;

### Research Questions

The study will provide answers to the following research questions:

1. What is the extent of EIRs utilisation by medical students in federal universities in South-West, Nigeria?
2. What is the web-based information-seeking behaviour of medical students in federal universities in South-West, Nigeria?

### Hypothesis

The following null hypothesis will be tested at 0.05 level of significance

H<sub>0</sub>: Web-based information-seeking behaviour has no significant influence on utilisation of electronic information resources by medical students in federal universities in South-West, Nigeria.

### Scope of the Study

This study focused on investigating web-based information-seeking behaviour as determinant of electronic information resources utilisation by medical students in Federal Universities in South-West Nigeria. The study is geographically limited to four Federal

Universities in South-West Nigeria, that is, University of Ibadan, Ibadan, Oyo State; University of Lagos, Akoka, Lagos State; Obafemi Awolowo University, Ile-Ife and Federal University of Technology, Akure Ondo state. These are the only Federal Universities in South-West, Nigeria that offered medicine as a course. As at the time of this study. However, the study deliberately omitted private and state universities in South-West, Nigeria. The dependent variable is EIRs utilisation and the indicators includes perceived usefulness, perceived ease of use, accessibility of resources, availability of resources, behavioural intention by medical students in federal universities in South-West Nigeria while the independent variable is web-based information-seeking behaviour and were measured by the following indicators which include starting, Chaining, browsing, differentiating, monitoring, extracting, verifying, ending. The population of the study consisted of all the medical students ranging from 200L to 500L in University of Ibadan, Ibadan, Oyo State; University of Lagos, Akoka, Lagos State; Obafemi Awolowo University, Ile-Ife and Federal University of Technology, Akure Ondo state federal university in South-West Nigeria.

### Literature Review

#### Extent of Electronic Information Resources Utilisation by Medical Students

Several studies had been carried out on the utilisation of electronic information resources (EIRs) by medical students in Nigeria and other part of the world given the crucial role of electronic information resources in medical education. Among these studies is the work of Shabi et al. (2011) investigated the usage of electronic medical databases among undergraduate medical students in selected universities in Southwest Nigeria. Their findings revealed that 85% of respondents were aware of resources such as PubMed, HINARI, and MEDLINE, but only about 52% actively utilised them for academic and research purposes. Prior studies found that despite high awareness of electronic journals and databases, only 47% of medical students used them consistently, citing factors such as unstable internet access and lack of training on effective search strategies. Furthermore, Silver et al. (2019) conducted a survey among medical students at the University of Ibadan and found that PubMed (64%), Google Scholar (58%), and HINARI (50%) were the most frequently

used EIRs. Their study indicated that these resources were preferred due to their extensive coverage of medical literature and open-access availability. Adeleke and Nwalo (2017) reported that medical students in northern Nigerian universities frequently relied on free and easily accessible platforms such as Google Scholar (68%) and ResearchGate (55%) compared to subscription-based databases, which had limited institutional access.

Watts and Ibegbulam (2006) found that poor Internet connectivity (73%), lack of institutional access to some databases (65%), and inadequate training (58%) were the primary barriers to the full utilisation of EIRs among medical students. Agyapong (2022) also highlighted low digital literacy (45%) and limited computer availability (39%) as factors affecting students' ability to efficiently navigate and retrieve information from electronic sources. Adewale Oduwale and Oyewumi (2010) examined how institutional support influences EIR usage among medical students in selected Nigerian universities. They found that universities with well-equipped digital libraries and regular training on database searching skills had students with a 40% higher utilisation rate compared to institutions with limited ICT resources. Watts and Ibegbulam (2006) noted that medical students in institutions where libraries subscribed to premium electronic databases reported greater ease in accessing medical literature and higher confidence in utilising EIRs for research and clinical studies.

### **Web-based Information-seeking Behaviour and Electronic information resources' Utilisation by Medical students in Federal Universities in South-West, Nigeria**

Previous researchers had conducted multiple research on the web-based behaviour of undergraduate students in different regions of the world, focusing on their utilisation of EIRs. Zulkifli et al. (2019) investigated the impact of information-seeking behaviour on the utilisation of online databases among undergraduate students. The researchers utilised a quantitative approach to determine the elements of Information Systems Behaviour (ISB) among undergraduate (UG) students. The primary data has been collected through questionnaires that are designed based on the factors specified in the objective. This research has a total of 118 samples, and the proposed model has been taken from the work of Savolainen and Wilson. The study investigated the correlation between psychological

perception, searching strategies, and information resources as independent variables, and the utilisation of online databases among undergraduate students as the dependent variable. The results suggest that there are seven elements that influence the utilisation of online database among undergraduate students at IIUM.

