

EVALUATION OF A DIGITAL LIBRARY IN SUPPORTING STUDENTS' INDEPENDENT LEARNING USING THE CIPP MODEL AT PEPABRI UNIVERSITY, MAKASSAR

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Abstract

Digital transformation in higher education requires the availability of adaptive learning facilities, including digital libraries that support students' independent learning. This study aims to evaluate the development and implementation of a digital library in fostering independent learning at Pepabri University Makassar using the CIPP (Context, Input, Process, Product) evaluation model. In addition, the study assesses the effectiveness of system implementation in terms of student engagement and its integration into the learning process. A qualitative research approach was employed, with data collected through in-depth interviews, observations, and documentation involving students, lecturers, librarians, and academic managers. The findings reveal that, from the context dimension, the development of the digital library has not been based on a systematic analysis of user needs. From the input aspect, although infrastructure is available, it is not sufficiently supported by user competencies or integrative institutional policies. In the process dimension, the digital library has not been formally integrated into the curriculum or learning activities. From the product perspective, system utilization remains incidental and has not significantly enhanced students' independent learning. Student engagement with the digital library is also relatively low due to limited guidance, training, and the absence of formal policies encouraging system integration into teaching practices. This study recommends conducting periodic needs assessments, strengthening digital literacy training, integrating digital libraries into course learning plans (RPS), and implementing continuous evaluation to improve system effectiveness. The findings contribute to strengthening digital library governance as a strategic instrument for independent learning in the digitalization era of higher education.

Keywords: Digital Library, Self-Directed Learning, CIPP Evaluation, Student Engagement, Higher Education

Abstrak

Transformasi digital di pendidikan tinggi memerlukan ketersediaan fasilitas pembelajaran adaptif, termasuk perpustakaan digital yang mendukung pembelajaran mandiri mahasiswa. Penelitian ini bertujuan untuk mengevaluasi pengembangan dan implementasi perpustakaan digital dalam mendukung pembelajaran mandiri di Universitas Pepabri Makassar menggunakan model evaluasi CIPP (Kontekstual, Masukan, Proses, Hasil). Selain itu, penelitian ini menilai efektivitas implementasi

sistem dalam hal keterlibatan mahasiswa dan integrasinya ke dalam proses pembelajaran. Pendekatan penelitian kualitatif digunakan, dengan data dikumpulkan melalui wawancara mendalam, observasi, dan dokumentasi yang melibatkan mahasiswa, dosen, pustakawan, dan manajer akademik. Temuan menunjukkan bahwa, dari dimensi konteks, pengembangan perpustakaan digital belum didasarkan pada analisis sistematis kebutuhan pengguna. Dari aspek masukan, meskipun infrastruktur tersedia, namun tidak didukung secara memadai oleh kompetensi pengguna atau kebijakan institusional yang integratif. Dari dimensi proses, perpustakaan digital belum secara formal diintegrasikan ke dalam kurikulum atau aktivitas pembelajaran. Dari perspektif produk, pemanfaatan sistem masih bersifat insidental dan belum secara signifikan meningkatkan pembelajaran mandiri mahasiswa. Keterlibatan mahasiswa dengan perpustakaan digital juga relatif rendah akibat kurangnya bimbingan, pelatihan, dan ketidakhadiran kebijakan formal yang mendorong integrasi sistem ke dalam praktik pengajaran. Studi ini merekomendasikan untuk melakukan penilaian kebutuhan secara berkala, memperkuat pelatihan literasi digital, mengintegrasikan perpustakaan digital ke dalam rencana pembelajaran mata kuliah (RPS), dan menerapkan evaluasi berkelanjutan untuk meningkatkan efektivitas sistem. Temuan ini berkontribusi pada penguatan tata kelola perpustakaan digital sebagai alat strategis untuk pembelajaran mandiri di era digitalisasi pendidikan tinggi.

Kata Kunci: Perpustakaan Digital, Pembelajaran Mandiri, Evaluasi CIPP, Keterlibatan Mahasiswa, Pendidikan Tinggi

INTRODUCTION

The rapid development of information and communication technology has significantly transformed the landscape of higher education, particularly in the provision of learning resources and the facilitation of independent learning. Students are increasingly required to learn autonomously, flexibly, and sustainably in line with 21st-century education principles that emphasize digital literacy, critical thinking, and the ability to search for, evaluate, and utilize information independently (Dhita & Nurdiansyah, 2022; Febriana & Ribhan, 2022). In this context, digital libraries have emerged as strategic instruments to support the achievement of independent learning through access to various electronic-based knowledge resources, such as e-journals, e-books, institutional repositories, and other open-access sources that can be accessed anytime and anywhere (Fadila et al., 2021; Wola, 2023).

