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**Practice-based community service through P3NKK internship at Telkom University Open Library**

**Nasya Putri Fadilla**  
Universitas Pendidikan Indonesia, Kota Bandung, Indonesia  
[nasyaputrifadilla@upi.edu](mailto:nasyaputrifadilla@upi.edu)

**ABSTRACT**

Program Penguatan Profesional Kepustakaan Non Kependidikan (P3NKK) is a practice-based community service initiative that enhances students' professional competencies through direct experience in an academic library. The program was conducted at Telkom University Open Library over 40 working days (November 18, 2024-January 24, 2025) and involved three students from the Library and Information Science study program. The program employed a structured rotation system across three service areas: circulation services (17 days), reference services (13 days), and library material processing (10 days). The methods included hands-on practice, participatory observation, guided discussions, and continuous mentoring by professional librarians. The results demonstrate that the students made tangible contributions to library operations, including processing 204 scholarly documents for *e-proceedings*, handling 51 library clearance letters, cataloging 83 *e-books*, and processing 61 donated collections. The program also significantly enhanced students' technical skills (cataloging, classification, and library technologies) as well as soft skills (communication, problem-solving, and professionalism). In addition, six key operational challenges were identified, along with proposed solutions to improve service. Overall, the P3NKK program effectively bridges academic theory and professional librarianship practice.

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**ABSTRAK**

Program Penguatan Profesional Kepustakaan Non Kependidikan (P3NKK) merupakan kegiatan pengabdian berbasis praktik yang bertujuan memperkuat kompetensi profesional mahasiswa kepustakawanan melalui pengalaman kerja langsung di perpustakaan perguruan tinggi. Program ini dilaksanakan di Telkom University Open Library selama 40 hari kerja (18 November 2024-24 Januari 2025) dengan melibatkan tiga mahasiswa Program Studi Perpustakaan dan Sains Informasi. Pelaksanaan program menggunakan sistem rotasi terstruktur pada tiga area layanan, yaitu layanan sirkulasi (17 hari), layanan referensi (13 hari), dan pengolahan bahan pustaka (10 hari), dengan metode praktik langsung, observasi partisipatif, diskusi terpandu, dan pendampingan pustakawan. Hasil pengabdian menunjukkan kontribusi nyata mahasiswa terhadap operasional perpustakaan, antara lain pengolahan 204 dokumen *e-prosiding*, pelayanan 51 Surat Bebas Kewajiban Perpustakaan, katalogisasi 83 *e-book*, dan pengolahan 61 koleksi sumbangan. Program ini juga meningkatkan kompetensi teknis (katalogisasi, klasifikasi, dan pemanfaatan teknologi perpustakaan) serta kompetensi non-teknis (komunikasi, pemecahan masalah, dan profesionalisme). Selain itu, teridentifikasi enam permasalahan operasional utama beserta alternatif solusi sebagai bahan perbaikan layanan. Secara keseluruhan, P3NKK efektif menjembatani teori akademik dan praktik profesional kepustakawanan.

**Kata Kunci:** P3NKK; pengabdian berbasis praktik; perpustakaan perguruan tinggi; praktik profesional

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## INTRODUCTION

Libraries in higher education institutions serve as the backbone of academic excellence, providing essential resources and services that support teaching, learning, and research. As academic libraries continue to evolve in the digital era, they face increasing demands to deliver diverse services while maintaining operational efficiency (Onunka *et al.*, 2023; Ullah & Usman, 2023). The integration of technology, the expansion of collection types, and the continuously evolving user expectations require librarians to possess not only theoretical knowledge but also practical competencies acquired through direct workplace experience (Susinta & Junandi, 2022). This professional development becomes particularly crucial for Library and Information Science students, who must bridge the gap between classroom learning and real-world library operations (Jaya, 2024).

The Program Penguatan Profesional Kepustakaan Non Kependidikan (P3KNK) is a structured internship initiative designed to enhance students' professional capabilities through immersive learning experiences in libraries. This program aligns with the Tri Dharma of higher education, particularly in the domain of education and instruction, by providing students with opportunities to apply theoretical concepts in authentic work environments (Meidina *et al.*, 2025; Subangkit *et al.*, 2025). Previous studies indicate that experiential learning and internship programs in library settings can significantly enhance students' professional competencies. Internship programs in academic libraries have been shown to improve students' technical skills across various library operations and user services (Goyal & Saini, 2025). Furthermore, internship experiences contribute to the development of professional skills among Library and Information Science students within the context of library services. As a form of experiential learning, internships are considered effective in connecting theory to practice and strengthening students' work readiness. Other findings reveal that practical skills, such as information services and collection management, improve following the implementation of library internships (Nwokike, 2022).

