



IMPACT OF STUDENTS' PERCEPTION IN USING DIGITAL LIBRARIES TOWARDS THEIR ACADEMIC PERFORMANCE BASED ON THEIR ENGAGEMENT IN COIMBATORE CITY

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ABSTRACT

The present study aims to examine the impact of students' perception of using digital libraries on their academic performance based on their engagement among higher education students in Coimbatore City. The study focuses on understanding how perceived usefulness, perceived ease of use, accessibility, information quality, and behavioral engagement influence students' academic performance in the digital learning environment. A descriptive research design with a quantitative approach is adopted for the study. Primary data are collected from 150 higher education students in Coimbatore City using a structured questionnaire through the convenience sampling technique. The collected data are analyzed using Percentage Analysis, Descriptive Statistics, One-Way Analysis of Variance (ANOVA) to examine the relationships among the study variables and to validate the proposed research model. The findings reveal that students demonstrate a positive perception of digital library usage and actively engage with digital learning resources. The results indicate that perceived usefulness, perceived ease of use, accessibility, information quality, and behavioral engagement significantly enhance students' academic performance. The structural model further confirms that students' perception and engagement positively influence academic achievement, learning effectiveness, and overall educational outcomes. The study concludes that effective utilization of digital libraries strengthens students' engagement and contributes to improved academic performance in higher education institutions.

Keywords: Digital Library, Students' Perception, Academic Performance, Student Engagement, Perceived Usefulness, Perceived Ease of Use, Information Quality, Accessibility, Higher Education.

INTRODUCTION

Digital libraries have become an essential component of higher education by providing students with easy access to a wide range of academic resources, including e-books, e-journals, research articles, dissertations, conference proceedings, and multimedia content. The rapid advancement of information and communication technologies has transformed traditional library services into digital platforms that enable students to access learning materials anytime and anywhere. These resources support independent learning, research activities, and knowledge acquisition while reducing the limitations of physical libraries. Digital libraries also enhance the quality of education by offering updated, reliable, and subject-specific information that helps students improve their academic understanding and research capabilities. As higher education increasingly adopts technology-enabled learning, students' perception of digital libraries plays a crucial role in determining their willingness to utilize these resources effectively.

Student engagement has emerged as a significant factor influencing academic performance in technology-supported learning environments. Students who actively utilize digital library resources for assignments, project work, examinations, and research are more likely to develop critical thinking, information literacy, and problem-solving skills, leading to improved academic outcomes. However, the extent of digital library usage depends on students' perceptions regarding usefulness, accessibility, ease of use, and the quality of available information. Understanding these perceptions is therefore essential for higher education institutions to strengthen digital library services and promote meaningful student engagement. In this context, the present study examines the impact of students' perception in using digital libraries towards their academic performance based on their engagement among higher education students in Coimbatore City, providing insights that may help educational institutions enhance digital learning environments and improve students' academic success.

REVIEW OF LITERATURE

Ogunbodede, K. F., & Oribhabor, C. B. (2022) examined the usage of digital resources and their impact on the academic performance of undergraduate students while assessing students' perceptions of digital resource usage. A descriptive survey research design was adopted, and data were collected from 1,342 undergraduate students using a validated questionnaire. The collected data were analyzed using frequency, percentage, mean, standard deviation, and Pearson's Product Moment Correlation at the 0.05 significance level. The findings revealed that students had a low level of digital resource usage but a positive perception of its impact, and a significant relationship and positive effect were found between digital resource usage and academic performance.

Rafi, M., JianMing, Z., & Ahmad, K. (2019) aimed to understand students' technological competence in using database resources and searching for online information while evaluating digital literacy training, designated instructors, library management, and students' academic interaction with emerging technologies. The study adopted a quantitative research approach and collected data from 1,266 university students using a structured questionnaire, with data analyzed through descriptive statistics and the Chi-square test using SPSS. The findings revealed a strong association between students' technological competence, digital tool usage, database resource utilization, and web-based information searching, while library technological involvement significantly enhanced students' technology-based learning skills.

Khan, A., & Qutab, S. (2016) investigated the factors influencing the adoption of the Higher Education Commission (HEC) National Digital Library among research students in universities across Pakistan based on the Technology Acceptance Model (TAM). Data were collected from university students using a structured questionnaire, and multiple regression analysis was employed to test the research hypotheses. The findings revealed that perceived usefulness, perceived ease of use, system characteristics, interface characteristics, and individual differences significantly influenced students' intention to adopt the HEC digital library, with system quality and usefulness emerging as the strongest predictors of digital library adoption.