Digital libraries represent not merely a technological innovation but also a transformation of academic culture that requires institutional readiness, lecturer engagement, and student adaptability in responding to shifts in learning paradigms (Nasrullah et al., 2024; Rohana & Ridwan, 2020). The availability of digital libraries facilitates the decentralization of learning processes, reducing students' dependence on classrooms and lecturers as the sole sources of information (Dewi et al., 2021). However, the effectiveness of digital library utilization is strongly influenced by the quality of system development, the relevance of digital collections, institutional support, and students' information literacy skills (Dzakirah et al., 2023). Consequently, the development of digital libraries must be continuously evaluated in relation to their effectiveness in fostering sustainable independent learning (Ananda et al., 2024).

At Universitas Pepabri Makassar, initiatives to strengthen independent learning have been implemented through the development of digital library facilities connected to various national and international academic sources (Saputri & Manggalani, 2024). Despite these efforts, implementation challenges remain evident, including issues related to digital infrastructure readiness, content quality, user digital literacy, and the effectiveness of academic mentoring programs that encourage students to utilize digital resources actively in their learning processes (Fajri & Aisiah, 2022). Although policies and facilities have been established, there has been no systematic evaluation examining whether the development of digital libraries has had a tangible impact on enhancing students' independent learning (Prasetyo et al., 2022).

Previous studies on digital libraries in higher education have predominantly focused on technical aspects, such as system usability, service satisfaction, or usage statistics of digital collections (Hendriyani et al., 2022; Saputra & Salim, 2020). For instance, Prasetyo et al. (2022) reported that e-library availability improves students' convenience in accessing references but did not assess its direct contribution to learning independence (Rosalia & Masruri, 2024). Similarly, Fadila et al. (2021) emphasized the importance of library digitization in the post-pandemic era without adopting a comprehensive evaluative framework (Asnawati, 2022).

A notable gap in the literature is the limited use of systematic evaluation models, particularly the CIPP (Context, Input, Process, Product) model, to assess the role of digital libraries in promoting independent learning (Erza et al., 2020). The CIPP model is widely recognized as a comprehensive framework for evaluating educational programs, as it examines not only outcomes but also program background, resource allocation, implementation processes, and achieved results (Baskoro, 2022; Stufflebeam, 1998; Oktafiani & Wasisto, 2023; Rahmiati & Rasyid, 2024). By applying this model, evaluations can provide holistic insights into program effectiveness and inform evidence-based decision-making (Jayanti, 2021).

In the context of private higher education institutions such as Universitas Pepabri Makassar, the need for systematic evaluation of digital library development is increasingly urgent. Limitations in budget, infrastructure, and access to global academic resources often pose significant challenges in delivering academic services comparable to those of larger universities. Observations indicate that although students have access to digital library systems, utilization remains relatively low, with many students relying on lecturer-provided materials or unverified external sources. This condition suggests a gap between facility availability and students' digital literacy competencies.

Therefore, this study aims to evaluate the development of independent learning through digital libraries at Universitas Pepabri Makassar using the CIPP evaluation model. By examining the context, input, process, and product dimensions, this study seeks to provide a comprehensive assessment of program effectiveness and to offer strategic recommendations for strengthening digital library governance as a sustainable independent learning instrument in the digital era of higher education.

METHOD

This study employed a descriptive qualitative approach to evaluate the development of students’ independent learning through digital libraries at Universitas Pepabri Makassar. A qualitative design was selected to obtain an in-depth understanding of program implementation, stakeholder perspectives, and contextual factors influencing the utilization of digital libraries in the academic environment. The evaluation was conducted using the CIPP (Context, Input, Process, Product) evaluation model developed by Stufflebeam (2014), which enables a comprehensive assessment of educational programs by examining not only outcomes but also program background, resource readiness, implementation processes, and achieved results. The CIPP model was chosen because it provides a holistic framework for evaluating the effectiveness of digital library development as an independent learning medium. This model facilitates systematic analysis of policy alignment and institutional needs (context), availability and adequacy of resources (input), implementation mechanisms and integration into learning activities (process), and the outcomes or impacts on students’ independent learning (product). In addition, this study assessed the effectiveness of digital library implementation in terms of student involvement and the extent to which the system has been integrated into the campus learning process.

