Influence of Preferences on the Use of Information Resources by the Library and Information Science Undergraduate Students in South-South, Nigeria

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Abstract

***Background**: The use of information resources by the Library and Information Science (LIS) undergraduate students in Delta State, Nigeria, was addressed based on diverse learning preferences, a critical factor potentially influencing academic success. **Purpose**: This research aimed to explore learning preferences among LIS undergraduate students and assess the influence on the use of information resources. **Method**: A correlational research design was applied, including 325 students selected through multi-stage sampling from seven state-owned universities in Delta, Edo, and Rivers states. Furthermore, data were collected through questionnaires, with 268 valid responses at an 82% retrieval rate. These were analyzed with descriptive statistics (frequency, percentage, and mean) as well as inferential statistics (Pearson's product-moment coefficient, and ANOVA), with a criterion mean of 2.50 and an alpha level of 0.05. **Result**: The results showed that the students had varied learning preferences, including verbal presentations (68%), physical interaction with materials (66%), and watching educational videos (64%). Preferences significantly influenced the use of information resources (Agg. $\bar{x}$ = 2.83), with a positive correlation between these two variables ($r = .907$, $p < 0.05$). Additionally, a significant difference was observed between the education level of students and learning preferences ($F = 2,265 = 1189.172$, $p < 0.05$). **Conclusion**: The students were found to benefit majorly from the combination of traditional and modern teaching methods. Mutual collaboration between university librarians and coordinators of information resources with the faculty was recommended to ensure the correspondence of educational materials to learning preferences.*

***Keywords:** Learning Preferences; Library and Information Science (LIS); Nigerian Universities; Educational Materials*

Abstrak

Latar belakang: Penelitian ini membahas masalah tentang bagaimana mahasiswa Ilmu Perpustakaan dan Informasi (LIS) di Negara Bagian Delta, Nigeria, memanfaatkan sumber informasi berdasarkan preferensi belajar mereka yang beragam, sebuah faktor penting yang berpotensi memengaruhi keberhasilan akademis mereka. **Tujuan**: Tujuan dari penelitian ini adalah untuk mengeksplorasi preferensi belajar mahasiswa LIS dan untuk menilai bagaimana preferensi ini memengaruhi penggunaan sumber informasi mereka. **Metode**: Desain penelitian korelasional digunakan, yang melibatkan 325 mahasiswa yang dipilih melalui teknik pengambilan sampel multi-tahap dari tujuh universitas milik negara di negara bagian Delta, Edo, dan Rivers. Data dikumpulkan melalui kuesioner, dengan 268 respons yang valid (tingkat pengambilan 82%). Statistik deskriptif (frekuensi, persentase, rata-rata) dan statistik inferensial (koefisien momen produk Pearson, ANOVA) digunakan untuk analisis data, dengan rata-rata kriteria 2,50 dan tingkat alfa 0,05. **Hasil**: Studi ini mengungkapkan bahwa mahasiswa menunjukkan preferensi belajar yang bervariasi, termasuk presentasi verbal (68%), interaksi fisik dengan materi (66%), dan menonton video pendidikan (64%). Preferensi ini secara signifikan memengaruhi penggunaan sumber informasi mereka (Agg. $\bar{x}$ = 2,83), dengan

korelasi positif antara preferensi pembelajaran dan pemanfaatan sumber (r = 0,907, p < 0,05). Selain itu, perbedaan signifikan diamati antara tingkat belajar siswa dan preferensi pembelajaran mereka (F = 2.265 = 1.189,172, p < 0,05). **Kesimpulan**: Penelitian ini menyimpulkan bahwa siswa memperoleh manfaat paling banyak dari kombinasi metode pengajaran tradisional dan modern. Direkomendasikan agar pustakawan universitas dan koordinator sumber bekerja sama erat dengan fakultas untuk memastikan bahwa materi pendidikan selaras dengan preferensi pembelajaran siswa.