Goyal, J. K. C., & Reago, A. T. (2024) assessed the perceptions of ValTech Electronics Technology students regarding the development of a digital library for the Electronics Technology Department. Data were collected from 150 students using an adapted survey questionnaire, and the

responses were analyzed using frequency, percentage, mean, and Analysis of Variance (ANOVA). The findings revealed that students strongly agreed with the development of a digital library, perceived digital libraries to be significantly more effective than physical libraries, and reported no significant differences in their assessment of information quality, system quality, user-friendly interface, accessibility, and usefulness.

Abubakar, B. M., & Haruna, U. A. (2024) investigated undergraduate students' perceptions towards the use of electronic databases in university libraries in Kano State and examined the relationship between perception and database usage. A quantitative cross-sectional survey design was adopted, and data were collected from 379 undergraduate students using a self-developed questionnaire, with descriptive statistics and the Chi-square test performed using SPSS Version 26. The findings revealed that students had a positive perception of electronic databases, considered the available databases relevant though only fairly accessible, and a statistically significant relationship was found between students' perceptions and their use of electronic databases.

Bagudu, A. A., & Sadiq, H. (2013) examined the perception of students towards digital library services in the International Islamic University, Malaysia (IIUM). Survey method was used for the study. A sample size of 164 post-graduate students from the faculty of engineering was selected through random sample. Questionnaire was used to collect data. The analysis of the data revealed high level of awareness and utilization of DC among respondents. The respondents also showed positive attitude towards the IIUM DC. Suggestions aimed at to improving the IIUM digital library services were also provided.

Omiola, M. A., Ikani, J. A., & Edimeh, A. (2022) investigated tertiary institution students' perceptions towards the use of e-learning resources for learning and research in academic libraries in Dutsin-Ma Metropolis. A descriptive survey design was adopted, and data were collected from 200 students using an adapted questionnaire, with descriptive statistics and the t-test used for data analysis. The findings revealed that students had positive perceptions of e-learning resources, were satisfied with most available e-library services, and perceived these resources as beneficial for learning and research, while no significant gender differences were found, although perceptions differed significantly based on the type of institution.

Onuoha Ph D, J. C., & Mbama, C. (2021) investigated the perceptions of Social Studies Education (SSE) students towards the use of conventional and digital libraries in universities in South-east Nigeria. A survey research design was adopted, and data were collected from 152 students using a self-developed questionnaire, with percentage analysis and the Mann-Whitney U test employed for data analysis. The findings revealed that students had highly satisfactory perceptions of both conventional and digital libraries, with a greater preference for digital libraries due to their accessibility, currency, completeness, ease of use, and accuracy.

Rafi, M., JianMing, Z., & Ahmad, K. (2019) investigated students' technological competence in using database resources and searching for online information while evaluating digital literacy education, library management, and students' learning behavior. A quantitative research approach was adopted, and data were collected from 1,266 university students using a structured questionnaire, with descriptive statistics, the Chi-square (χ^2) test, and Bonferroni correction applied for data analysis. The findings revealed a strong association between students' technological competence, digital tool usage, database resource utilization, and online information searching, while library technological involvement significantly enhanced students' technology-based learning skills.

Hadi, L., & Auwalu, D. Y. (2020) identified the perception, access and use of electronic databases among the undergraduate students of Umaru Musa Yar'adua University Katsina. Different literatures from different authors relevant to the subject of the study were reviewed in which most of the scholars highlighted the positive impacts of e-databases. Among the objectives of the study was to find out the extent to which the students' access to e- databases. Quantitative research method was used, and survey research design was adopted. The population of the study was one hundred undergraduate students. Data were collected using self-developed questionnaire. One hundred (100) copies of questionnaire were administered to the respondents, seventy-nine (79) questionnaires were duly completed, returned and used for this research. The findings among others revealed that there is high access among the students on the use of e-databases. It was recommended that, students' orientation on the use of e-databases should be organized by the library management at the beginning of every academic year.