Data were collected from both primary and supporting informants. The primary informants consisted of 15 students of Pepabri University of Makassar who had actively utilized the digital library for independent learning activities. These participants were selected using purposive sampling to ensure relevance to the research objectives (Lenaini, 2021). Supporting informants included two lecturers, two librarians, and one academic manager who were directly involved in the planning, implementation, and evaluation of the digital library program. Data collection techniques included in-depth interviews, observations, and document analysis. Interviews were conducted to explore participants’ experiences, perceptions, and evaluations of the digital library system. Observations focused on actual usage practices and integration of digital library resources in learning activities, while documentation analysis involved reviewing institutional policies, program reports, and supporting academic documents. To clarify the relationship between evaluation components and data sources, a classification of data sources based on the CIPP evaluation model is presented in Table 1.

Table 1. Data Sources for Evaluation of Independent Learning Development Through Digital Libraries

COMPONENT	ASPECT	INDICATOR	DATA SOURCE	DATA COLLECTION INSTRUMENTS
CONTEXT	Vision and mission	Clarity of vision and mission of system development	Students, lecturers, academic managers	Interview, Observation, Document Study

INPUT	User requirements	System suitability to user needs based on <i>need assessment</i>	Students, lecturers, academic managers	Interview, Observation, Document Study
	Program socialization	Intensity and effectiveness of program socialization to users	Students, lecturers, academic managers	Interview, Observation, Document Study
	Infrastructure	Availability of supporting infrastructure (network, computers, system access)	Students, lecturers, librarians	Interview, Observation
	User literacy	HR readiness (student digital literacy, lecturer training)	Students, lecturers, librarians	Interview, Observation
	Institutions and system integration	Institutional policies and system integration into the curriculum	Students, lecturers, librarians	Interview, Observation
PROCESS	Use of systems in learning	Use of systems in formal learning processes (assignments, discussions, references)	Students, lecturers, librarians	Interview, Observation, Document Study
	System integration involvement	Involvement of lecturers and librarians in system integration	Students, lecturers, librarians	Interview, Observation, Document Study
	Program monitoring and evaluation	Periodic monitoring and evaluation of program implementation	Students, lecturers, librarians	Interview, Observation, Document Study
PRODUCT	Student learning independence	Level of student learning independence	Students, lecturers, librarians, system data	Interview, Observation, System documentation

Frequency and pattern of system usage	Frequency and pattern of reflective system use	Students, lecturers, librarians, system data	Interview, Observation, System documentation
Provision of evaluation data	Availability of evaluative data on the impact of the system	Students, lecturers, librarians, system data	Interview, Observation, System documentation

Informant Selection

The selection of informants was based on their level of involvement in the utilization and management of the digital library system, as well as their capacity to provide relevant information in relation to the two main focuses of this study: the CIPP-based evaluation and the effectiveness of implementation in terms of student involvement and system integration. This criterion-based selection ensured that the data obtained reflected both user experiences and institutional perspectives on digital library development.

Data Collection Techniques

Data collection was conducted using three primary techniques over a period of two months, with simultaneous implementation to support data triangulation. First, in-depth interviews were carried out with students, lecturers, librarians, and academic managers. Interview guidelines were developed based on the four components of the CIPP model context, input, process, and product and were further adapted to explore the level of student involvement and the integration of the digital library system into formal learning processes. Second, participatory observation was employed to examine students' behavior in utilizing the digital library system, both inside and outside the classroom. Observations focused on usage frequency, access patterns, and tendencies of system integration in academic tasks and learning activities. Third, documentation analysis was conducted to review supporting documents, including digital library program reports, inventories of digital collections, relevant academic policies, and evidence of system integration within syllabi or course learning plans (RPS).

Data Analysis

Data were analyzed using qualitative thematic analysis (Najmah, 2023). The analysis followed three main stages: (1) data reduction, involving the selection, filtering, and categorization of data according to the CIPP evaluation components and indicators of implementation effectiveness; (2) data display, presented through narrative descriptions and evaluative matrices; and (3) conclusion drawing and verification (Miles et al., 2018). The analytical process was directed at addressing two research questions: assessing the alignment among context, input, process, and product elements in digital library development, and evaluating the effectiveness of implementation in terms of student involvement and integration into the campus learning system. Recurring themes

and consistent patterns across data sources were used as the basis for interpretation and evaluative conclusions.

