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Digital preservation of electronic theses and dissertations through self-deposit in institutional repositories

Desriyeni [1*], Andi Saputra[2], Shamila Mohamed Shuhidan[3], Leni Marsih[4] Ridha Hasnul Ulya[5]

[1]Library and Information Science Study Program, Universitas Negeri Padang
Jl. Prof. Dr. Hamka, Air Tawar, Padang, 25132, Sumatera Barat, Indonesia
[2]Information, Library, and Archives Science Study Program, Universitas Negeri Padang
Jl. Prof. Dr. Hamka, Air Tawar, Padang, 25132, Sumatera Barat, Indonesia
[3]School of Information Science, Universiti Teknologi MARA
Jl. Ilmu 1/1, 40450 Shah Alam, Selangor, Malaysia
[4]UPT Library, Universitas Andalas
Limau Manis, Kecamatan Pauh, Kota Padang, 25163, Sumatera Barat, Indonesia
[5]Indonesian Language and Literature Education, Universitas Negeri Padang
Jl. Prof. Dr. Hamka, Air Tawar, Padang, 25132, Sumatera Barat, Indonesia

)*Corresponding Author, Email: desriyeni@fbs.unp.ac.id

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ABSTRACT

Background: Digital preservation of Electronic Theses and Dissertations (ETD) is fundamental to sustaining scholarly output in higher education institutions; however, empirical investigations into user satisfaction and socio-technical challenges within self-deposit models globally remain limited, especially in local Indonesian context. **Purpose:** This study examined satisfaction levels and implementation challenges in ETD digital preservation through self-deposit in the institutional repository of Universitas Andalas, Indonesia. **Methods:** Employing a sequential mixed-methods design, quantitative data were collected via a satisfaction survey administered to 174 students who completed the self-deposit process. Analysis used descriptive statistics and validity testing in SPSS, while qualitative insights were derived from semi-structured interviews with repository administrators and library staff, supplemented by workflow observations and analyzed through thematic analysis. **Results:** Results revealed a procedurally structured self-deposit workflow constrained by technical limitations: students reported moderate overall satisfaction (M = 3.46), with the lowest ratings for system performance, especially stability and upload speed, and persistent difficulties with file uploads, metadata completion, and comprehension of deposit guidelines. Conversely, administrative support received the highest satisfaction scores, highlighting users' continued reliance on human assistance. **Conclusion:** Self-deposit alone is insufficient for effective ETD preservation in resource-constrained environments; its sustainability hinges on integrating a robust technical infrastructure with consistent human support to bridge the socio-technical gap between system design and user capabilities. **Implications:** Theoretically, this study contributes to digital preservation literature by foregrounding socio-technical interdependencies in self-deposit adoption beyond Western contexts. In practice, it offers actionable recommendations for repository managers in developing countries, including infrastructure upgrades to enhance system reliability, simplifying metadata schemas and user interfaces, and embedding editor support during the deposit process to strengthen repository sustainability and user autonomy.

Keywords: Digital preservation; Institutional repositories; Self-deposit; Theses and Dissertations; User satisfaction

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INTRODUCTION

University libraries are responsible for archiving and digitizing scientific works produced by the academic community to increase their visibility (Akinola et al., 2024). Currently, libraries face the challenge of ensuring the long-term sustainability of their local content, including student final projects, teaching materials, research reports, and other academic documents (Akinola et al., 2024; Ocran & Afful-Arthur, 2021; Oseghale, 2023). Digital preservation is a strategic solution that can be used to maintain the availability and ease of access to academic library collections, including student final projects, commonly referred to as electronic theses and dissertations (ETDs) (Awamleh & Hamad, 2022). The process of digital preservation in universities involves collecting local content and storing it in institutional repositories (IRs) to ensure easy accessibility to users (Akinola et al., 2024).

