The Impact of Academic Digital Library Engagement Among Postgraduate Scholars

Anis Fadilah Zulkifli[1], Eza Eliana A. Wahid[2]*

[12]*School of Information Management, College of Computing, Informatics & Mathematics, Universiti Teknologi MARA, 40150 Shah Alam, Malaysia*

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ABSTRACT

Academic Digital Library is a web-based system that provides access to various academic information and services. This article aims to investigate UiTM Digital Library's efficiency in meeting post-graduate students' needs by correlating their satisfaction with the following predictors: technological and individual factors, digital library engagement, and perceived benefits. The questionnaire was developed based on the instruments used by previous researchers. An online questionnaire was distributed to UiTM Selangor post-graduates, obtaining a sample of 341 respondents. The results of this study indicate that postgraduate students were aware of digital reference services offered by an academic library. The finding also revealed the level of usage and satisfaction regarding digital reference services. The result of this study will enable library management to recognize the usage of digital reference services among students. The findings will help address libraries and encourage students to use digital reference services to seek information effectively and efficiently.

INTRODUCTION

[2]* Corresponding author. *E-mail address*: eza080@uitm.edu.my

Digital Library

A digital library is an online collection of digital resources, such as books, articles, photos, audio, and video files, arranged and made accessible digitally. The digital library aims to provide a platform for users to access and retrieve information electronically, typically via the Internet. One of the most significant advantages of digital libraries is their accessibility. Users can access digital library resources from anywhere with an internet connection, making information available worldwide and removing the limits of physical location. Digital libraries frequently use sophisticated search and retrieval algorithms. Users can rapidly search for themes, keywords, or authors to uncover relevant material. It also categorizes and describes digital resources using metadata and cataloging systems, making it easy for users to navigate and find materials. They include interactive features such as annotations, bookmarks, and collaboration tools, which allow users to interact with the content in various ways. Some platforms support debates, comments, and community features. Digital libraries help to preserve cultural heritage and knowledge by digitizing and archiving items. This helps to protect delicate or aging physical documents while ensuring that vital information is recovered with time. Digital libraries frequently incorporate a variety of media formats to appeal to diverse learning styles and interests. Users can now access digital libraries remotely, eliminating the need to visit physical facilities. This is especially useful for people needing more accessible access to regular libraries. Some digital libraries follow the open access principles, making their content freely available to the public. This promotes knowledge exchange and educational efforts. Digital libraries are more easily updated than traditional libraries. New content can be added, and current content can be changed or enhanced without the limitations that come with physical things. Overall, the digital library concept aligns with societal digitization trends, allowing for the efficient storing, retrieval, and sharing of knowledge in digital format. It is critical for democratizing access to knowledge and creating a more inclusive and linked global information economy. Digital libraries have numerous benefits, including enhanced accessibility and efficiency, cost savings, and environmental sustainability. They play an essential role in the digital age by offering a dynamic and inclusive platform for information storage, retrieval, and distribution.

Academic Digital Library collections

Academic digital library collections vary widely in content, focus, and purpose. The types of digital library collections are diverse, reflecting the breadth of hu-man knowledge and interests. According to profiling UiTM Digital Library Initiative (2022-2025)," In supporting the UiTM 2022-2025 Digitization Plan, PTAR is ready to play a significant role in realizing UiTM's direction toward a Globally Renowned University in 2025 through UiTM's overall digitalization and ICT initiatives." There are three main components of digital library initiative:

Table 1: Digital Library Initiative

Digital collection	Digital service	Digital process
Online Databases, e-Book, E-Journal, Thesis Full text, UiTM Institutional Repository, Open Access Research Repository, Exam Paper Collection System, Research Data Repository, Niche Collection, Repositori Khazanah Melayu and Repositori Persuratan Jawi.	PTAR Virtual, Mobile Apps, eCatalog, My Knowledge Management, Researcher Profile, Disability Web Responsive, Digital Literacy, Chat Bot, eModule Arkib and Bibliometric & Almetric.	Big Data Analysis, Digital Librarian, Portal Pengurus Rekod Universiti (PPRU), Cloud Server, and Face Recognition.