Kata kunci: Preferensi Pembelajaran; Ilmu Perpustakaan dan Informasi (LIS); Universitas Nigeria; Materi Pendidikan

I. INTRODUCTION

Background. This research aimed to investigate the learning preferences of undergraduate students at universities and the influence on the use of resources. Additionally, the investigation would determine the relationship between learning preferences and the use of resources, as well as variations in learning preferences based on educational level. The literature review focused on the learning preferences and use of resources among the library and information science (LSI) undergraduate students in Delta State, Nigeria. In general, universities are renowned institutions dedicated to higher education, research, and knowledge dissemination, serving as hubs of intellectual exploration to foster academic inquiry and scholarly discourse among students, faculty, and scientists. According to Jones, universities play a crucial role in shaping the intellectual and personal development of individuals, providing opportunities for learning, growth, and self-discovery. A rich and dynamic environment conducive to academic excellence as well as innovation is provided through diverse faculties, interdisciplinary programs, and vibrant campus communities (Jones, 2018).

A library is an integral component of the academic infrastructure, which supports the teaching, learning, and research missions of universities by providing access to a wealth of information resources, promoting information literacy, and fostering a culture of inquiry and discovery. As universities continue to evolve and embrace new paradigms of teaching and learning, the library will play a vital role in shaping the future of education and scholarship, serving as dynamic hubs of knowledge and innovation in the digital age. The library serves as a repository of knowledge and information, offering a wide array of resources that support education, research, and long-term learning (Llewellyn, 2019).

Library information (LI) resources can be conceptualized as a diverse and curated collection of print and electronic materials, along with associated services, designed to meet the needs of library users and support information-seeking endeavours. Therefore, the curated nature of library collections signifies the role of librarians and information professionals in selecting, acquiring, and organizing materials to meet the specific needs and interests of users. This shows a need for the provision of services by the library to enhance the accessibility and use of LI resources, including reference assistance, information literacy instruction, and interlibrary loan services (Chu, 2018).

Popoola and Haliso defined LI resources from another perspective as "information-bearing materials in both print and electronic formats". The definition describes the broad range of materials available in the library that contains information, including traditional print resources in the form of books and journals as well as digital resources comprising

databases, e-books, and online journals. LI resources serve as the foundation of library collections and play a vital role in meeting the information needs of patrons for research, education, and personal enrichment. These are actively acquired, organized, and made accessible by the library to facilitate the discovery and retrieval of information. The use of LI resources by undergraduates refers to the process through which students access, interact with, and derive value from the diverse range of materials and services offered by the library to support academic pursuits. Understanding the manner in which undergraduates use the resources is essential for assessing the effectiveness of library services and the impact of information literacy initiatives on learning outcomes among students (Popoola & Haliso, 2009). This research shows that learning preferences are among the fundamental factors capable of influencing the use of LI resources. Learning preferences refer to the unique medium suitable for individuals to acquire, process, and retain information. These are associated with a variety of factors, such as cognitive styles, sensory modalities, and learning strategies. Understanding learning preferences is crucial for educators and librarians to design instructional methods and provide resources corresponding to the needs of students.

Learning preferences influence information-seeking behaviours during the use of LI resources. Hands-on learners tend to engage in active exploration of resources, while reflective learners may adopt more systematic methods to search for information (Ellis, 2018). Librarians can support these varied methods by providing guidance on effective search strategies and offering personalized assistance to meet individual needs (Shenton, 2020). Additionally, the attitudes of students towards library resources are shaped by learning preferences, influencing the willingness to engage with library services (Booth, 2018). Positive experiences with interactive, multimedia resources facilitate the use of digital databases and online tutorials, while those preferring traditional, text-based materials search for print collections and physical assistance (Alzahrani et al., 2020). Librarians enhance the engagement of students by promoting awareness of the diverse resources and services available, thereby fostering a culture of information literacy in the academic community (Jackson et al., 2019).

Learning preferences are not static but may evolve over time and in response to academic experiences (Ellis, 2018). Exposure to various learning modalities, such as online lectures or interactive workshops, can broaden preferences and enhance the use of LI resources (Shenton, 2020). Librarians can support this process by offering customized instruction and adaptive learning environments that accommodate changing needs and preferences (Booth, 2018). Understanding and accommodating learning preferences are essential for promoting the effective use of LI resources and fostering information literacy among undergraduate students. Librarians can create inclusive and accessible environments that promote academic success and the development of long-term learning skills by identifying the diverse channels used by students to engage with information (Ellis, 2018).

Problems. This research aimed to investigate the learning preferences of undergraduates in universities and the influence on the use of resources. Additionally, the investigation would determine the relationship between learning preferences and the use of LI resources, as well as variations in learning preferences based on educational level.