The development and utilization of information technology have become more widespread, providing easier access to digital information sources (Haleem et al., 2022). At some universities, ETDs must be uploaded to IR for preservation. This rule applies to all students who are about to graduate as part of the graduation requirements, so that the ETD collection becomes the dominant content of institutional repositories (Marsh, 2015).

The process of storing collections into an IR is usually carried out using three methods, namely: (a) self-deposit, (b) third-party deposit on behalf of the author, and (c) deposit by repository staff (Anyaoku et al., 2019; Mahameed et al., 2021). Of these three methods, self-deposit is the method most widely adopted by universities (Kyprianos & Lygnou, 2022; van Dijk et al., 2021). According to Fujita & Panuto (2024), self-deposit is the basic foundation for the dissemination of scientific information and wide access to the public, because it can increase the flexibility and effectiveness of the process of collecting and managing repository data, accelerate the process of information dissemination, and improve the reputation of the institution (Nisa et al., 2021). Self-deposit makes knowledge available to the research community without financial constraints or other barriers (Björk, 2016).

In practice, applying this method does not always run smoothly. The flexibility offered is not accompanied by consistent document preparation for upload to IR (Quigley, 2022). The completeness and uniformity of metadata entry pose another challenge in applying the self-deposit method, as the material submitted by students is not reviewed before publication. Consequently, documents with quality that do not meet the criteria can still be published (Kindling & Strecker, 2022). Users differ in their understanding of the importance of metadata completeness in a repository. Some of them do not enter metadata properly and correctly (Cromwell, 2023).

Consistency in determining access subjects, metadata, classification, and other rules affects the success of user searches or retrievals (Vardakosta, 2020). Therefore, universities that focus on increasing the impact of research do not recommend applying this method (Rebekah, 2023). Plagiarism and copyright issues are other factors that inhibit digital preservation (Mbughuni et al., 2024). Some depositors are reluctant to upload the documents they have and to allow them to be publicly accessed due to concerns about plagiarism (Mangai & Ganesan, 2022). Differences in internet connection quality among users

are another factor that affects the success of digital preservation using the self-deposit method (Mbughuni et al., 2024; Oberhiri-Orumah & Baro, 2022; Okeji et al., 2020). This is because self-deposit gives users the freedom to upload content locally at any time, from anywhere into IR. Equally important is the power stability and configuration of the server where the repository is stored. The self-deposit method requires the server to maintain a high-quality, stable connection to serve users around the clock (Esse & Haliso, 2024).

Observations show that, at Andalas University, a few days before graduation, there is often a server disruption due to high traffic from users uploading ETDs. This causes students to have difficulty uploading ETDs. In this situation, students need librarians to help upload ETDs, and libraries must provide computers with a stable internet connection for students to use.

This study aims to evaluate the application of the self-deposit method for preserving digital ETDs in university repositories in Indonesia. The evaluation was conducted by identifying policies, benefits, processes, and challenges and obstacles faced. This is because digital preservation of student final projects plays a crucial role in the development of library digital collections (Adam & Kaur, 2023; Oberhiri-Orumah & Baro, 2022). The number of preserved collections is quite large, because they are used as graduation requirements.

Therefore, several problem formulations need to be answered from the results of this study, namely: (1) What is the What is the procedure for digital preservation of ETD using the self-deposit method in the Andalas University repository?; (2) What are the advantages and disadvantages of implementing the self-deposit method in ETD digital preservation?; (3) What are the challenges and obstacles faced in implementing digital preservation of ETD using the self-deposit method in the Andalas University repository?; and (4) What are students' perceptions of the application of the self-deposit method in digital preservation of ETD in the Andalas University repository?

The digital preservation of ETD collections has become a topic of considerable interest to many researchers in various countries, as demonstrated by Akinola et al. (2024) and Masenya & Ngulube (2019) in African universities, as well as Rafiq (2022) in Pakistan. Specifically, for the application of self-deposit methods in the digital preservation of ETD collections, studies have been conducted by Fujita & Panuto (2024), Kodua-Ntim (2024), and Mbughuni et al. (2024). Meanwhile, in Indonesia, research on the effectiveness of self-deposit for the digital preservation of final projects remains limited.