Trustworthiness of Data

The trustworthiness of the data was ensured through triangulation techniques involving both data sources and methods (Sugiyono, 2020). Source triangulation was achieved by comparing information obtained from students with that from lecturers, librarians, and academic managers to validate perspectives across different stakeholder groups. Method triangulation was conducted by integrating findings from interviews, observations, and document analysis to obtain a comprehensive understanding of the research phenomenon. In addition, member checking was performed by confirming the summarized interpretations with informants to enhance credibility and accuracy. These procedures were implemented to ensure consistency, transparency, and reliability in the conclusions of this evaluative study.

RESULT AND DISCUSSION

This section presents the findings of the evaluation of the development of students' independent learning through digital libraries at Universitas Pepabri Makassar. The evaluation employed the CIPP (Context, Input, Process, Product) model as a comprehensive framework to assess program relevance, resource readiness, implementation practices, and achieved outcomes. This model was selected due to its capacity to capture the complexity of program implementation within a dynamic higher education environment.

The findings are based on primary data obtained through in-depth interviews with students, lecturers, librarians, and academic managers, supported by direct observations in the digital library environment and learning activities. Documentation analysis was also conducted to examine institutional policies, course learning plans (RPS), and student academic outputs. The triangulation of interviews, observations, and documentation strengthened the empirical validity of the findings.

The digital library development program represents the institution's strategic effort to strengthen literacy culture, expand access to learning resources, and promote independent learning. However, preliminary findings indicate that the system has not been optimally utilized by the academic community, either as a primary learning resource or as an integral component of academic activities. The evaluation results are presented according to the four dimensions of the CIPP model.

Context Evaluation

The context evaluation examines the alignment of the digital library program with user needs, policy direction, and system socialization. Table 2 summarizes the evaluation results for the context indicators.

Table 2. Context Evaluation Results

NO	INDICATOR	FULFILLED	NOT FULFILLED
1	Clarity of vision and mission of system development	✓	
2	System suitability to user needs based on needs assessment		✓
3	Effectiveness of program socialization to users		✓

The findings indicate that only the clarity of vision and mission is fulfilled. Although the digital library's vision and mission are formally documented, there has been no systematic user needs assessment, and program socialization has not been conducted effectively.

Interviews with students revealed limited awareness of the system's purpose. One student stated, "I only know this system as a place to view old theses." Another student reported never receiving any explanation regarding the objectives or utilization of the digital library. These statements indicate the absence of structured socialization.

This finding is reinforced by lecturers and academic managers, who acknowledged that the system was developed as a response to digital transformation without a prior needs assessment. The consistency of information across stakeholder groups demonstrates weak needs-based planning and insufficient communication, validating the findings through data triangulation.

Input Evaluation

The input evaluation focuses on the readiness of resources, including infrastructure, human resources, and institutional support. The evaluation results are summarized in Table 3.

Table 3. Input Evaluation Results

NO	INDICATOR	FULFILLED	NOT FULFILLED
1	Availability of supporting infrastructure	✓	
2	Human resource readiness (digital literacy and training)		✓
3	Institutional policy and curriculum integration		✓

The findings show that while infrastructure such as internet access, computers, and digital catalogs is available, human resource readiness and policy support are inadequate. Students reported a lack of training and uncertainty in using system features. Lecturers similarly indicated that they had never received training or guidance on integrating the digital library into learning activities.

Observations confirmed these findings, showing that students tended to access only basic features and lacked guidance materials or technical assistance. Librarians

confirmed that their role was limited to technical system management, without involvement in user training or instructional integration.

These findings indicate that although material input is sufficient, non-material inputs such as user competence, training, and institutional policy are weak, limiting the system's effectiveness as an independent learning medium.

Process Evaluation

The process evaluation examines the integration of the digital library into learning practices and the involvement of key actors. Table 4 presents the evaluation results.