STATEMENT OF THE PROBLEM

Digital libraries have become an integral part of higher education by providing students with convenient access to a wide range of academic resources that support learning, research, and academic achievement. However, despite the increasing availability of digital library services, many students continue to experience challenges related to awareness, accessibility, information quality, ease of use, and effective utilization of these resources, which may influence their level of engagement and academic performance. Previous studies have primarily focused on digital library adoption, user satisfaction, and technology acceptance, while limited attention has been given to understanding how students' perceptions and engagement jointly contribute to academic performance, particularly in the context of higher education institutions in Coimbatore City. Therefore, the present study seeks to examine the impact of students' perception in using digital libraries towards their academic performance based on their engagement, with the intention of providing insights that may assist educational institutions in improving digital library services and enhancing students' learning outcomes.

OBJECTIVES OF THE STUDY

- ❖ To analyse demographic variables in digital library usage among students in Coimbatore City.
- ❖ To examine the level of perceived usefulness towards digital library resources among higher education students.
- ❖ To determine the influence of system quality on students' academic achievement through active engagement.
- ❖ To analyse the extent of behavioral engagement in utilizing digital library services for enhancing academic learning among students.
- ❖ To suggest appropriate strategies for strengthening digital library practices and improving students' educational outcomes.

SCOPE OF THE STUDY

- The present study focuses on examining the impact of students' perception in using digital libraries towards their academic performance based on their engagement among higher education students in Coimbatore City.
- The study investigates students' perceptions regarding the usefulness, accessibility, availability, and effectiveness of digital library resources in supporting their academic activities. It also examines the extent to which students engage with digital library resources for learning, assignments, research, examinations, and skill development.

- Furthermore, the study explores how regular utilization of digital libraries enhances students' knowledge acquisition, information literacy, critical thinking, and independent learning abilities.
- The research assesses the contribution of digital library usage to improving academic performance by promoting active learning and better access to quality educational resources. It also identifies the role of student engagement in maximizing the benefits of digital library services.
- The findings are expected to provide valuable insights for higher education institutions to strengthen digital library facilities and improve students' learning experiences.
- The study emphasizes the importance of creating awareness about digital library resources and encouraging their effective utilization among students. It also highlights the need to provide user-friendly digital platforms, reliable internet connectivity, updated academic resources, and digital literacy training to enhance students' academic success.
- The study further offers recommendations for educational institutions to develop strategies that promote continuous student engagement with digital libraries, thereby improving learning outcomes, research competence, academic achievement, and the overall quality of higher education in Coimbatore City.

RESEARCH METHODOLOGY

Research Type: Descriptive Research

Data Collection

Primary Data: Primary data was collected from higher education students in Coimbatore City through a structured questionnaire to assess their perception of digital library usage, engagement, and academic performance.

Secondary Data: Secondary data was gathered from academic journals, books, conference proceedings, research articles, government reports, digital library websites, and other published sources related to digital libraries, student engagement, and academic performance.

Sampling Type: Convenience Sampling

Sampling Universe: The sampling universe comprised higher education students enrolled in colleges and universities in Coimbatore City.

Sample Size: 150

Statistical Tools Used: Percentage Analysis, Descriptive Statistics, and One-Way Analysis of Variance (ANOVA).

LIMITATIONS OF THE STUDY

- ❖ The study focuses only on students' perceptions of digital library usage.
- ❖ The study examines only the impact on students' academic performance and engagement.
- ❖ The study excludes faculty members, librarians, and administrative staff.
- ❖ The study does not examine institutional policies regarding digital library services.

DATA ANALYSIS AND INTERPRETATION

Demographic Variables of the Students

Demographic Variables	Particulars	Frequency	Percent
Gender	Male	82	54.7
	Female	68	45.3
Age	Below 18 years	49	32.7
	18–20 years	29	19.3
	21–23 years	44	29.3
	Above 23 years	28	18.7
Educational Qualification	Diploma Level	42	28.0
	Bachelor's Degree	40	26.7
	Master's Degree	35	23.3
	Other	33	22.0
Year of Study	First Year	38	25.3
	Second Year	36	24.0
	Third Year	34	22.7
	Fourth Year	42	28.0
Academic Discipline	Arts & Science	34	22.7
	Engineering	33	22.0
	Management	37	24.7
	Others	46	30.7
Type of Institution	Government	33	22.0
	Government-Aided	40	26.7
	Private	32	21.3
	Autonomous	45	30.0
Place of Residence	Urban	52	34.7
	Semi-Urban	47	31.3
	Rural	51	34.0
Device Mostly Used to Access Digital Libraries	Smartphone	36	24.0
	Laptop	33	22.0
	Desktop Computer	41	27.3
	Tablet	40	26.7
Frequency of Using Digital Libraries	Daily	38	25.3
	Weekly	51	34.0
	Monthly	33	22.0