Comparative studies involving different types of repositories and digital preservation approaches are necessary to gain a comprehensive understanding of the policies, governance, challenges, and opportunities associated with self-deposit. This research is expected to significantly contribute to the development of effective and efficient digital preservation strategies for ETD in Indonesia. Self-deposit allows authors or academics to independently upload their documents to repositories (Ezechukwu et al., 2024; Hadad & Aharony, 2024; Nicholson & Bennett, 2021; Xu et al., 2022). This method has great potential to improve the accessibility and long-term preservation of scientific works

(Mahameed et al., 2021). However, its effectiveness depends on several factors, including repository policies, technological infrastructure, and student awareness of the importance of digital preservation.

Various challenges, such as changes in file formats, storage media failures, and the risk of data loss due to cyberattacks or natural disasters, frequently arise during digital preservation (Saputra, 2024; Xie & Matusiak, 2016; Zhou, 2021). The use of institutional repositories as a storage medium is one solution to address this issue. Conducting comparative studies of different repositories can provide valuable insights into best practices for the digital preservation of ETD. The results are expected to provide an overview of: (a) the effectiveness of the application of the self-deposit method in carrying out digital ETD preservation; (b) the ability to identify various challenges and obstacles that have arisen in the implementation of the self-deposit method; and (c) provide insight for universities in Indonesia to develop similar strategies in carrying out digital preservation.

RESEARCH METHODS

This study used a mixed-methods, comparative design to evaluate the effectiveness of the self-deposit method for the digital preservation of students' final projects in university repositories in Indonesia. A mixed-methods approach was chosen to combine quantitative and qualitative data, thereby providing a comprehensive understanding of the phenomenon under study.

This study employed quantitative methods and employed descriptive and explanatory designs. The descriptive design explained the self-upload procedure and the obstacles and challenges encountered in implementing it in students' final assignments. Meanwhile, an explanatory design was used to assess students' perceptions of the self-upload system implemented by the Andalas University library, using criteria such as ease of use, performance, accessibility, service, and timeliness. This research was conducted at the Andalas University Library, which has implemented the self-deposit method since 2016 to preserve students' final assignments digitally in a repository. During that period, of course, many problems were identified in the governance of uploading student final assignments independently.

The population in this study consisted of (a) students who had finished uploading their ETD, (b) repository administrators, (c) staff responsible for managing the repository, (d) editors, staff in charge of verifying the ETD uploaded by students, and (e) leaders of the Andalas University Library. The student population sample was determined using purposive sampling, namely, students who had completed their final assignments and uploaded their work via self-deposit to the repository. The sample consisted of 174 students who were randomly selected while processing their Library Clearance Certificate (one of the requirements is the mandatory upload of the final project to the repository) at the library. The repository administrator is responsible for managing the repository, while the library staff verifies the ETDs uploaded by students.

Data was collected through a combination of methods as follows: (a) Direct observations were carried out on the university repository to evaluate the quality of metadata, file formats, and accessibility of final assignments; (b) Semi-structured interviews were conducted with repository admins and library leaders to

understand the procedures and challenges in implementing the self-deposit method; to assess their perceptions of the effectiveness and experience of self-deposit, ease of use, and support provided by library staff. The research instruments were compiled based on previous studies on digital preservation (Anyaoku et al., 2019; Baro & Nwabueze-Echedom, 2023) and the application of self-deposit methods (Kodua-Ntim, 2024; Tillman, 2017), as well as on information technology user satisfaction (Andrews et al., 2021). The questionnaire was divided into two categories, namely: demographic data and user satisfaction instruments. The satisfaction instrument comprised five criteria, each consisting of 19 questions. The online questionnaire was created using Google Forms. Data were collected by distributing questionnaires via WhatsApp and QR codes to students who had already deposited their ETDs into IR. Data collection was conducted over two months, from July to August 2025, at the Andalas University Library.