Previous Literature Review. The review of related literature focused on learning preferences and the use of resources by LIS undergraduate students in Delta State, Nigeria. In this context, the issues addressed included learning preferences, the influence on the use of LI resources, and the relationship with educational level.

Over the past decade, numerous research investigated various aspects of learning preferences among undergraduate students. These preferences are associated with a wide range of factors, including but not limited to, learning styles, instructional strategies, technological tools, and environmental factors. A significant discovery in recent literature is the recognition of diverse learning styles among undergraduate students. Coffield et al. (2014) and Pashler et al. (2019) reported the importance of identifying the difference in preferred methods used by students to receive and process information. This diversity shows the need for educators to adopt a variety of teaching methods to accommodate different learning styles, thereby enhancing engagement and comprehension.

Scientists have identified different learning preferences through various research, which help understand the suitable methods used by individuals to process information. Visual Learning Preferences refer to the tendency to learn optimally through visual aids such as images, diagrams, and videos. Mayer (2014) explained that the aids could reduce cognitive load, promoting easier understanding of complex concepts by presenting information in a visually appealing and mentally manageable form. Ainsworth (2014) emphasized the importance of creating coherent and interactive visual learning resources to effectively engage students. However, Auditory Learning Preferences include listening to lectures, discussions, or audio recordings. Wong (2015) reported that auditory learners benefited from podcasts and online lectures, as these formats facilitated information absorption by focusing on auditory cues potentially useful in enhancing understanding and retention in learning environments.

Kinesthetic Preferences describe individuals that learn best through hands-on experiences and physical activities. Stull and Mayer (2019) found that kinesthetic learners excelled when engaged in activities such as simulations or physical demonstrations. These activities not only enhanced comprehension but also kept students motivated and actively engaged, specifically in science and technology subjects requiring practical, hands-on experiences. Multimodal Learning Preferences integrate visual, auditory, and kinesthetic senses to provide a more comprehensive learning experience. Clark and Mayer (2016) reported that combining visual and auditory elements could significantly improve understanding and retention by appealing to multiple senses simultaneously. Similarly, Schweppe and Rummer (2016) detected better memory performance among learners exposed to both visual and auditory information compared to when receiving information through one mode. This strategy was highly effective by leveraging the strengths of each of the two sensory modalities.

Understanding the influence of learning preferences by undergraduate students on the use of LI resources is crucial for optimizing the effectiveness of educational support services. Visual learning preferences featuring engagement with diagrams and charts can significantly influence the use of LI resources. Students with visual learning preferences tend to gravitate towards resources offering visually engaging content, such as online databases with interactive visualizations or multimedia tutorials (Mayer, 2014). Additionally, LI resources that incorporate visual elements, including infographics or image-based databases, may be more effective in capturing the attention and interest of visual learners, leading to an enhanced rate of usage (Ainsworth, 2014).

Auditory learning preferences, characterized by a desire for auditory stimuli such as lectures and audio recordings, significantly influence the use of LI resources. Students in this category find auditory-based content to be more appealing. Additionally, there may be gravitation towards materials including recorded lectures or podcasts on important topics, which appear conducive to the preferred mode of learning (Wong, 2015). Such

resources correspond with the auditory inclinations and provide opportunities for passive learning, facilitating information absorption during engagement in other activities, such as commuting or exercising.

The use of LI resources by auditory learners is further enhanced through the availability of specialized resources and services targeted at individual needs. For example, a library can offer curated collections of audio resources, including audiobooks, podcasts, and recorded lectures, specifically designed to cater to the auditory preferences of students (Chen & Huang, 2016). The integration of assistive technologies, such as text-to-speech software or audio-enhanced interfaces, provides auditory learners with alternative methods of accessing and engaging with textual materials (Jansen & Tenopir, 2017).

Kinesthetic learning preferences, distinguished by a desire for hands-on, experiential learning activities, provide a significant influence on the use of LI resources. Students with kinesthetic learning preferences tend to search for resources that provide interactive or practical learning experiences, corresponding to the desire for tactile engagement and physical exploration (Stull & Mayer, 2019). In this context, traditional resources such as textbooks or scholarly articles may not fully satisfy the learning needs, prompting the search for alternative resources offering more immersive and interactive experiences.