In 2014, da Natividade Manyissa conducted a research at Eduardo Mondlane University in Mosambique to assess the effectiveness of the university library in supporting postgraduate students. The study aimed to determine the information sources utilised by students, determine their primary information needs, and identify any barriers they faced in accessing and utilising these resources. According to da Natividade Manyissa's (2014) research, postgraduate students primarily rely on the Internet to gather knowledge. According to the author's claim, students typically rely on the OPAC (Online Public Access Catalogue) and the Institutional Repository of UEM (University Electronic Management) as their main sources. Nevertheless, UEM students predominantly depend on online resources to tackle specific course concerns and do research pertaining to their academic disciplines. In a study conducted by Humphrey-Ackumey (2015), the aim was to investigate the online information-seeking behaviour of undergraduate students from Ghana enrolled in the departments of Medicine, Sociology, and Pharmacy. The results indicated that a substantial percentage of pupils depend on internet information obtained from search engines such as Google and Yahoo. As to the author, the students are exploring topics such as promoting a healthy lifestyle, different diseases and their corresponding treatments, the negative impacts of medications, recent advancements in the medical profession, and innovative or alternative therapies.

The findings of the studies conducted by Oluwaseye et al. (2017) and Wanyingi (2018), which took place at Salema and Aga Khan University, respectively, indicate that the majority of health students primarily utilise electronic resources to acquire information that can enhance their ability to compose research reports. In Wanyingi's (2018) survey-based study, a sample of 100 participants revealed that the university library was the primary online research resource for the majority of respondents, accounting for around 82.3% of participants. External databases were utilised by 77.4% of respondents, while only 67.7% made use of the physical collection. In their study, Ahmed and Al-Reyae (2017) examined the differences

in information-seeking behaviour between students studying medicine and students studying dentistry. The authors discovered that medical students exhibit a greater degree of consciousness and more efficient utilisation of electronic resources in comparison to dentistry students. Furthermore, it is common for both medical and dentistry students to prioritise finding and utilising the E-book database rather than the journal database. Dastani et al. (2019) discovered that medical students and health specialists primarily rely on electronic information resources'. Their main sources of information consist of specialised health websites, social networks, and national media channels. The study also revealed that the main goal of the students' information-seeking was to augment their comprehension in order to attain more profound knowledge about different ailments and their treatment, with the intention of making more informed decisions.

Additionally, a study by Baro et al. (2010) conducted a study to investigate the sources, searching strategies, and information needs of undergraduate students. A descriptive survey methodology was used in the investigation. This study includes history majors at the undergraduate level in three universities in the geopolitical zone of South-South Nigeria, with an emphasis on levels 100–400. 259 people made up the study's sample size. To choose the study's respondents, the researchers used a random sampling technique. The research utilised observation techniques, interviews, and questionnaires. It was shown that undergraduate students rely heavily on human resources in addition to using a variety of sources, such as the Internet, periodicals, and textbooks, to gain information. Additionally, the study discovered that undergraduate students use search strategies such as extraction, monitoring, discrimination, concatenation, navigation, and initiation. When looking for information in the humanities, male and female students use very different sources and search strategies.

A study by Ukachi (2015) showed that there is positive correlation between web-based information-seeking behaviour and increased use of medical databases. Dagleish and Hall (2000) conducted a study on the utilisation and interpretations of world wide web in an environment focused on seeking information. The study sought to ascertain the many methodologies by which the World Wide Web can be integrated into the students' educational journey. This study was carried out using a cohort of 12 individuals, all of whom were university students. A sequence of interviews, featuring

questions that allowed for extensive responses, were carried out. The primary discoveries of the research indicate that the primary determinant that influences students to utilise the internet as an information source is time, specifically the ability to obtain information rapidly and effortlessly, without encountering difficulties in locating the desired information, and avoiding inherent delays in computer systems. In addition, Ge (2010) conducted a study examining the impact of electronic information resources on the information-seeking process in the fields of social sciences and humanities. This study investigates the information-seeking patterns of scholars in several disciplines and expands upon the David Ellis model of information-seeking behaviour for social scientists. The model encompasses six key characteristics: initiation, sequential searching, exploratory browsing, distinguishing relevant material, continuous monitoring, and extracting relevant information. The research was carried out at Tennessee State University (TSU). A total of thirty faculty members and doctoral students specialising in social sciences and humanities were interviewed to gather insights on their utilisation of electronic information resources' for research, their perspectives on electronic and print materials, their views on the Ellis model, and potential applications of the model to their own work.