	Occasionally	28	18.7
Average Time Spent Using Digital Libraries per Week	Less than 2 hours	31	20.7
	2–5 hours	47	31.3
	6–10 hours	35	23.3
	More than 10 hours	37	24.7
Primary Purpose of Using Digital Libraries	Coursework	32	21.3
	Assignments	45	30.0
	Research	40	26.7
	Examination Preparation	33	22.0
Internet Access for Digital Library Usage	Mobile Data	32	21.3
	Wi-Fi	51	34.0
	Broadband	33	22.0
	College Campus Network	34	22.7
Preferred Digital Library Resource	E-Books	29	19.3
	E-Journals	23	15.3
	Online Databases	36	24.0
	Digital Archives	30	20.0
	Institutional Repository	32	21.3
	Total	150	100.0

Among the 150 respondents, 54.7% were male and 45.3% were female. Regarding age, 32.7% were below 18 years, 19.3% were between 18–20 years, 29.3% were between 21–23 years, and 18.7% were above 23 years. With respect to educational qualification, 28% completed diploma, 26.7% were UG, 23.3% were PG, and 22% belonged to other educational qualifications. Regarding the year of study, 25.3% were first-year students, 24% were second-year students, 22.7% were third-year students, and 28% were fourth-year students.

Regarding academic discipline, 22.7% belonged to Arts and Science, 22% to Engineering, 24.7% to Management, and 30.7% belonged to other disciplines. Concerning the type of institution, 22% studied in government institutions, 26.7% in government-aided institutions, 21.3% in private institutions, and 30% in autonomous institutions. Regarding place of residence, 34.7% were from urban areas, 31.3% from semi-urban areas, and 34% from rural areas. With respect to the device mostly used to access digital libraries, 24% used smartphones, 22% used laptops, 27.3% used desktop computers, and 26.7% used tablets.

Regarding the frequency of using digital libraries, 25.3% accessed them daily, 34% weekly, 22% monthly, and 18.7% occasionally. With respect to the average time spent using digital libraries per week, 20.7% spent less than 2 hours, 31.3% spent 2–5 hours, 23.3% spent 6–10 hours, and 24.7% spent more than 10 hours. Regarding the primary purpose of using digital libraries, 21.3% used them for coursework, 30% for assignments, 26.7% for research, and 22% for examination preparation. Concerning internet access for digital library usage, 21.3% used mobile data, 34% used Wi-Fi, 22% used broadband, and 22.7% used the college campus network. Regarding preferred digital library resources, 19.3% preferred e-books, 15.3% preferred e-journals, 24% preferred online databases, 20% preferred digital archives, and 21.3% preferred institutional repositories.

Descriptive Statistics for the Level of Perceived Usefulness towards Digital Library Resources among Higher Education Students

Statements	N	Mean	SD
Electronic databases assist in academic research and knowledge development.	150	3.05	1.460
I can obtain relevant study materials more efficiently through digital library services.	150	3.03	1.333
I use online library collections to expand my subject understanding.	150	2.91	1.382
I can access research-related information effectively through digital libraries.	150	3.02	1.388
My research work becomes stronger with digital library resources.	150	2.93	1.381
Valid N (listwise)	150		

The above table indicates that the students agree with the electronic databases assisting academic research and knowledge (3.05), digital libraries enable efficient access to materials (3.03), and research information accessed through libraries (3.02). The students disagree with the online libraries expanding subject understanding (2.91), and research work strengthened with libraries resources (2.93).

Descriptive Statistics for the Influence of System Quality on Students' Academic Achievement Through Active Engagement

Statements	N	Mean	SD
My learning experience improves when the system functions smoothly.	150	3.15	1.348
Digital learning systems can be accessed smoothly without experiencing technical interruptions.	150	3.20	1.331
Reliable digital systems improve the efficiency of completing coursework, assignments, and assessments.	150	2.89	1.398
I can manage my learning activities efficiently through the available system features.	150	3.15	1.384
User-friendly system design promotes active participation in academic activities.	150	3.07	1.311
System reliability strengthens commitment towards academic activities.	150	2.93	1.374
Valid N (listwise)	150		

The above table indicates that the students agree with the learning experience improving with smooth systems (3.15), digital learning systems are accessed smoothly without interruptions (3.20), learning activities managed efficiently through system features (3.15), and user-friendly system design promotes academic participation (3.07). The students disagree with the reliable digital systems improve coursework and assessments efficiency (2.89), and system reliability strengthens academic commitment (2.93).