Library workshops and hands-on research projects hold specific appeal for students with kinesthetic learning preferences. These individuals are attracted to activities promoting active engagement with the material, application of theoretical concepts in real-world scenarios, and participation in collaborative learning experiences (Stull & Mayer, 2019). Through the provision of workshops and research opportunities that encourage active participation and hands-on exploration, the library can effectively cater to the needs of kinesthetic learners. Furthermore, LI resources incorporating kinesthetic elements, such as interactive tutorials or virtual simulations, have the potential to significantly enhance engagement and the rate of usage among learners (Haak et al., 2011). Interactive tutorials provide opportunities for students to manipulate and interact with digital content, reinforcing the understanding of complex concepts through hands-on exploration (Gikas & Grant, 2013). Similarly, virtual simulations allow kinesthetic learners to engage in realistic scenarios and experiment with different variables, facilitating deeper learning and retention of information (Annetta et al., 2009).

Multimodal learning preferences, including a desire for learning experiences that integrate multiple sensory modalities, can influence the use of LI resources. Students in this category may benefit from resources offering a variety of presentation formats, such as multimedia databases or online tutorials with interactive components (Clark & Mayer, 2016). Moreover, LI resources catering to multimodal preferences by integrating visual, auditory, and kinesthetic elements tend to be more effective in engaging students and promoting the rate of usage (Schweppe & Rummer, 2016).

State of The Art. The novelty of this research comprises the exploration of the diverse learning preferences of LIS undergraduate students in Delta State, Nigeria, and the direct influence on the use of information resources. Previous investigations might have generalized the relationship between learning styles and the use of resources, but this research uniquely showed the significant correlation between varied learning preferences and academic resource engagement in a localized and context-specific academic discipline. Additionally, fresh insights would be provided into the role of multi-modal teaching methods in optimizing the use of resources and academic success in LIS education, offering actionable recommendations for librarians and faculty of different universities.

Purpose. This research aimed to investigate the learning preferences of LIS students in Delta State, Nigeria, and assess the influence on the use of information resources.

II. METHODS

A descriptive research design was used to examine "learning preferences and the use of resources by LIS undergraduate students in Delta State, Nigeria." According to Grinnell and Unrau (2016), this design enabled systematic data collection and analysis, helping to describe the characteristics and behaviours of the respondents. The population comprised 2,030 undergraduate students from universities in Delta, Edo, and Rivers states. The sample size was 325, representing 16% of the total population, selected using a multi-stage sampling method. The sample was first divided by institution using stratified sampling, then allocated proportionally, and selected through simple random sampling to ensure equal representation.

Data were collected with self-structured Learning Preferences and the Use of Resources Questionnaire (LPEPURQ). To ensure validity, the questionnaires were reviewed and revised based on feedback from research experts. The reliability of these tools was examined using the test-retest method, producing a suitable correlation coefficient of r=0.82. Data were collected through the help of research assistants, and the questionnaires were retrieved immediately when completed to ensure a high response rate, then analysis was conducted with descriptive and inferential statistics. Furthermore, simple percentages and frequency count, statistical means, Pearson's Product Moment Correlation Coefficient (PPMCC), as well as ANOVA, were applied for research questions one, two, three, and four, respectively. A total of 268 (82%) from 325 questionnaires distributed were completed, returned, and used in the investigation process, allowing for generalization. The 82% response rate was considered sufficient for this research due to corresponding with the standard and acceptable response rate of 60% or higher (Dulle, Minish-Majanja, & Cloete, 2010), while the statistical analysis was conducted using SPSS version 22.

III. RESULTS AND DISCUSSION

To provide a clearer understanding of the characteristics of the respondents, the following table presents the levels of each respondent in the study on the Influence of Preferences on the Use of Information Resources by the Library and Information Science Undergraduate Students in South-South, Nigeria. This table will help in understanding the differences or variations in the level of understanding or experience possessed by the respondents.

Table 1.
Level of the Respondents

Level	Freq.	%
200	103	38
300	93	35
400	72	27
Total	**268**	**100**

Source: Author's Finding (2024)

Table 1 shows 103 (38%), 93(35%), and 27(27%) respondents in the 200, 300, and 400 levels, respectively. This implies that the 200 level comprised more respondents (103, 38%) than the 300 and 400 level counterparts.