Mnguni and Kekana (2022) examined the web information-seeking behaviour of undergraduate students who were currently enrolled in library and information studies at the University of Sululand. A quantitative research methodology was utilised in the study, with a closed-ended questionnaire serving as the primary data gathering instrument. The survey found that undergraduate students pursuing library and information studies primarily rely on the internet as their main source of information. The study also found that students use the internet for educational purposes, such as completing assignments, conducting research, and studying. Further investigation suggests that the Google search engine is the most frequently used tool for doing information searches. Ebiye (2015) studied how medical students in postgraduate programmes used mobile devices to access and retrieve information. The investigation was conducted utilising a survey that encompassed a representative sample of 500 individuals. The aim of this investigation was to analyse the information-seeking patterns of medical students and the influence of using smartphones and tablets to access health-related content, for both students and library staff. The findings revealed that most participants

own and employ a smartphone for the specific purpose of performing research and downloading educational resources. The respondents claim that cellphones have a positive impact on information retrieval because of their superior and fast Internet access, as well as their user-friendly interface.

## Methodology

This study adopted descriptive survey research design was adopted for the conduct of this study. The population of the study consisted of all the medical students ranging from 200L to 500L in federal universities in South-West Nigeria, such as University of Ibadan, Ibadan, Oyo State; University of Lagos, Akoka, Lagos State; Obafemi Awolowo University, Ile-Ife and Federal University of Technology, Akure, Ondo State, with a total of 1700. Therefore, the stratified sampling technique was used to select the sample for the study with the use of Yamane's formula. Hence, 114, 99, 103 and 8 samples were drawn from the University of Ibadan, Obafemi Awolowo University, Ile-Ife, University of Lagos, and Federal University of Technology, Akure, respectively. This means that the total sample size is 324. Furthermore, a self-developed questionnaire titled "Web-based Information-seeking Behaviour and

Electronic Information Resources Utilisation in Selected Federal Universities in South-West, Nigeria" contains three sections, that is, sections A-C. Section A deals with the demographic information of the respondents, while Sections B and C contain items to capture information on the objectives of the study. The instrument was validated using face and content validity by giving three copies of the questionnaire to the research experts with a reliability coefficient of  $r=0.875$  using the Cronbach Alpha method. A total of total of 114, 99, 103 and 8 copies of the questionnaire were administered to the medical students in the University of Ibadan, Obafemi Awolowo University, Ile-Ife, University of Lagos, and Federal University of Technology, Akure, respectively. This therefore gives a total of 324 copies of the administered questionnaire. Out of the overall total of 324 copies of the questionnaire administered to the medical students in federal universities in South-West, Nigeria, 301 (92.9%) were completely filled and returned. Descriptive statistics were utilised to analyse the demographic information and address research questions 1 and 2, while inferential statistics, like multiple linear regression analysis, were used to test the null hypothesis to determine the influence of web-based information-seeking behaviour on the utilisation of EIR among the medical students with the help of IBM SPSS version 26.0.

## Data Presentation and Analysis

**Table 1:** Proportional Distribution of Medical Students in Federal Universities in South-West Nigeria.

S/N	Federal Universities	Total Population	Sample Proportion (%)	Sample size used
1.	University of Ibadan	600	$600/1700 \times 100/1 \approx 35\%$	$(600/1700) \times 324 \approx 114$
2.	Obafemi Awolowo University, Ile-Ife	520	$520/1700 \times 100/1 \approx 30\%$	$(520/1700) \times 324 \approx 99$
3.	University of Lagos	540	$540/1700 \times 100/1 \approx 31\%$	$(540/1700) \times 324 \approx 103$
4.	Federal University of Technology, Akure	40	$40/1700 \times 100/1 \approx 2\%$	$(40/1700) \times 324 \approx 8$
	<b>TOTAL</b>	<b>1700</b>		<b>324</b>

Source: Academic Planning Unit of the University Understudy (2023)

**Table 2:** Population and Sample of Medical Students by University and Year Level.

University	Total Population	200L	300L	400L	500L	Sample Size	200L	300L	400L	500L
UI	598	114	251	150	83	114	22	48	29	13
OAU	515	98	216	129	72	99	19	42	25	13
UNILAG	510	97	214	128	71	103	20	43	26	14
FUTA	77	15	32	19	11	8	2	3	2	1
<b>Total</b>	<b>1,700</b>	<b>324</b>	<b>713</b>	<b>426</b>	<b>237</b>	<b>324</b>	<b>63</b>	<b>136</b>	<b>82</b>	<b>43</b>

**Table 3:** Response Rate of the Questionnaire.

Questionnaire	Frequency
Administered	324
Returned	301
Percentage return	92.9%

Source: Author's computation (2024)