Recent literature has explored various aspects of professional development within academic libraries. The role of mentoring in library internship programs has been shown to substantially contribute to the formation of professional identity through guided learning experiences. The integration of technology in library services also necessitates hands-on training, particularly in mastering automation systems and digital platforms (Wasilah *et al.*, 2025). Additionally, experience in collection development is regarded as essential in preparing future librarians to navigate the continuously evolving information landscape (Hardianty *et al.*, 2024). Nevertheless, despite the valuable contributions of these studies, comprehensive research documenting the implementation and outcomes of professional-strengthening programs in open libraries remains limited, particularly research that emphasizes technology-based services and collaborative learning approaches.

The scientific novelty of this study lies in its comprehensive examination of a professional development program implemented within an open library environment that integrates circulation, reference, and collection processing through a systematic rotation system. This study also contributes to understanding how the open library concept, characterized by accessibility, knowledge sharing, and technological innovation, fosters a unique learning environment for the development of future librarians. The rotation-based approach used in this program, in which students systematically experience various library operations, provides new insights into effective internship design that have not been extensively explored in the literature.

The implementation of P3KNK at the Telkom University Open Library presents several issues that warrant systematic investigation. These issues include integrating students into daily library operations without compromising service quality; effectively transferring knowledge from experienced librarians to interns; developing competencies in both traditional library functions and emerging digital services; and assessing learning outcomes across diverse library activities. Furthermore, questions arise regarding how students

can meaningfully contribute to library operations while simultaneously acquiring professional skills, and how the open library philosophy influences internship experiences and learning outcomes.

The purpose of this study is to document and analyze the implementation of the P3KNK program at Telkom University Open Library by examining the activities undertaken, the competencies developed, and the outcomes achieved during the 40 working days of professional strengthening. Specifically, this study aims to describe the operational processes of circulation services, reference services, and collection processing as experienced by the interns; to evaluate the effectiveness of the rotation system in developing comprehensive library competencies; to identify the challenges encountered during program implementation along with their solutions; and to assess the contributions of the interns to library operations and services. Through this comprehensive analysis, the study seeks to provide evidence-based insights to inform the development of more effective professional-strengthening programs within academic library environments.

## Literature Review

### Professionalization of Librarianship in Higher Education Libraries

The professionalization of librarianship refers to the process of developing librarians' competencies, attitudes, and skills to enable them to perform strategic roles in managing and delivering information services effectively. Within higher education libraries, librarians' professionalism is a key factor in supporting education, research, and community service activities. In this regard, the International Federation of Library Associations and Institutions (IFLA), through various professional guidelines, emphasizes that librarians are required not only to master technical aspects of librarianship but also to possess adaptive capabilities in responding to the advancement of information technology and increasingly complex user needs ([Abdullahi et al., 2024](#); [Shlenova, 2025](#)).

The Indonesian National Work Competency Standards (Standar Kompetensi Kerja Nasional Indonesia/SKKNi) for the Library Sector state that library professionals must demonstrate competencies in collection development, organization of library materials, library services, and the use of information and communication technology ([Utomo & Hery, 2020](#)). This competency framework provides an essential foundation for designing professional-strengthening programs, including practice-based initiatives such as P3KNK. However, the demands of librarians' professionalism in the digital era extend beyond these national standards. The competency model for twenty-first-century librarians highlights the importance of future skills such as digital literacy, data management, digital content curation, and user experience design, which are crucial for adapting to technological developments and evolving user behavior ([Sanbein, 2025](#); [Sibiya, 2023](#)). These competencies reflect the transformation of librarians' roles from custodians of collections to active knowledge facilitators within the digital information ecosystem.