The descriptive analysis model was used to describe students' perceptions of the self-upload system's performance, based on their experience uploading the final project into the repository. Data analysis was conducted to map user satisfaction based on five assessment categories: performance, ease of use, accessibility, service, and timeliness, by calculating the average of each assessment indicator. After that, the data were recapped to measure performance across specific categories. All statistical analyses were performed using SPSS version 24.

RESULT AND DISCUSSION

This study successfully collected data from 174 student respondents, comprising 128 females (73.56%) and 46 males (26.44%). The validity test of the entire construct yielded a value of greater than 0.3, indicating that all assessment items were valid and suitable for use. The results of this study were presented under three main criteria: ETD digital preservation procedures; challenges and obstacles encountered in implementing the ETD self-upload model; and student satisfaction with the implementation of the self-upload system at Andalas University library.

Based on interviews with repository administrators and the self-upload guide on the official website of the Andalas University library, the ETD self-upload process generally involved four stages: preparing the files for upload, uploading the files to the repository, registering via the *Pustaka Mandiri* application, and validating the data. For further details, please see Figure 1.

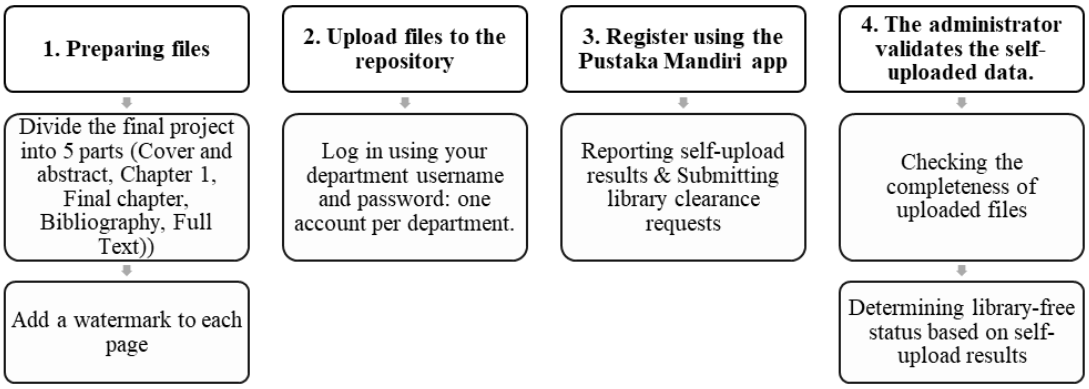

Figure 1 ETD Digital Preservation Procedures at Andalas University
Source: Research result, 2025.

The self-upload process begins with (1) preparing the file to be uploaded. At this stage, students divide the final assignment into five parts: Cover and Abstract, CHAPTER 1, Final CHAPTER, Bibliography, and full text. All these files must be watermarked, in the form of the Andalas University logo; (2) uploading files to the repository (https://scholar.unand.ac.id), students independently uploaded all files that have been prepared previously into the repository. Students upload all files to the repository using their study program account. There is only one account for all students of the study program; (3) Students register to obtain a library-clear certificate using the *Mandiri* Application. One of the registration requirements is the item_id number obtained when uploading the final project to the repository; (4) The repository admin validates the final project files that have been uploaded by the student based on the item_id number that has been registered previously. The materials reviewed included the completeness of the uploaded documents or files and the conformity of the metadata with the established requirements. If the uploaded documents are complete and comply with administrative requirements, the student can determine their library-clear status. If they do not meet the requirements, the administrator will return the proposal with a note listing items that need to be corrected or completed by the student. Students can view these correction notes in their respective Mandiri Application accounts. Through the application, students can also view the library-clear status determined by the administrator.

Preserving ETD digital content in a repository via self-upload was inherently challenging. This study examined these challenges from the perspective of students as depositors, based on their experiences uploading documents. Based on the data collection, 105 students (60.34%) experienced difficulties uploading documents to the repository.