The Learning Preferences Shown by Undergraduate Students in Universities. To further illustrate the learning preferences of undergraduate students in universities, the following table presents the various learning preferences they exhibit.

Table 2.
Learning Preferences of Undergraduate Students

Learning Preferences	Agree		Disagree	
	Freq.	%	Freq.	%
Use of visuals such as diagrams, charts, or graphs	153	57	115	43
Application of PowerPoint presentations	142	53	126	47
Watching educational videos or animations	172	64	96	36
Learning through verbal presentations such as lecture	183	68	85	32
Learning through discussions with classmates or instructors	137	51	131	49
Listening to recorded lectures or audio of course materials	169	63	99	37
Physical interaction with materials (hands-on experiments)	177	66	91	34
Group projects or interactive workshops	109	41	159	59
Role-playing scenarios or simulations to understand complex concepts	93	35	175	65
Simultaneous application of multiple formats	137	51	131	49

Source: Author's Finding (2024)

According to Table 2, preferences reported by the majority of respondents included learning through verbal presentation (183, 68%), physical interaction with materials (177, 66%), and watching educational videos (172, 64%). Other methods comprised listening to recorded lectures (169, 63%), use of visuals (153, 57%) application of PowerPoint presentations (142, 53%), discussion with classmates (137, 51%), and application of multiple formats (137, 51%).

The Learning Preferences Demonstrated by Undergraduate Students Influence the Use of Library and Information (LI) Resources to Varying Extents. To provide a clearer understanding of the influence of learning preferences demonstrated by undergraduate students on the use of resources, the following table presents this information.

Table 3.

The Influence of Learning Preferences Shown by Undergraduate Students on the Use of Resources

Statement	VHE	HE	LE	VLE	$\bar{x}$
My preferred learning style affects the types of materials I borrow from the library.	85	62	60	61	2.64
When downloading materials, I prioritize formats that match my preferred learning style.	77	100	33	58	2.73
The search methods I use in the catalogue or databases of the library are guided by my learning preferences.	113	56	40	59	2.83
I am more inclined to seek assistance from library staff for materials that cater to my learning preferences.	102	83	29	54	2.87
The availability of resources corresponding to my learning preferences influences my decision to use reference assistance services.	151	73	13	31	3.28
When viewing multimedia resources in the library, I prefer formats that suit my learning style.	93	43	112	20	2.78
My choice to borrow specific materials from the library depends on how well they align with my learning preferences.	32	71	152	13	2.46
I prioritize library resources that cater to my learning style.	88	115	17	48	2.91
I appreciate library resources that offer a range of formats to accommodate different learning preferences.	70	127	51	20	2.92
I am liable to use the library when it provides resources that support my preferred learning method.	43	176	15	34	2.85
N 268 Criterion Mean 2.50			**Aggregate Mean**		**2.83**

Source: Author's Finding (2024)

Table 3 shows the influence of learning preferences of undergraduate students on the use of information resources. The aggregate mean (2.83) was greater than the criterion mean (2.50), therefore, the influence of preferences was high. The table presents data on how learning preferences influence the use of library resources by undergraduate students. Overall, the findings suggest that students' learning preferences significantly affect their interaction with library resources. The mean scores for most statements are above the criterion mean of 2.50, with several statements surpassing the aggregate mean of 2.83, indicating that learning preferences have a moderate to strong impact on library usage. For example, the statement "The availability of resources corresponding to my learning preferences influences my decision to use reference assistance services" has the highest mean score of 3.28, suggesting that students are highly influenced by the

availability of resources that align with their learning style when deciding to use reference assistance. Similarly, statements like "I am more inclined to seek assistance from library staff for materials that cater to my learning preferences" and "When downloading materials, I prioritize formats that match my preferred learning style" show that students tend to prioritize resources that fit their learning preferences. Additionally, students' search methods, choice of materials, and overall use of the library are guided by their learning styles, as seen in the higher mean scores for these statements. The data highlights that students value library resources that cater to a range of learning styles, emphasizing the importance of flexibility in the formats provided by the library. This suggests that libraries can enhance student engagement and satisfaction by offering resources that accommodate various learning preferences.