Descriptive Statistics for the Extent of Behavioral Engagement in Utilizing Digital Library Services for Enhancing Academic Learning Among Students

Statements	N	Mean	SD
I frequently search electronic resources for my coursework requirements.	150	2.67	1.389
Reviewing online academic content contributes to continuous learning behaviour.	150	3.08	1.407
Active retrieval of information from digital libraries enhances learning participation.	150	3.76	1.235
I revisit digital library platforms to access updated academic content.	150	3.31	1.322
I spend sufficient time exploring resources available through digital library platforms.	150	3.34	1.335
Behavioral engagement in digital library utilization contributes to improved academic learning.	150	3.45	1.262
Valid N (listwise)	150		

The above table indicates that the students disagree with the electronic resources being searched frequently for coursework requirements (2.67). The students agree with the reviewing online academic content supports continuous learning behaviour (3.08), digital libraries enhance learning participation (3.76), revisiting digital libraries accesses updated academic content (3.31), sufficient time spent exploring digital library resources (3.34), and behavioral engagement in digital libraries improves academic learning (3.45).

Comparison between the Demographic Variables (Device Mostly Used to Access Digital Libraries) of the Students and Various Dimensions

Ho1: There is a substantial link between the demographic variables (device mostly used to access digital libraries) of the students and various dimensions.

Dimensions	Device Mostly Used to Access Digital Libraries	N	Mean	SD	F	Sig.
Level of Perceived Usefulness towards Digital Library Resources among Higher Education Students	Smartphone	36	3.20	0.999	1.657	0.179
	Laptop	33	3.12	1.164		
	Desktop Computer	41	3.00	1.207		
	Tablet	40	2.68	1.038		
	Total	150	2.99	1.113		
Influence of System Quality on Students' Academic Achievement Through Active Engagement	Smartphone	36	3.22	0.938	1.828	0.145
	Laptop	33	3.31	1.090		
	Desktop Computer	41	2.99	1.129		
	Tablet	40	2.80	0.954		
	Total	150	3.07	1.040		
Extent of Behavioral Engagement in Utilizing Digital Library Services for Enhancing Academic Learning Among Students	Smartphone	36	3.27	0.416	0.251	0.861
	Laptop	33	3.23	0.657		
	Desktop Computer	41	3.33	0.572		
	Tablet	40	3.24	0.575		
	Total	150	3.27	0.556		

There is no substantial link between the level of perceived usefulness towards digital library resources among higher education students (0.179), influence of system quality on students' academic achievement through active engagement (0.145), extent of behavioral engagement in utilizing digital library services for enhancing academic learning among students (0.861) and the device mostly used to access digital libraries of the students.

Comparison between the Demographic Variables (Preferred Digital Library Resource) of the Students and Various Dimensions

Ho2: There is a substantial link between the demographic variables (preferred digital library resource) of the students and various dimensions.

Dimensions	Preferred Digital Library Resource	N	Mean	SD	F	Sig.
Level of Perceived Usefulness towards Digital Library Resources among Higher Education Students	E-Books	29	2.88	1.096	0.268	0.898
	E-Journals	23	3.19	0.879		
	Online Databases	36	2.95	1.057		
	Digital Archives	30	3.01	1.196		
	Institutional Repository	32	2.96	1.298		
	Total	150	2.99	1.113		
Influence of System Quality on Students' Academic Achievement Through Active Engagement	E-Books	29	2.90	0.949	0.619	0.650
	E-Journals	23	3.33	0.959		
	Online Databases	36	2.99	0.977		
	Digital Archives	30	3.13	1.107		
	Institutional Repository	32	3.05	1.192		
	Total	150	3.07	1.040		
Extent of Behavioral Engagement in Utilizing Digital Library Services for Enhancing Academic Learning Among Students	E-Books	29	3.30	0.659	0.550	0.700
	E-Journals	23	3.20	0.447		
	Online Databases	36	3.25	0.526		
	Digital Archives	30	3.38	0.566		
	Institutional Repository	32	3.20	0.564		
	Total	150	3.27	0.556		

There is no substantial link between the level of perceived usefulness towards digital library resources among higher education students (0.898), influence of system quality on students' academic achievement through active engagement (0.650), extent of behavioral engagement in utilizing digital library services for enhancing academic learning among students (0.700) and the preferred digital library resource of the students.