**Table 4:** Demographic Characteristics of Respondents.

Gender	Frequency	Percentage
Male	161	53.5%
Female	140	46.5%
Total	301	100.0%
Age	Frequency	Percentage
16-20 years	81	26.9%
21-25 years	157	52.2%
26-30 years	53	17.6%
Above 30 years	10	11.3%
Total	301	100.0%
Level of study	Frequency	Percentage
200 level	58	19.3%
300 level	133	42.2%
400 level	76	25.2%
500 level	34	11.3%
Total	301	100.0%

Source: Author's computation (2024)

The demographic analysis of Table 4 revealed that 53.5% of the participants were male students, while 46.5% were female. This relatively balanced gender distribution suggests that both male and female perspectives are well-represented in the study, which is important for understanding gender-based differences

in utilising electronic information resources (EIRs). Most of the students fall within the 21-25 age group, representing 52.2% of the sample. The second-largest age group is 16-20 years, making up 26.9%. Students aged 26-30 years constitute 17.6%, while those above 30 years represent 11.3%. The predominance of students aged 21-25 suggests that the findings may be particularly relevant to younger adult learners, who are likely to be more familiar with digital technologies, which could positively influence their utilisation of EIRs. In addition, most students are in their 300 level (42.2%), followed by 400 level students (25.2%), 200 level students (19.3%), and 500 level students (11.3%). The higher concentration of students in the middle levels (300 and 400 levels) indicates that the study captures the perspectives of students who are in the middle and later stages of their medical education, where the use of EIRs might be more critical due to increased academic demands.

**Research Question 1:** What is the extent of EIRs utilisation by medical students in federal universities in South-West, Nigeria?

**Table 5:** Extent of EIRS Utilisation by Medical Students in Federal Universities.

EIRs Utilisation	Very High Extent (%)	High Extent (%)	Low Extent (%)	Very Low Extent (%)	Mean ( $\bar{x}$ )	SD
<b>Availability of Resource</b>					<b>3.26</b>	<b>0.43</b>
I have different EIRs links at my reach	127 (42.2%)	154 (51.2%)	20 (6.6%)	—	3.36	0.60
I know how and where to get EIRs to meet my needs	66 (21.9%)	221 (73.4%)	9 (3.0%)	5 (1.7%)	3.16	0.54
<b>Behavioural Intention</b>					<b>3.05</b>	<b>0.38</b>
I have developed strategies to incorporate EIRs into my study routine	121 (40.2%)	156 (51.8%)	15 (5.0%)	9 (3.0%)	3.29	0.79
I prefer using EIRs to stay updated in medicine	42 (14.0%)	241 (80.1%)	18 (6.0%)	—	3.08	0.44
I prefer utilising EIRs regularly as my primary info source	47 (15.6%)	158 (52.5%)	77 (25.6%)	19 (6.3%)	2.77	0.79
<b>Relative Advantage</b>					<b>2.96</b>	<b>0.40</b>
EIRs provide diverse and comprehensive resources	53 (17.6%)	207 (68.8%)	32 (10.6%)	9 (3.0%)	3.01	0.64
EIRs offer evidence-based resources	53 (17.6%)	196 (65.1%)	38 (12.6%)	14 (4.7%)	2.96	0.70
Timely access to information vs traditional sources	28 (9.3%)	221 (73.4%)	52 (17.3%)	—	2.92	0.51
<b>Accessibility of Resources</b>					<b>2.92</b>	<b>0.73</b>
Identify different EIRs that support academic success	76 (25.2%)	135 (44.9%)	81 (26.9%)	9 (3.0%)	2.92	0.80
Access varieties of EIRs for my medical career	84 (27.9%)	127 (42.2%)	71 (23.6%)	19 (6.3%)	2.92	0.87
<b>Perceived Usefulness</b>					<b>2.85</b>	<b>0.68</b>
Use EIRs to find evidence-based resources for coursework	108 (35.9%)	79 (26.2%)	90 (29.9%)	24 (8.0%)	2.90	0.99
Get medical resources for assignments	43 (14.3%)	192 (63.8%)	56 (18.6%)	10 (3.3%)	2.89	0.67
Improves academic performance	81 (26.9%)	102 (33.9%)	78 (25.9%)	40 (13.3%)	2.74	1.10
<b>Perceived Ease of Use</b>					<b>2.82</b>	<b>0.88</b>
Learning new innovations in medicine is effortless	66 (21.9%)	156 (51.8%)	51 (16.9%)	28 (9.3%)	2.86	0.86
Navigating/searching medical info is easy	88 (29.2%)	94 (31.2%)	84 (27.9%)	35 (11.6%)	2.78	1.10
<b>Overall Average</b>					<b>2.98</b>	<b>0.41</b>

Source: Researcher's computation (2024)

The decision rule states that: If the mean is 1.0 - 1.74 = Very low; 1.75 to 2.49 = Low; 2.50 to 3.24 = High; 3.25 to 4 = Very High. The criterion mean of 2.5 is calculated as follows:  $4 + 3 + 2 + 1 = 10/4 = 2.5$ . By implication, any score above 2.5 is considered "High" or "Very High" Extent of EIRs Utilisation, while mean scores below 2.5 are considered "Low" or "Very Low" Extent of EIRs Utilisation.