The Relationship Between Learning Preferences of Undergraduate Students and the Use of Resources. To provide a clearer understanding of the relationship between learning preferences and the use of information resources, the following table presents this information.

Table 4.
Relationship between Learning Preferences and the Use of Information Resources

		Learning Preferences	The Use of Information Resources
Learning Preferences	Pearson Correlation	1	0.907**
	Sig. (2-tailed)		0.000
	N	268	268
The Use of Information Resources	Pearson Correlation	0.907**	1
	Sig. (2-tailed)	0.000	
	N	268	268
α =0.05			

Source: Author's Finding (2024)

Table 4 shows the correlation between learning preferences and the use of information resources by LIS undergraduate students in Delta State. A positive influence was observed [(r = 0.907, P = 0.000); p<0.05)], leading to the rejection of the null hypothesis stating that there was no significant relationship between learning preferences and the use of information resources.

A Significant Difference Between Educational Level and Learning Preferences Shown by Undergraduate Students. To examine whether there is a significant difference between educational level and learning preferences among undergraduate students, the following table presents the results of the ANOVA analysis.

Table 5.
ANOVA on the Significant Difference in Educational Level and Learning Preferences

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	21358.813	2	10679.406	1189.172	0.000
Within Groups	2379.844	265	8.981		

Total	23738.657	267
α =0.05		

Source: Author's Finding (2024)

The ANOVA results presented in Table 5 showed a significant difference in learning preferences based on educational level, an F value of 1189.172, and a p-value (Sig.) of 0.000. These results were statistically significant because the p-value was less than the alpha level of 0.05, showing a significant variation in learning preferences among students. The large Sum of Squares between groups (21358.813) compared to within groups (2379.844) suggested that the difference in learning preferences was more pronounced across various educational levels.

Discussion of Results. The results showed that preferences observed among undergraduate students were learning through verbal presentation, physical interaction with materials, watching educational videos, listening to recorded lectures, use of visuals, application of PowerPoint presentations, discussion with classmates, and application of multiple formats. This signified that students benefited from both traditional and modern teaching methods, and teachers should use different strategies to meet various learning styles. Verbal presentations and hands-on activities showed the importance of direct teaching and practical experiences, while videos and recorded lectures presented the need for flexible and accessible learning options. Using visuals and PowerPoint presentations promoted better understanding and remembrance of information, while discussions with classmates showed the value of working collectively. These preferences suggested a mix of teaching methods was best for keeping students engaged and improving learning.

The results were consistent with Coffield et al. (2014) and Pashler et al. (2019) which reported the importance of identifying differences in methods preferred by students for receiving and processing information. This diversity showed the need for educators to adopt a variety of teaching methods to accommodate different learning styles, thereby enhancing engagement and comprehension.

A high influence of learning preferences was observed, signifying the crucial role played in determining the use of information resources. Learning through visual aids, hands-on activities, reading, or listening greatly influenced the choice and use of educational materials. For instance, students desiring visual learning might gravitate towards videos, infographics, and charts, while those with reading preferences might rely more on textbooks and articles.

The results corresponded with the research by Mayer (2014) which showed the influence of learning preferences on the choice of library materials consulted. Furthermore, certain students were suspected to gravitate towards resources offering visually engaging content, such as online databases with interactive visualizations or multimedia tutorials. Concerning this perspective, Ainsworth (2014) reported that library resources incorporating visual elements, such as infographics or image-based databases, might be more effective in capturing the attention and interest of visual learners, thereby enhancing the rate of usage.

Learning preferences had a statistically significant influence on the use of information resources by undergraduate students from various universities in Delta State, Nigeria. Therefore, when universities understand and cater to learning preferences, optimal use of information resources will be promoted among students. This could require providing

diverse types of resources and customized guidance, enhancing educational experience and academic success.

Chen and Wang (2017) reported a strong correlation between learning preferences and the use of educational resources by students. In this context, 70% of students interested in collaborative learning tended to use group spaces and online forums more frequently. Similarly, Wong (2015) detected a strong connection between learning preferences and the use of LI resources. Auditory learning preferences, characterized by a desire for stimuli such as lectures and audio recordings, were found to significantly influence the use of LI resources. Students in this category were more attracted to auditory-based content. There might be gravitation towards recorded lectures or podcasts on important topics, which appeared conducive to the preferred mode of learning.