Engagement in Digital Library collection

Engagement in a digital library collection refers to users' active participation, interaction, and involvement with the available digital resources. Encouraging engagement is crucial for maximizing the utility and impact of the digital library. Create an easy-to-use interface for navigating and exploring digital library collections. A well-designed interface improves the entire user experience. Implement robust search and discovery tools. Users should be able to access relevant information rapidly with accurate and thorough search results. Provide personalized features like user accounts, saved searches, bookmarks, and preferences. Personalization improves the user experience by personalizing the digital library to their subject requirement. Provide instructional tools, tutorials, and guidelines to help users browse the digital library efficiently.

Clear instructions and help boost users' confidence and involvement. Update the digital library collection with fresh content and resources regularly. Highlighting new acquisitions or featured products might capture customers' attention and encourage repeat visits. Social media integration can also increase the visibility of the digital library. Implement a feedback tool to gather user opinions and suggestions. Understanding the needs and preferences of users enables continual service development and personalization. Enable user participation using features such as group discussions, annotations, and collections. Collaborative elements build a sense of community in the digital library. Organize virtual events, webinars, or workshops based on the digital library collection. Live events encourage community by allowing users to interact with experts. Ensure that the digital library is accessible on mobile devices. Mobile accessibility allows users to engage with the collection on the go, reaching a broader audience. Establish partnerships with academic institutions, organizations, or community groups. Collaborative efforts and outreach programs can expand the user base and increase engagement. Provide training sessions or workshops to help users make the most of the digital library's features. Training can empower users to navigate advanced search options and effectively use available tools. Utilize analytics tools to track user behavior, popular resources, and areas of interest. Insights from analytics can inform collection development and user engagement strategies. By implementing these strategies, digital libraries can create an environment that encourages active exploration, collaboration, and learning, fostering a vibrant and engaged user community.

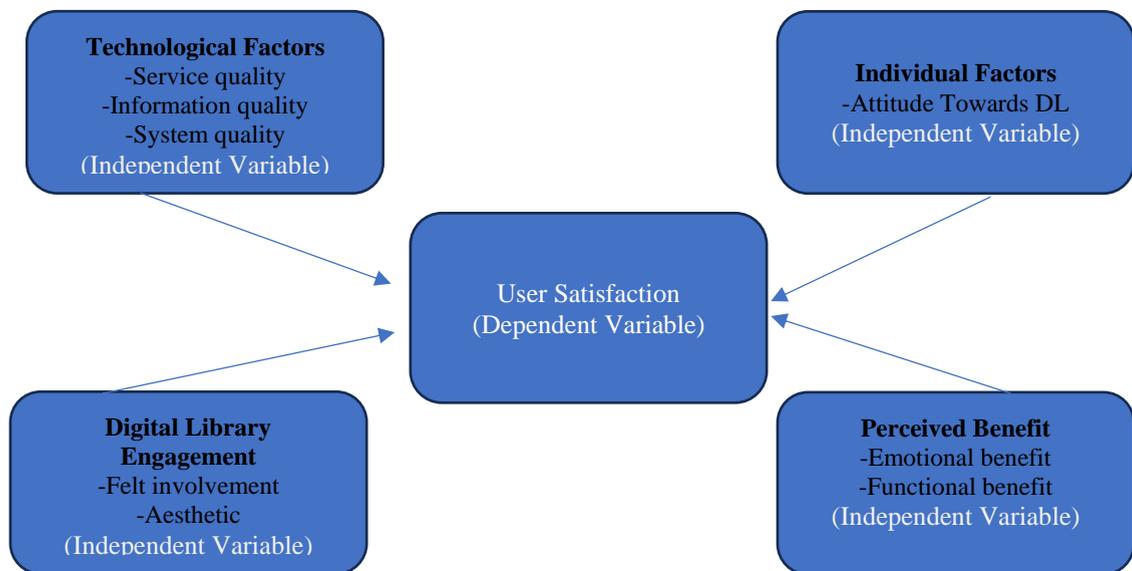**Postgraduate scholars' engagement in digital library collection**