Table 5 revealed that the overall extent of EIRs utilisation by medical students is high (overall average mean = 2.98, SD = 0.41). This suggests that medical students generally utilise EIRs effectively and value

their benefits. However, from the construct used to measure EIRs utilisation, the table explained that the level of availability of resources (average mean = 3.26, SD = 0.43) was very high, suggesting that most

students have links to various electronic information resources at their reach and know how to access them. Also, the extent of behavioural intention (average mean = 3.05, SD = 0.38) of medical students towards the use of EIRs was high. 25.6% of students reported a low frequency, and 6.3% of students reported very low frequency in preferring to utilise EIRs regularly as their primary source of information, highlighting a potential area for improvement in EIR integration into regular study habits. The relative advantage of EIRs utilisation was high (average mean = 2.96, SD = 0.40), inferring that medical students perceive EIRs to offer significant advantages, such as providing diverse information, evidence-based resources, and timely access. 17.3% of students found the timely access to information compared to traditional resources to be low, which may suggest challenges in quickly accessing EIRs. Accessibility of resources was also highly perceived by the medical students (average mean = 2.92, SD = 0.73), suggesting that medical students generally find it easy to identify and access

different EIRs for their medical careers.

The average mean of 2.85, SD = 0.68 for perceived usefulness, suggests that medical students valued EIRs for finding current and evidence-based resources, but a smaller percentage (39.2%) perceived them as significantly improving their academic performance. The perceived ease of use, with an average mean of 2.82, SD = 0.88 indicated a high level of perception among the medical students, inferring that while most students find EIRs easy to use for learning innovations, navigating and searching for information can be more challenging for some. The standard deviations of 0.41, 0.43, 0.38, 0.40, 0.73, 0.68, and 0.88 for EIRs utilisation, availability of resources, behavioural intention, relative advantage, accessibility of resources, perceived usefulness, and perceived ease of use imply a relatively consistent response among the participants.

**Research Question 2:** What is the web-based information-seeking behaviour of medical students in federal universities in South-West, Nigeria?

**Table 6:** Web-Based Information-Seeking Behaviour of Medical Students in Federal Universities.

Web-based information-seeking behaviour	Strongly Agree (%)	Agree (%)	Disagree (%)	Strongly Disagree (%)	Mean ( $\bar{x}$ )	SD
<b>Verifying</b>					<b>3.41</b>	<b>0.39</b>
I verify the credibility of EIRs before use	155 (51.5%)	146 (48.5%)	0 (0%)	0 (0%)	3.51	0.50
I cross-reference info across EIRs	97 (32.2%)	198 (65.8%)	6 (2.0%)	0 (0%)	3.30	0.50
<b>Extracting</b>					<b>3.28</b>	<b>0.45</b>
I can extract accurate info from EIRs	133 (44.2%)	146 (48.5%)	22 (7.3%)	0 (0%)	3.37	0.62
Extracting data is key to my research	111 (36.9%)	190 (63.1%)	0 (0%)	0 (0%)	3.37	0.48
I'm proficient at extracting relevant info	113 (37.5%)	130 (43.2%)	36 (12.0%)	22 (7.3%)	3.11	0.88
<b>Ending</b>					<b>3.22</b>	<b>0.40</b>
I know when to stop searching	86 (28.6%)	204 (67.8%)	11 (3.7%)	0 (0%)	3.25	0.51
Ending my search helps manage time	75 (24.9%)	226 (75.1%)	0 (0%)	0 (0%)	3.25	0.43
I'm satisfied with results when I end search	136 (45.2%)	99 (32.9%)	44 (14.6%)	22 (7.3%)	3.16	0.93
<b>Differentiating</b>					<b>3.21</b>	<b>0.35</b>
Distinguishing reliable EIRs improves research	134 (44.5%)	145 (48.2%)	22 (7.3%)	0 (0%)	3.37	0.62
Differentiating high/low-quality EIRs is essential	65 (21.6%)	236 (78.4%)	0 (0%)	0 (0%)	3.22	0.41
I'm skilled at discerning credible EIRs	55 (18.3%)	209 (69.4%)	37 (12.3%)	0 (0%)	3.06	0.55
<b>Monitoring</b>					<b>3.08</b>	<b>0.34</b>
I monitor info relevance from EIRs	141 (46.8%)	160 (53.2%)	0 (0%)	0 (0%)	3.47	0.50
Monitoring helps focus during study	36 (12.0%)	246 (81.7%)	19 (6.3%)	0 (0%)	3.06	0.42
I'm conscious of time spent using EIRs	39 (13.0%)	156 (51.8%)	88 (29.2%)	18 (6.0%)	2.72	0.76
<b>Browsing</b>					<b>2.96</b>	<b>0.50</b>
I explore various EIRs for medical topics	55 (18.3%)	208 (69.1%)	27 (9.0%)	11 (3.7%)	3.02	0.65
I navigate through different EIR sections easily	88 (29.2%)	127 (42.2%)	68 (22.6%)	18 (6.0%)	2.95	0.87
Browsing helps me gain insights in medicine	33 (11.0%)	217 (72.1%)	51 (16.9%)	0 (0%)	2.94	0.53
Browsing enhances understanding of complex ideas	80 (26.6%)	126 (41.9%)	87 (28.9%)	8 (2.7%)	2.92	0.81
<b>Starting</b>					<b>2.95</b>	<b>0.61</b>
It's easy to begin my EIR search	113 (37.5%)	87 (28.9%)	81 (26.9%)	20 (6.6%)	2.97	0.96
Initiating EIR search is vital to my process	50 (16.6%)	188 (62.5%)	53 (17.6%)	10 (3.3%)	2.92	0.69
<b>Chaining</b>					<b>2.76</b>	<b>0.90</b>
Chaining EIRs improves research depth	68 (22.6%)	154 (51.2%)	50 (16.6%)	29 (9.6%)	2.87	0.87
Chaining helps me understand complex topics	90 (29.9%)	80 (26.6%)	91 (30.2%)	40 (13.3%)	2.73	1.03
I link different EIRs to gather comprehensive info	79 (26.2%)	88 (29.2%)	94 (31.2%)	40 (13.3%)	2.68	1.01
<b>Overall Average</b>					<b>3.11</b>	<b>0.27</b>