Table 1
Challenges and Duration of Self-Upload Time

Challenges	**Sum**	**%**	**Upload Time Duration**	**Sum**	**%**
Difficulty uploading files	124	71.26%	1 hour	72	41.38%
Difficulty defining the subject	16	9.20%	2 hours	50	28.74%
Difficulty filling in metadata	23	13.22%	3 hours	17	9.77%
Difficulty understanding the guide	21	12.07%	More than 3 hours	35	20.11%

Source: Research result, 2025.

The table shows that 124 people (71.26%) reported problems uploading files to the repository. Other difficulties faced by students included determining the subject of the uploaded document, filling in metadata, and understanding the guidelines, with percentages ranging from 9% to 12%. This was reinforced by respondents' statements when asked who was responsible for uploading their own ETDs. Twenty-seven percent of respondents stated that they used the help of friends or library staff to upload their ETDs to the repository; the rest uploaded their ETDs independently. Likewise, the duration of document uploads varied, with 58.62% requiring more than two hours to complete the independent upload process, resulting in a 32.18% error rate. This indicated that they must make

improvements to the uploaded documents after the editor's review process.

This study aimed to evaluate students' satisfaction with the application of the self-deposit method in the final project self-upload (ETD) process for submission to the Andalas University repository. Data were collected using a questionnaire divided into five categories, each containing 17 questions. Assessments used a five-point Likert scale with a total of 174 respondents. Table 2 shows the results of the data recapitulation.

Table 2
Student Satisfaction with the Self-Upload System

Category	Item	Mean	Std. Deviation
Ease of use	Very easy to access self-upload guides	3.67	0.986
	Very easy to learn and understand the Self-Deposit Guide	3.75	0.946
	It is easy to prepare documents/files according to the required format	3.79	0.920
	It is very easy to upload documents independently to Scholar Unand	3.28	1.140
	Very easy to interact with the Scholar Unand website	3.43	1.028
	Average	***3.58***	
Performance	IR (scholar unand) can operate several commands in a relatively short time	3.31	1.062
	IR (scholar unand) responds to requests and cancellation orders for the process quickly	3.41	0.992
	IR (scholar unand) runs stably when used simultaneously	3.05	1.177
	IR (scholar unand) can upload documents quickly and easily	3.04	1.145
	Average	***3.20***	
Accesibility	I can upload documents anytime and anywhere	3.60	1.036
	I can save the upload temporarily and reaccess it at a later time	3.59	0.937
	IR (scholar unand) can be accessed easily using my internet network	3.41	1.070
	Average	***3.53***	
Service	The editor can be easily contacted for assistance	3.50	0.978
	The editor is there to assist when I have difficulties	3.67	0.862
	The editor responded to my complaint quickly	3.62	0.896
	The editor provided me with the information I needed quickly	3.61	0.878
	Average	***3.60***	
Timeliness	Self-upload results at each stage are presented quickly and on time	3.51	0.984
	Overall, the time required for the self-upload process is relatively fast	3.26	1.126
	I do not experience any delays or obstacles in self-uploading that affect my productivity	3.34	1.089
	Average	***3.37***	
	Overall average	***3.46***	

Source: Research result, 2025.

The survey results indicated that user satisfaction was quite high, with an overall average score of 3.46. The study findings could be explained in more detail based on the following five main dimensions: (1) The ease of use dimension obtained an average of 3.58, indicating that students felt the self-upload process was relatively easy to do. Respondents rated the self-upload guide as quite accessible (mean = 3.67) and relatively easy to understand (mean = 3.75). The ability to prepare documents in the required format was also easy (mean = 3.79). However, the ease of uploading documents independently to the repository had the lowest score in this dimension (mean = 3.28), indicating that some students still experienced technical challenges during the file upload stage. These findings reflected that while the guidance was quite straightforward to understand, the technical experience at upload still needed to be improved; (2) The performance dimension obtained the lowest average, which was 3.20. Although the system was considered quite capable of responding to commands quickly (mean = 3.41) and executing several commands in a relatively short time (mean = 3.31), its stability was a major concern.