The significant difference observed between educational level and preferences showed that desired methods of learning evolved as students progressed through the academic years. This could be due to various factors such as increased exposure to different teaching methods, maturity, changes in course content complexity, or individual growth. When fresh students prefer more structured and guided learning environments, while might seniors desire independent and research-oriented methods. The results disagreed with Slater et al. (2017) which challenged the idea of learning preferences evolving significantly with academic progression. Furthermore, the research examined potential changes in learning preferences across the education level of medical students. Preferred visual, auditory, and kinesthetic learning styles were found to remain relatively stable all through the academic journey.

Several recommendations have been proposed to enhance learning and the use of resources among students. First, teachers should incorporate diverse strategies, including verbal presentations, hands-on activities, educational videos, recorded lectures, visuals, PowerPoint presentations, and group discussions to accommodate various learning preferences. This could be achieved by regularly assessing preferences through surveys or feedback and adapting both traditional and modern methods into lesson plans, promoting active engagement of all students to benefit from the lessons. Second, librarians and coordinators of LI resources in universities should collaborate with faculty members to ensure that the available educational materials correspond with learning preferences. Additionally, the provision of a wide range of resources such as videos, infographics, textbooks, and interactive tools would support visual, auditory, and hands-on learners. Regular meetings and feedback sessions with students could help identify the usage patterns of resources and preferences.

Third, administrators and educators in universities should prioritize understanding and addressing preferences among students by providing a variety of resource formats, including visual aids, hands-on materials, and textual content. Periodic assessments of preferences could help adjust available resources and teaching methods accordingly, promoting more effective use of information resources and improving academic results. Fourth, curriculum designers and educators need to understand that learning preferences evolve as students progress through academic years. Therefore, curricula should be flexible, adapting teaching methods based on educational level. First-year students might benefit from more structured, guided learning environments, while seniors should be given opportunities for independent research and self-directed learning. Continual curriculum reviews and the inclusion of varied instructional methods could enhance effective consideration of the changing needs at different academic levels.

Research Limitations Several limitations requiring significant consideration were observed in this research. First, the geographical focus limited to universities in Delta

State, Nigeria, reduces the generalization of the results because learning preferences may be influenced by different cultural, social, and economic factors. Second, the observation that learning preferences evolve with academic level is not supported by other research. For example, Slater et al. (2017) reported that learning preferences might not change significantly across all disciplines or academic contexts. Third, the measurement tools used to identify learning preferences may not be sufficient to fully capture the complex dynamics of the manners in which students learn and process information effectively. Fourth, this research focuses more on quantitative data, providing less in-depth qualitative insight into the reasons behind learning preferences and adaptation to various learning methods. Fifth, the brief observation period caused difficulty in monitoring changes in learning preferences. Longitudinal investigations conducted over several years tend to produce a more comprehensive result. Sixth, the rapid development of technology can lead to a drastic shift in learning preferences, but this research may not fully account for the future influence on learning patterns and the use of educational resources. Expanding the geographical context, using more diverse data collection methods, as well as considering other factors including technology and culture are recommended to enhance the validity of future research.

IV. CONCLUSION

In conclusion, this research found that learning preferences of undergraduate students significantly influenced the use of information resources at different universities. Additionally, various learning styles detected were verbal presentations, physical interaction with materials, watching educational videos, listening to recorded lectures, the use of visuals, discussions with classmates, and the application of PowerPoint presentations. These preferences showed that students benefited from a combination of traditional and modern teaching methods, and educators should adopt diverse teaching strategies to meet different learning styles. Based on the results, enhanced engagement as well as optimal learning were experienced when teachers used a mix of traditional and modern methods, such as verbal presentations, hands-on activities, videos, and discussions with classmates. Learning preferences greatly influenced the use of educational resources and changed as students moved through the academic years. For example, when fresh students preferred more structured guidance, seniors might desire more independent, research-based learning.

A significant relationship was observed between learning preferences and the use of information resources, suggesting that universities needed to provide a variety of resources to support different learning styles. This was considered to be crucial for improving educational experience and academic success. The results generally showed the importance of flexible teaching strategies and the provision of diverse information resources in facilitating learning through methods suitable to the preferences of students.

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VI. REFERENCES

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