Source: Researcher's computation (2024)

The decision rule states that: If the mean is 1.0 - 1.74 = Strongly Disagree; 1.75 to 2.49 = Agree; 2.50 to 3.24 = Agree; 3.25 to 4 = Agree. A criteria mean of 2.5 is calculated as follows;  $4 + 3 + 2 + 1 = 10/4 = 2.5$  by implication, any score above 2.5, is considered "Agreed" or "Strongly Agreed" and vice versa.



Table 6 revealed that medical students exhibit high level of web-based information-seeking behaviours (overall average mean = 3.11, SD = 0.27) among medical students in federal universities in South-West, Nigeria. Analysis of the dimensions of web-based information-seeking behaviours showed that the medical students are generally skilled and confident in web-based information-seeking behaviours such as verifying (average mean = 3.41, SD = 0.39), extracting (average mean = 3.28, SD = 0.45), ending (average mean = 3.22, SD = 0.40), and differentiating information (average mean = 3.22, SD = 0.40). However, areas like browsing (average mean = 2.96, SD = 0.50), starting (average mean = 2.95, SD = 0.61), and chaining (average mean = 2.76, SD = 0.90) show lower levels of confidence and agreement among the medical students.

Analysis of specific indicators showed that a total of 44.5% (31.2% disagreed and 13.3% strongly disagreed) thought that they often linked together different EIRs to gather comprehensive information on medical topics, showing a significant proportion of students are less engaged in chaining behaviour. Also, an overall of 43.5% overall disagreed that chaining various EIRs helps them deepen understanding of complex medical concepts, suggesting that nearly half of the students might struggle with integrating multiple sources of information. In addition, 27.9% believed that initiating

their search for EIRs is an important step in the research process. This relatively low percentage suggests that a substantial number of students might not fully recognise or prioritise the importance of effectively starting their research. The standard deviation scores of all the indicators and dimensions of web-based information-seeking behaviours showed that the participants were consistent in the response.

## Testing of Hypothesis

Hypothesis 1: Web-based information-seeking behaviour have no significant influence on utilisation of electronic information resources by medical students in federal universities in South-West, Nigeria Hypothesis one was tested with multiple regression analysis. Web-based information-seeking behaviour (starting, chaining, browsing, differentiating, monitoring, extracting, verifying, and ending) was regressed against electronic information resources utilisation by medical students. None of the indicators of web-based information-seeking behaviour in the multiple linear regression indicates multicollinearity issues since their tolerance values were greater than 0.1 and VIF was less than 10 (Kindly see the tolerance and VIF values in Table 4.9). So, all indicators were used in the multiple linear regression model. The results and conclusions of the regression analyses are reported in Table 3.

**Table 7:** Influence of Web-Based Information-Seeking Behaviour on Electronic Information Resources Utilisation by Medical Students.