Engaging postgraduate scholars with digital library collections is essential for their educational achievement and research development. UiTM Library offers an orientation program at the start of each academic year to educate new students about the digital library and its collection. Postgraduate students will be familiar with the digital library's features, search capabilities, and available resources. UiTM Library's Literacy Program also helps doctoral students develop digital literacy skills. Aside from that, they offer one-on-one consultations to answer queries and provide guidance on researching complex digital collections. There are numerous awareness initiatives to promote digital library resources among postgraduate students. This includes advertising materials, mailings, and workshops promoting the benefits of digital collections. The collaboration between the UiTM Library and the Institute of Graduate Studies (IPSis) in the Research Skills Seminar is always beneficial to postgraduate students working on research projects that use digital library collections. The digital library platform has a unique and user-friendly interface that enables postgraduate scholars to search for, access, and download information simply. UiTM Digital Library also optimizes the platform for various devices, including desktop and mobile. My Knowledge Management provides complete information search, categorization, and personalization services, allowing UiTM Library users to harness the collected enterprise knowledge assets from a single, logical access point. It is one of the Open Distance Learning (ODL) initiatives to help postgraduates. The UiTM Library implements feedback methods to solicit feedback from postgraduate scholars on their experiences with the digital library. By implementing these steps, the UiTM Library can provide a

welcoming environment for doctoral scholars to engage actively and benefit from digital library collections in their academic pursuits.

THEORETICAL FRAMEWORK AND HYPOTHESIS

A conceptual framework is developed and assessed to examine the relationship between four factors: technological factors, individual factors, digital library engagement, and perceived benefit in UiTM Library that focuses on postgraduate students in UiTM Selangor. The conceptual research framework is shown in Figure 1.

Figure 1: User's satisfaction with digital library

Technological Factors
-Service quality
-Information quality
-System quality
(Independent Variable)

Individual Factors
-Attitude Towards DL
(Independent Variable)

User Satisfaction
(Dependent Variable)

Digital Library Engagement
-Felt involvement
-Aesthetic
(Independent Variable)

Perceived Benefit
-Emotional benefit
-Functional benefit
(Independent Variable)

Based on the framework, this study examines the relationship between all the factors as independent variables and user satisfaction as a dependent variable. Each variable has its dimension, as depicted in Figure 1. In line with the framework, four hypotheses have been developed, as stated below:

- • H1: Technological factors have a positive impact on user satisfaction.
- • H2: Individual factors have a positive effect on user satisfaction.
- • H3: Digital Library engagement has a positive impact on user satisfaction.
- • H4: Perceived benefit has a positive effect on user satisfaction.

LITERATURE REVIEW

Digital libraries are defined as complex systems that assist users in meeting their information needs, providing information services, organizing information in usable ways, presenting information in functional ways, and communicating information with them. This definition focuses on the information lifecycle, in which users' complete tasks and interact with organized information sources to achieve their purpose (Xie & Matusiak, 2016). He also discusses digital library collections, from policy to development, collection assessment, legal difficulties, copyright act, and challenges (Xie & Matusiak, 2016a). (Rosenstein, 2023) this article reveals that electronic resources and digital library collection policies are significantly uniform.

According to (Sharifabadi, 2006 Zhang 2023) agree that digital libraries have the potential to provide unprecedented resources to promote e-learning. (Begum & Elahi, 2022; Habibi et al., 2022; Savarè, 2023; Sujood et al., 2023; Tsekea & Chigwada, 2021) Explain how the digital library services support the user during COVID-19. (Suharto et al., 2021) Presents a correlational investigation on the usefulness of digital libraries for students at public universities. This exploratory study was conducted during a pandemic. Therefore, the reliance on Internet sources is more prominent when a university chooses an online learning technique. Students rely more on digital library sources to complete coursework, projects, and other academic activities. According to (Abdul et al., 2012), the outcomes of this study may provide some insights into the use of Malaysian digital libraries, allowing librarians and other professionals to understand better the variables influencing students continued use of the libraries. This approach might implement relevant procedures and tactics to improve services and increase student usage of the digital library. (Mohamad Rahimi Mohamad Rosman, 2020) In his study, he mentions that the utilization of a digital library can help postgraduate student's complete tasks like paper publication, research proposals, and research excerpts faster. Digital libraries simplify postgraduate work by giving limitless access to digital information. Furthermore, the digital library enables doctoral students to properly plan and define milestones that may be used to lessen the complexity of the assignment.