The repository's stability when used simultaneously was low (mean = 3.05), as was the system's ability to upload documents quickly and easily (mean = 3.04). This indicated potential bottlenecks, such as server load, large file sizes, or connection interruptions that affected user comfort; (3) The accessibility dimension showed a fairly good level of satisfaction with an average value of 3.53. Students felt they could upload documents anytime, anywhere (mean = 3.60), and the temporary storage feature was considered effective (mean = 3.59). Ease of access via a private internet network (mean = 3.41) also indicated that the system was quite adaptive to varying network conditions. In general, platform accessibility was considered to support student flexibility in the self-uploading process; (4) The editor service dimension scored the highest with an average of 3.60. These results showed that students greatly appreciated editor responsiveness and assistance. Editors were considered easy to contact (mean = 3.50), helpful when problems arose (mean = 3.67), and responsive to complaints and information needs (mean = 3.62 and 3.61). These findings confirmed the importance of staff support in the self-deposit systems, particularly for students encountering technical or administrative challenges**.** (5) The timeliness dimension received an average score of 3.37, indicating that most students considered the self-upload process to be relatively fast and on time. The presentation of upload results at each stage was considered fast (mean = 3.51); however, the overall efficiency of the upload process (mean = 3.26) and the lack of obstacles that hindered productivity (mean = 3.34) remained important issues. This indicated that, despite the system's relative speed, some students still encountered delays or obstacles at certain stages, resulting in suboptimal timeliness.

The study results demonstrated that implementing a self-deposit method for the digital preservation of ETDs at Andalas University significantly improved storage efficiency, accessibility, and student engagement in managing their own scientific work. However, the effectiveness of this method was still affected by several administrative and technical constraints, as well as user digital competency.

Furthermore, the study's findings indicated that the self-deposit procedure

implemented by Andalas University met the basic characteristics of a modern institutional repository, namely, granting depositors the autonomy to upload scientific papers directly. The study's findings revealed that the self-uploading process was executed in stages, starting with file preparation, document upload, library-free registration, and validation by administrators, thereby establishing a structured quality control mechanism.

This practice aligns with the findings of Fujita & Panuto (2024) and Nicholson & Bennett (2021), who stated that the existence of a verification mechanism by an editor or staff responsible for verifying ETD submissions plays a crucial role in maintaining the consistency of metadata and document quality in a self-deposit-based system. While the author is responsible for the initial upload, the editor role remains crucial to ensuring that the document meets academic and technical standards before publication.

However, using a single study program can pose security risks, lead to data duplication, and reduce personal accountability for all students. In the context of global repositories, the use of individual accounts is common practice to ensure the integrity of the upload process and facilitate tracking of user activity. Therefore, authentication policies need to be evaluated to align with best practice principles in institutional repository management.

The study's key findings indicated that over 70% of students experienced difficulties uploading documents, particularly due to file size, network stability, and the technical process of uploading documents independently. This level of difficulty is consistent with the findings of Okeji et al. (2020), who found that limited digital literacy among depositors is one of the most significant obstacles to successful self-deposit implementation.

Students' difficulties in filling in metadata, determining subjects, and understanding upload guidelines indicated that metadata creation remained complex for novice users. This confirms the view (Kindling & Strecker, 2022) that metadata quality in self-deposit systems often varies and depends on depositors' understanding of bibliographic description standards. This condition can affect the effectiveness of information retrieval in repositories, as Vardakosta (2020) stated.

In addition, the finding that 27% of university students asked others to help them upload showed that the system was not fully user-centered. In higher education, this condition has the potential to diminish the educational value of self-deposit as a means of improving students' academic technology literacy.