Table 4. Process Evaluation Results

NO	INDICATOR	FULFILLED	NOT FULFILLED
1	Use of system in formal learning activities	✓	
2	Lecturer and librarian involvement	✓	
3	Monitoring and evaluation mechanisms	✓	

None of the process indicators were fulfilled. Students reported that lecturers did not require or encourage the use of the digital library in assignments or discussions. Lecturers confirmed that the system was not included in course learning plans (RPS) and that no institutional direction existed to integrate it into teaching.

Observations of classroom activities and student assignments revealed minimal use of digital library resources, with most references sourced from general online platforms. There was no evidence of structured coordination between lecturers and librarians or systematic monitoring of system utilization. These findings indicate that the digital library operates separately from the pedagogical process, lacking formal integration, coordination, and evaluative mechanisms.

Product Evaluation

The product evaluation assesses the extent to which the program has achieved its intended outcomes, particularly in fostering independent learning and digital literacy. Table 5 summarizes the results.

Table 5. Product Evaluation Results

NO	INDICATOR	FULFILLED	NOT FULFILLED
1	Improvement in student independent learning	✓	
2	Reflective and sustained system use	✓	
3	Availability of impact evaluation data	✓	

The findings indicate that none of the product indicators were achieved. Students reported using the system only for temporary needs, such as attaching references to assignments, without deep engagement or understanding. Lecturers observed no significant improvement in student independence or academic quality.

Document analysis confirmed that student assignments rarely cited digital library resources, and no institutional data existed to evaluate system impact. The absence of monitoring and impact assessment mechanisms further limited the ability to measure program outcomes. Overall, the digital library has not yet contributed meaningfully to the development of an independent learning culture at University Pepabri of Makassar.

DISCUSSION

The context evaluation reveals that the development of the digital library was not grounded in a comprehensive user needs analysis. Students and lecturers were excluded from the planning process, resulting in low ownership and limited engagement. In the CIPP framework, context evaluation is fundamental for validating program relevance and feasibility (Kurniawati, 2021). The lack of needs-based planning created a gap between institutional objectives and actual academic practices.

From the input perspective, the imbalance between infrastructure availability and user readiness reflects weak non-material inputs. The absence of training, policy support, and cross-unit collaboration limited the system's functionality. According to the CIPP model, effective input must include competencies, policies, and institutional commitment (Tsani et al., 2021).

The process evaluation demonstrates that the digital library has not been integrated into formal learning activities. Lecturers and librarians operate independently without coordination, and students do not perceive the system as part of their academic routine. This finding aligns with the CIPP principle that implementation effectiveness depends on actor involvement and systemic integration (Rama et al., 2023).

Finally, the product evaluation shows that the program has not achieved its intended outcomes. The absence of sustained usage, reflective learning behavior, and impact evaluation data indicates that the digital library remains symbolic rather than transformative. In the CIPP perspective, program success is measured by tangible impacts on users (Zakir, 2021; Nukhbatillah et al., 2024). Overall, the findings suggest that strengthening needs-based planning, human resource capacity, policy integration, and evaluative mechanisms is essential for transforming the digital library into an effective instrument for independent learning.

CONCLUSION

This study concludes that the development of independent learning through digital libraries at University Pepabri of Makassar, as evaluated using the CIPP (Context, Input, Process, Product) model, has not yet been implemented optimally. From the context dimension, the absence of a systematic needs analysis has resulted in limited understanding among students and lecturers regarding the objectives, functions, and strategic value of the digital library. Consequently, the program orientation has not been aligned with actual user needs and academic practices.

From the input perspective, although digital infrastructure and system availability are adequate, supporting elements such as digital literacy training, institutional policies, and clear usage guidelines remain insufficient. This imbalance between material and non-

material inputs has constrained effective system utilization. In the process dimension, the digital library has not been formally integrated into the curriculum, course learning plans (RPS), or instructional strategies, leading to low levels of active use in academic activities. The lack of coordination between lecturers and librarians, as well as the absence of routine monitoring and evaluation, further weakens program implementation.

In terms of product, the digital library has not demonstrated a significant impact on improving academic quality, information literacy, or students' independent learning. System use remains incidental and has not yet become embedded within the institutional learning culture. Based on these findings, this study recommends conducting periodic needs assessments, strengthening digital literacy capacity for lecturers and students, integrating digital libraries into RPS and teaching practices, and developing a data-based monitoring system to measure learning independence and system utilization. These efforts are essential to establishing a sustainable academic ecosystem that supports independent learning grounded in strong digital literacy.

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