(O'Brien et al., 2018) "User engagement is a quality of user experience characterized by the depth of an actor's investment when interacting with a digital system (O'Brien, 2016a). Engagement is more than user satisfaction: It is believed that the ability to engage and sustain engagement in digital environments can result in positive outcomes for citizen inquiry and participation, e-health, web search, e-learning, and so on. However, user engagement (UE) is an abstract construct that manifests differently within different computer-mediated contexts, making it challenging to define, design for, and evaluate."

Their findings revealed that a digital library's perceived usefulness and simplicity had a substantial impact on the intention to utilize it. The interface, screen design, and navigation of the digital library make it easier for users to use the system. Individual characteristics influencing people's acceptance of digital libraries include computer self-efficacy, experience, and topic expertise (Abd et al., 2014). Digital libraries aim to enable anyone to access and use human knowledge freely. This study creates a research paradigm to examine prolonged information-seeking via the lenses of psychological empowerment and attachment. The findings show that psychological empowerment has a more favorable impact on extended information seeking. Meanwhile, digital library attachment improves long-term information searching. It identifies one cognitive and one emotional characteristic that predicts protracted knowledge-seeking, which is hampered by the complicated social systems of digital libraries (Zha et al., 2020).

According to (Alwi et al., 2017), to justify the budget for digital library development, monitoring its ongoing use is crucial. The research can help librarians identify elements that encourage users to continue using digital libraries. According to (Ali et al., 2021), the study revealed an essential connection between information quality, system quality, task-technology fit, and user retention in digital libraries. In this paper, they adopt DevOps in digital library development and implement a production digital library platform that supports various digital library operations in the cloud environment (Chen, 2022).(Gaona-Garcia et al., 2017; Li & Liu, 2019; Xie & Matusiak, 2016a) this paper investigates the relationship between digital library interfaces and evaluations. According to (Abdul et al., 2012), the outcomes of this study may provide some insights into the use of Malaysian digital libraries, allowing librarians and other professionals to understand better the variables influencing students continued use of the libraries. This approach might implement relevant procedures and tactics to improve services and increase student usage of the digital library. (Mohamad Rahimi Mohamad Rosman, 2020) His study mentions that using a digital library can help postgraduate student's complete tasks like paper publication, research proposals, and research excerpts faster. Digital libraries simplify postgraduate work by giving limitless access to digital information. Furthermore, the digital library enables doctoral students to properly plan and define milestones that may be used to lessen the complexity of the assignment.

METHODOLOGY

This study uses a quantitative method using a questionnaire as a research instrument. A questionnaire was developed to measure the impact of UiTM Digital Library engagement among postgraduate scholars. It consists of 40 questionnaires covering four parts: demographic information, independent variables (technological and individual factors, digital library engagement, and perceived benefits), and the research instrument uses the 5 Likert scale measurement method in the form of closed-ended questions. A total of 341 respondents were successfully obtained. The location of the study was in UiTM Selangor, where the sample of postgraduate respondents was taken. SPSS software was used to analyze data. Descriptive and mean score analyses were applied to achieve results.

RESULT

The analysis of demographic data revealed that most of our sample is female, with a slightly higher percentage. Furthermore, a considerable proportion of participants purchased master's degrees, as did most full-time postgraduates.