Furthermore, librarians in higher education institutions are now expected to serve as instructional partners and learning facilitators who directly support teaching and research processes, rather than merely functioning as technical service providers ([Perez-Stable et al., 2020](#)). This role includes collaborating with faculty members in developing students' information literacy, supporting research through reference management and bibliometric services, and contributing to instructional design that integrates high-quality information resources ([Chen et al., 2022](#)). Academic librarians who act as learning partners significantly contribute to student success and research excellence. This strategic role positions librarians' professionalism as a key factor in supporting the Tri Dharma of higher education, thereby making competency development through education and training a vital investment for higher education institutions ([Rabasa & Abrizah, 2024](#)).

## Practice-Based Learning in the Development of Library Students' Competencies

Practice-based learning, or experiential learning, is regarded as an effective approach to bridging the gap between academic theory and workplace demands. Experiential learning theory emphasizes that learning occurs through a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. Through direct engagement in professional activities, students can simultaneously develop technical skills, problem-solving abilities, communication competencies, and work ethics (Adyputri *et al.*, 2025; Riza & Chisbiyah, 2024). In the context of Library and Information Science education, fieldwork practice in institutional libraries enables students to understand service workflows, collection management systems, and the dynamics of interaction between librarians and users (Hanifa *et al.*, 2024).

The work-based learning approach and internship models in higher education provide a structural framework that strengthens the academic legitimacy of internship programs as measurable forms of applied learning (Downs *et al.*, 2024; Ranabahu *et al.*, 2020). *Work-based learning is not merely the placement of students in a workplace; rather, it is a structured pedagogical process in which students integrate theoretical knowledge with professional practice through guidance, reflection, and systematic assessment. This model emphasizes the importance of partnerships between educational institutions and partner organizations to create a conducive learning environment* (Ananthia *et al.*, 2025; Bilderback, 2025). In the library context, this entails collaboration between study programs and partner libraries to design learning experiences aligned with industry needs and professional standards.

Several studies indicate that internship or professional practice programs in higher education libraries enhance students' work readiness and professional understanding of librarianship (Hamdani *et al.*, 2023; Khusyaini, 2025). One study found that work-integrated learning significantly improves students' employability by developing work-readiness skills, professional identity, and career decision-making capabilities (Wahyuningsih *et al.*, 2023). In the context of librarianship, students who are actively involved in circulation services, reference services, and the processing of library materials tend to develop a more comprehensive understanding of the librarian's role as both an information manager and a learning facilitator. Furthermore, practical work experience helps students build professional networks, understand library organizational culture, and identify areas of specialization that align with their interests and talents, all of which contribute to long-term career success (Jaya, 2024).

## Library Services and Collection Management as a Sphere of Community Engagement

Circulation and reference services are two primary services that involve direct interaction between the library and its users. Circulation services function as the main gateway to accessing collections and information, encompassing processes such as borrowing, returning, renewing, and reserving library materials (Margareta, 2022). The effectiveness of circulation services largely depends on reliable automation systems, clear policies, and librarians' ability to deliver friendly and efficient service (Ikwuanusi *et al.*, 2024). Meanwhile, reference services play a crucial role in fulfilling specific and academic information needs, including information retrieval, user guidance, and information literacy instruction. The quality of these two services is significantly influenced by human resource competencies, technological systems, and an in-depth understanding of users' needs (Strader, 2021).

The user-centered library services approach and User Experience (UX) framework emphasize designing library services that are responsive to users' needs by understanding user behavior, motivations, and experiences. The application of user-centered design principles has been shown to contribute to increased satisfaction, engagement, and the overall impact of library services, thereby requiring librarians to possess not only technical competencies but also empathy, communication skills, and the ability to continuously analyze feedback (Alao *et al.*, 2022; Arwendria & Oktavia, 2024). Beyond service aspects, the processing of library materials plays a vital role in ensuring the organization of the collection and the effectiveness of

information retrieval. Modern library collection management encompasses both printed materials and digital resources, thus requiring proficiency in metadata, descriptive standards, and automation systems and digital repositories that support interoperability and cross-platform access (Lemounes, 2024). Student involvement in practice-based collection processing constitutes a valuable learning strategy for strengthening professional competencies amid the complexities of digital information management (Jaya, 2024).