Variables	B	Std. Error	Beta ( $\beta$ )	T-Stat.	Prob.	Tolerance	VIF
(Constant)	2.754	.491		5.603	.000		
Starting	.080	.064	.120	1.252	.212	.362	2.760
Chaining	.045	.048	.099	.950	.343	.304	3.285
Browsing	-.043	.063	-.053	-.684	.495	.562	1.778
Differentiating	-.035	.114	-.031	-.310	.757	.340	2.944
Monitoring	-.022	.089	-.018	-.245	.807	.599	1.670
Extracting	.013	.110	.014	.119	.905	.229	4.371
Verifying	-.001	.120	-.001	-.006	.995	.252	3.968
Ending	.040	.082	.039	.493	.623	.526	1.902
Dependent Variable: EIR Utilisation. $F(8, 292) = 0.990, p > 0.05$ . $T(DF = 292)$							
$R^2 = 0.026$ , $Adj. R^2 = 0.000$ .							
$F(8, 292) = 0.990, p > 0.05$ . $T(DF = 292)$							
Note. Data from Researcher's Field Survey (2024). Not significant at $p > 0.05$							

Table 7 shows that web-based information-seeking behaviour has no significant influence on electronic information resources utilisation by medical students in federal universities in South-West, Nigeria ( $Adj. R^2 = 0.000$ ,  $F(8, 292) = 0.990, p > 0.05$ ). The adjusted  $R^2$  value of 0.001 indicates that less than 0.0% of the variation in EIR utilisation is explained by web-based information-seeking behaviour. The overall model was not statistically

significant, with  $F(8, 292) = 1.053, p > 0.05$ . Among the individual behaviours analysed, starting (i.e., the process of initiating an information search) had no significant influence on EIR utilisation ( $\beta = 0.120, t = 1.252, p = 0.212$ ). This indicates that students' approaches to starting their web-based search do not have a notable impact on how they utilise electronic information resources. Chaining, which refers to following references or links from one

source to another, did not significantly influence EIR utilisation ( $\beta = 0.099$ ,  $t = 0.950$ ,  $p = 0.343$ ), implying that linking related information or sources does not influence students' use of electronic information resources.

Browsing, the exploration of content in a general or informal manner, had no significant impact on EIR utilisation also had no significant influence on EIR utilisation ( $\beta = -0.053$ ,  $t = -0.684$ ,  $p = 0.495$ ). This implies that browsing behaviour does not significantly drive the usage of electronic resources by medical students. Additionally, differentiating, which involves filtering and selecting relevant information, showed no significant effect did no significantly influence electronic information resources utilisation ( $\beta = -0.031$ ,  $t = -0.310$ ,  $p = 0.757$ ). This suggests that suggesting that medical students' ability to discern between relevant and irrelevant information does not significantly influence their EIR utilisation. Monitoring, the process of tracking changes in sources over time, also had no significant effect on EIR utilisation ( $\beta = -0.018$ ,  $t = -0.245$ ,  $p = 0.807$ ). This suggests that medical students are not heavily relying on continuously monitoring information sources for updates or changes to inform their use of EIRs.

Extracting, the act of retrieving useful information, did not show a significant influence on EIR utilisation had no significant effect on EIR utilisation ( $\beta = 0.014$ ,  $t = 0.119$ ,  $p = 0.905$ ). This suggests that simply gathering information (extracting) does not strongly influence how effectively students use electronic resources. Verifying, which involves checking the accuracy and credibility of information, showed no significant impact ( $\beta = -0.001$ ,  $t = -0.006$ ,  $p = 0.995$ ). This indicates that students may not be prioritising verification when using electronic information resources, which could be concerning in fields like medicine, where the accuracy of information is critical. Lastly, ending, the process of concluding an information search, also showed no significant influence on EIR utilisation had no significant influence on EIR utilisation ( $\beta = 0.039$ ,  $t = 0.439$ ,  $p = 0.623$ ). This suggests that how students wrap up their information searches does not have a strong influence on how they use electronic resources. Therefore, the null hypothesis that "Web-based information-seeking behaviour have no significant influence on utilisation of electronic information resources by medical students in federal universities in South-West, Nigeria" is accepted. The lack of significance for these behaviours suggests that the effectiveness of EIR utilisation by medical students is not substantially driven by how they monitor, extract, verify, or conclude their information searches. This implies that more focus might be needed

on other aspects of information literacy, such as critical analysis and application of the information retrieved.