Table 2: Demographic

Gender	Frequency	Percent %
Male	90	26.4
Female	251	73.6
Level of Study	**Frequency**	**Percent %**
Master	271	79.5
PhD	70	20.5
Mode of Study	**Frequency**	**Percent %**
Full time	293	85.9
Part-time	48	14.1
Faculty /College	**Frequency**	**Percent %**
Accountancy	112	32.8
Law	61	17.9
Science Computer & Mathematics	47	13.8
Applied Sciences	44	12.9
Academic Language Studies	12	3.5
Information Management	9	2.6
College of Built Environment	9	2.6
Administrative Science & Policy Studies	7	2.1
Communication & Media Studies	7	2.1
Business & Management	5	1.5
College of Creative Art	5	1.5
Accounting Research Institute (ARI)	4	1.2
Arshad Ayub Graduate Business School (AAGBS)	3	0.9
Civil Engineering	3	0.9
Electrical Engineering	3	0.9
Music	2	0.6
Academy of Contemporary Islamic Studies (ACIS)	2	0.6
Health & Sciences	1	0.3
Medicine	1	0.3
Pharmacy	1	0.3

Hotel & Tourism Management	1	0.3
Chemical Engineering	1	0.3
Mechanical Engineering	1	0.3

The mean provides a central value around which the data points cluster. It is calculated by adding all the values and dividing them by the number of observations. The mean is sensitive to extreme values, so if there are outliers, they can significantly impact the mean. It represents the average of the data, providing a measure of central tendency.

Table 3: Mean score analysis

Predictors	Minimum	Maximum	Mean
Technology Factors	3.62	5.00	4.017
Individual Factors	4.00	5.00	4.027
Digital Library Engagement	3.50	5.00	4.014
Perceived Benefit	3.56	5.00	4.027

DISCUSSION

The findings of this research are a quantitative descriptive analysis of the impact of UiTM digital library engagement among postgraduate scholars. About 341 doctoral students took part in the online survey. All the results were analyzed using the Statistical Package for Social Sciences (SPSS), whereby ranges of descriptive analysis were presented using frequencies to examine the distribution of the responses.

Based on Table 2, out of the 341 samples in this study, the total number of male respondents was 90 or 26.4% of the entire sample, and the female respondents contributed 251 or 73.6% of the research sample. The total number of master's student's respondents was 271 or 79.5% of the entire sample, and 70 Ph.D. student respondents contributed to only 70 or 20.5% of the research sample. The lowest number came from the part-time students' mode of study, which was 48 or 14.1% of the entire sample, and full-time students, 293 or 85.9%.112 respondents, or 32.8%, are from the Faculty of Accountancy, while the lowest respondents come from six faculties and only one respondent. The lowest number of respondents are from the Faculty of Medicine, Faculty of Pharmacy, Faculty of Health & Science, Faculty of Hotel & Tourism, Faculty of Mechanical Engineering, and Faculty of Chemical Engineering.

Tables 3 and 4 determine the investigation of the efficiency of academic digital libraries in meeting postgraduate students' needs by correlating their satisfaction with the following predictors: technological factors, individual factors, digital library engagement, and perceived benefits. The Likert scale used in this study is between 1 (strongly disagree) to 5 (strongly agree). The findings revealed that respondents agreed on technological variables (mean=4.01), followed by individual variables (mean=4.02), digital library engagement (mean=4.01), and perceived benefit (mean=4.02). The overall findings for the impact of the UiTM digital library among postgraduate students are respondents' behavior, as indicated by the total average mean value above (mean 4.00), which is a high score.

CONCLUSION

In conclusion, the study aimed to measure the efficiency of a digital library in dealing with the demands of postgraduate students by examining their satisfaction and its relationship to many key indicators. The investigation examined technological and individual aspects, digital library involvement, and perceived

benefits. This research provided important insights into the multidimensional relationship between postgraduate students and digital library services. Based on the study, findings on predictors are influenced positively by user satisfaction. However, system quality is not significantly positive by user satisfaction on the part of the digital library that keeps error-free transactions (mean 3.96). This study is limited to the postgraduate students in UiTM Selangor Malaysia. The total number of students involved is 341 students. For future research, to obtain more accurate and reliable findings in prospective studies, we require more responses from postgraduate students across all branches of UiTM. The following limitation is that this study only included five factors. My recommendation for future research is to incorporate more factors to improve the validity and reliability of the results.

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