The performance dimension had the lowest average score (3.20), particularly in system stability and file upload speed. This suggested that the repository's infrastructure is not yet optimized to handle large, simultaneous uploads. This finding aligns with a report by Esse & Haliso (2024), which emphasizes that the success of self-deposit repositories is largely determined by server capacity, network bandwidth, and service stability. If the system is unresponsive or slow, depositors may experience upload failures, which can create additional burdens for administrators and students. In the long run, this condition can affect user perception of the reliability of institutional repositories.

The editorial service dimension was the highest indicator (3.60), indicating that

interpersonal support from repository staff played a significant role in mitigating technical and administrative constraints. This finding supports the research results of Andrews et al. (2021) and Baro & Nwabueze-Echedom (2023), which stated that the preparedness of support services significantly influences the successful implementation of information technology systems in libraries.

The success of editors in providing quick, accurate responses has been shown to increase user trust in the system while reducing the risk of frustration caused by technical issues. This emphasizes that while self-deposit is designed to reduce reliance on staff, human intervention is still needed to ensure a smooth process and increased user satisfaction.

The high average score on the accessibility dimension (3.53) indicated that the repository met student expectations regarding flexibility of time and place. This finding aligns with the concept of open access proposed by Björk (2016), which emphasizes the need for repositories to provide broad access that is not limited by space or time.

Although the average timeliness score (3.37) indicated a fairly good criterion, the finding that 58.62% of students took more than 2 hours to complete the upload process suggested that the system's efficiency still needed improvement. The long duration was caused by technical issues, metadata errors, and document revisions made by administrators. In modern repositories, the self-deposit process should be fast and frictionless. The time constraints students faced underscored the need for process simplification, enhanced visual guidance, and more intuitive system integration.

Theoretically, this study enriches the literature on self-deposit practices in developing countries, particularly in Indonesian universities, which are rarely explored in international research. The study's results confirmed that self-deposit effectiveness was determined not only by technological infrastructure but also by human factors, policies, and users' digital competencies.

In practice, this study provides strategic recommendations for improving the implementation of self-deposit, including: (a) increasing server capacity and optimizing upload speeds, (b) providing individual accounts for students, and (c) developing interactive video guides. These recommendations are expected to enhance the sustainability of institutional repositories and expand their role as effective means of digital preservation.

CONCLUSION

This study demonstrates that the self-deposit method for digital preservation of Electronic Theses and Dissertations at Andalas University effectively promotes learner autonomy and accessibility; however, its overall success remains fundamentally contingent on the synergistic alignment of technical infrastructure, institutional policies, and users' digital competencies. Regarding the effectiveness of the submission workflow, the findings confirm that a structured upload procedure, coupled with editor validation, establishes a functional quality-control mechanism that maintains metadata consistency and document integrity. In response to the research question examining user experience dynamics, the results reveal a satisfaction-dependency paradox: high student satisfaction primarily reflects appreciation

for responsive human mediation rather than seamless interface design, indicating that interpersonal support critically compensates for technical friction in resource-constrained academic environments. Concerning the investigation into system performance, the evaluation identifies server capacity and upload instability as primary bottlenecks, confirming that infrastructure optimization is essential to sustain seamless concurrent submissions and long-term user engagement. Regarding metadata management challenges, the findings establish that accurate subject classification and repository discoverability require integrating controlled vocabularies, discipline-specific templates, embedded literacy tutorials, and AI-assisted categorization tools to minimize revision cycles and enhance scholarly visibility. Despite these contributions, the study is limited by its single-institution scope, reliance on self-reported data, which is susceptible to response bias, and a cross-sectional design that precludes longitudinal tracking of system adaptations. Moving forward, subsequent research will employ a multi-institutional comparative design, integrate objective systems analytics with qualitative feedback, and utilize an action-research framework to prototype and evaluate metadata-supporting interventions, while institutional next steps will prioritize server upgrades, individualized authentication protocols, and multimodal instructional resources to cultivate a scalable, user-centered digital preservation ecosystem.

CONFLICT OF INTEREST

The author(s) declare that there is no conflict of interest.

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DATA AVAILABILITY

Data generated during the research have been included in the article**.**

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