## Discussion of Findings

The rapid advancement of technology has transformed the way medical students seek and utilise information, shifting from traditional print resources to web-based information-seeking behaviour and electronic information resources (EIRs). In medical education, the ability to efficiently access, evaluate, and use electronic resources is essential for academic success, clinical decision-making, and lifelong learning. Therefore, understanding how medical students engage in web-based information-seeking and utilise EIRs is crucial for improving their research competencies, clinical preparedness, and academic performance. In the light of this, this study had examined web-based information-seeking behaviour as determinant of electronic information resources (EIRs) utilisation by medical students in federal universities in South-West, Nigeria. The research questions and hypotheses were formulated to determining the influence of web-based information-seeking behaviour on electronic information resources (EIRs) utilisation by medical students.

Research Question 1 sought to examine the extent of EIRs utilisation by medical students in federal universities in South-West, Nigeria. The study found that the overall extent of EIRs utilisation by medical students is high. This finding indicates a growing dependence on digital resources for academic and clinical learning among medical students. The increased utilisation can be attributed to several factors such as availability, relative advantage to medical studies, perceived ease of use, perceived usefulness among others. This finding is in agreement with the work of Stone et al. (2018) who reported that over 80% of medical students high use electronic journals, medical databases, and e-books to enhance their understanding of medical concepts and research. Similarly, the finding of this study supported the work of Link and Marz (2006) who found that medical students prefer digital resources due to their ease of use, updated content, and the benefit they derived from e-resources.

Research question two sought to examine the web-based information-seeking behaviour of medical students in federal universities in South-West, Nigeria. The study revealed that medical students exhibit high level of web-based information-seeking behaviours among medical students in federal universities in South-West, Nigeria. The high level of web-based information-seeking behaviours among the medical students can be attributed

to their ICTs skilled and confident in verifying, extracting, ending, differentiating information, monitoring, browsing, starting and chaining. The finding corroborates the work of Wang et al. (2019) who reported that students with higher ICT skills to verify and extract information tend to engage more effectively with web-based resources. In this study, it is likely that medical students' familiarity with various online platforms and their ability to navigate complex information landscapes contribute significantly to their high level of web-based information-seeking behaviours. However, this finding contradicts the work of Okoh and Ijiekhuamhen (2016) who reported that the level of web-based seeking information-seeking behaviour of undergraduate students at the Federal University of Petroleum Resources (FUPRE) is low. Due to the fact that majority of the respondents preferred to use physical books. Also, the finding contradicts the study of Manhique and Varela (2016) who reported that the undergraduates at Eduardo Mondlane University (UEM) in Mozambique prefer to use physical library due to their poor web-based information-seeking behaviour.

The only tested hypothesis revealed that web-based information-seeking behaviour have no significant influence on utilisation of electronic information resources by medical students in federal universities in South-West, Nigeria. The lack of significance for these behaviours on the utilisation of electronic information resources suggests that the effectiveness of EIR utilisation by medical students is not substantially driven by how they monitor, extract, verify, or conclude their information searches. This finding challenge conventional assumptions that strong web-based information-seeking skills necessarily lead to greater or more effective utilisation of e-resources. This finding contradicts the work of Ukachi (2015) who reported that there is positive correlation between web-based information-seeking behaviour and increased use of medical databases. Also, the finding against the work of Okocha and Owolabi (2020) who found that web-based information-seeking behaviour influence the use of electronic resources among the undergraduates. Based on this contradiction, several factors can explain why web-based information-seeking behaviour may not directly influence EIR utilisation among the medical students in South-west, Nigeria. One of these factors may be overreliance on general internet searches in which ease of use and instant results provided by general search engines might reduce their motivation to engage with structured academic databases that require login credentials, advanced search strategies, or knowledge of specialised medical terminology. In the view of this, more

focus might be needed on other aspects of information literacy, such as critical analysis and application of the information retrieved.

## Conclusion

Based on the findings of the study, it could be concluded that medical students in Federal Universities in South-west, Nigeria, highly use electronic information resources. Furthermore, the study concludes that web-based information-seeking behaviour does not have a significant influence on the utilisation of electronic information resources (EIRs) among medical students in Federal Universities in South-West, Nigeria. This suggests that while medical students engage in web-based searches, their usage of EIRs may be driven by other factors such as perceived ease of use, accessibility, institutional support, and relevance of electronic information resources.

## Recommendations

Based on the findings that web-based information-seeking behaviour does not significantly influence the utilisation of electronic information resources (EIRs) among medical students in Federal Universities in South-West, Nigeria, the following recommendations are proposed:

1. Universities should integrate digital literacy training into medical education curricula to improve students' ability to effectively navigate and utilise institutional EIRs.
2. Workshops and hands-on training should be organised regularly to teach students how to access, search, and retrieve academic information from electronic databases.
3. Librarians should actively engage with medical students through orientation programs, social media, and online tutorials to promote database usage.
4. Institutional databases should be made more user-friendly by simplifying navigation, improving search functionality, and providing mobile-friendly interfaces.

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