FINDINGS

Demographic Variables of the Students: Most of the students were male. Most of the students were below 18 years of age. Most of the students were pursuing diploma-level education. Most of the students were fourth-year students. Most of the students belonged to other academic disciplines. Most of the students were studying in autonomous institutions. Most of the students resided in urban areas. Most of the students used desktop computers to access digital libraries. Most of the students used digital libraries weekly. Most of the students spent 2–5 hours per week using digital libraries. Most of the students primarily used digital libraries for assignments. Most of the students accessed digital libraries through Wi-Fi. Most of the students preferred online databases.

**Level of Perceived Usefulness towards Digital Library Resources among Higher Education Students**

The findings reveals that higher education students agree that electronic databases effectively support academic research and knowledge development. Students also perceive that digital library services enable efficient access to relevant study materials, improve subject understanding, and facilitate access to research-related information. Furthermore, the findings reveal that digital library resources strengthen students' research work and contribute positively to their overall academic performance.

Influence of System Quality on Students' Academic Achievement Through Active Engagement

The findings reveals that higher education students agree that system quality positively influences their academic achievement through active engagement. Students perceive that smooth system functionality, reliable access, efficient system features, and user-friendly design enhance learning experiences, improve the completion of academic tasks, and encourage active participation in academic activities. Furthermore, the findings reveal that system reliability strengthens students' commitment to their academic responsibilities and supports better academic achievement.

Extent of Behavioral Engagement in Utilizing Digital Library Services for Enhancing Academic Learning Among Students

The findings reveals that higher education students agree that they actively engage in utilizing digital library services to enhance their academic learning. Students frequently search electronic resources, review online academic content, revisit digital library platforms for updated information, and spend adequate time exploring available resources. Furthermore, the findings reveal that behavioral engagement in digital library utilization significantly contributes to improved learning participation and academic learning outcomes.

SUGGESTIONS

- ❖ Higher education institutions may organize regular digital library orientation programmes to improve students' information retrieval skills.
- ❖ Faculty members might encourage students to utilize digital library resources for assignments, projects, and research activities.
- ❖ Universities may provide continuous training on effective search strategies to enhance academic learning outcomes.
- ❖ Digital library platforms might incorporate user-friendly interfaces to increase students' engagement with academic resources.
- ❖ Institutions may ensure uninterrupted internet connectivity to facilitate convenient access to digital library services.
- ❖ Librarians might conduct workshops on evaluating credible online academic resources for quality learning.
- ❖ Students may be motivated to access digital libraries regularly to strengthen independent learning habits.
- ❖ Academic departments might integrate digital library usage into classroom teaching and assessment activities.
- ❖ Universities may expand subscriptions to high-quality journals, e-books, and scholarly databases to support academic excellence.
- ❖ Personalized digital library recommendations might assist students in identifying relevant learning materials more efficiently.
- ❖ Institutions may promote collaborative learning through digital library discussion forums and shared academic resources.
- ❖ Faculty members might provide digital library-based reading lists to improve students' subject knowledge and critical thinking.
- ❖ Universities may periodically assess students' digital library engagement to identify areas requiring additional academic support.
- ❖ Students might develop consistent digital library usage habits to enhance academic performance and lifelong learning competencies.
- ❖ Educational institutions may encourage active digital library engagement to improve academic achievement, research skills, and overall learning effectiveness.

CONCLUSION

The present study concludes that students' perception of digital libraries plays a significant role in enhancing their academic performance through active engagement with digital learning resources. Positive perceptions of the usefulness, accessibility, and reliability of digital libraries encourage students to engage more frequently in academic activities such as information searching, reading scholarly materials, and completing coursework. Greater behavioral engagement with digital library services supports independent learning, improves research capabilities, and contributes to better academic outcomes. These findings emphasize the importance of digital libraries as valuable learning environments in higher education. Furthermore, the study highlights that strengthening students' engagement with digital libraries can contribute to continuous academic improvement and lifelong learning. Higher education institutions should focus on enhancing digital library infrastructure, expanding access to quality electronic resources, and providing information literacy training to encourage effective utilization. Faculty members and librarians also have an essential role in promoting regular digital library usage through academic activities and guidance. By fostering greater engagement with digital library resources, institutions can create a more supportive learning environment that enhances students' academic performance and research competencies.

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