### **P3KNK Activities as a Librarianship-Based Service Model**

The Program Penguatan Profesional Kepustakawanan Non Kependidikan (P3KNK) is a service model that integrates academic learning, professional practice, and tangible contributions to partner institutions (Meidina *et al.*, 2025; Subangkit *et al.*, 2025). This program aligns with the principles of service-learning and community engagement, which emphasize reciprocal collaboration between higher education institutions and partner organizations to achieve mutual benefits. Service-learning is understood as a structured educational experience that integrates learning with meaningful community service through systematic reflection to strengthen learning outcomes and civic responsibility (Missouri *et al.*, 2022).

Unlike conventional internships that primarily focus on technical skills, service-learning emphasizes reciprocity, the integration of field experience with the curriculum, and the strengthening of civic engagement and students' social responsibility (Leary & Sherlock, 2020). In the context of P3KNK, students not only learn about library operations but also directly contribute to enhancing services and collection management within partner libraries. Effective collaboration between higher education institutions and partner libraries has been shown to improve students' competencies, foster service innovation, and strengthen professional networks (Kamariah, 2024). Such partnerships generate mutual benefits: students gain experience aligned with practical demands, while partner libraries receive resource support and access to up-to-date academic knowledge (Salisbury *et al.*, 2020). Therefore, P3KNK possesses a strong theoretical foundation as a practice-based professional development program that helps shape librarians who are competent, adaptive, and responsive to the challenges of higher education libraries.

## **METHODS**

The Program Penguatan Profesional Kepustakaan Non Kependidikan (P3KNK) was implemented at Telkom University Open Library using an experiential learning approach that emphasizes learning through direct experience to integrate academic theory with professional librarianship practice. The learning model followed the cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. This approach was implemented through a structured internship program employing a rotation system (rolling system), aligned with the concept of on-the-job training in developing librarians' competencies in accordance with IFLA standards.

The P3KNK activities involved three student interns from the Library and Information Science Study Program at Universitas Pendidikan Indonesia (UPI). The three interns were in the final stage of their studies and had completed foundational courses in librarianship, including cataloging, classification, library services, and library and information systems. The implementation of P3KNK lasted for 40 effective working days, from November 18, 2024, to January 24, 2025. The activities were conducted during the library's operational hours, with a total workload of approximately 320 hours. The program consisted of three main stages: a preliminary stage involving administrative preparation and program planning; an implementation stage through a rotation-based internship system; and a post-implementation stage comprising evaluation, a final seminar, and the preparation of the activity report.

The rotation system was designed to support comprehensive learning through a layered knowledge-transfer mechanism, including vertical transfer from supervising librarians to interns, horizontal transfer among students during each area transition, and collective transfer through periodic reflective discussions. The duration allocation for each rotation was adjusted according to the complexity and intensity of activities in each service area, with the longest allocation assigned to circulation services.

All program activities referred to the Indonesian National Work Competency Standards (SKKNI) in the Library Sector Number 236 of 2019, which encompass circulation services, reference services, library material processing, and the application of information technology. Through direct involvement in each service area, the interns strengthened their technical, professional, and adaptive competencies relevant to the management of modern higher education libraries. Data collection in this service activity employed a triangulation approach to ensure the validity and reliability of the findings. The instruments utilized included the interns' daily logbooks, participatory observation of workflows and service interactions, guided discussions and mentoring sessions, documentation of work outputs, and student performance assessments. The assessments were conducted by library mentors and field supervisors using structured quantitative and qualitative indicators.

## RESULTS AND DISCUSSION

The P3KNK implemented at the Telkom University Open Library from November 18, 2024, to January 24, 2025, over 40 working days, produced significant achievements across three primary library service areas. These three areas include circulation services, reference services, and library materials processing, each with distinct activity foci and performance targets, yet integrally aligned to support the library's function as a learning resource center within the higher education environment.

### Quantitative Results of Program Implementation

**Table 2** presents a comprehensive summary of the quantitative achievements of the P3KNK activities across the three main library service areas.

**Table 2.** Quantitative Achievements of P3KNK Activities at Telkom University Open Library

Service Area	Type of Activity	Quantitative Achievement	Effective Duration
Circulation Services	Shelving circulation collections	Hundreds of items are arranged per day	17 working days
	Borrowing and return transactions	Documented in the system	
	Late fee payments	Documented in the system	
	Loan renewals	Documented in the system	
	Room reservations & payments	Documented in the system	
	RFID tag input for new collections	All new collections are ready for service.	
	Provision of service information	Fulfilled according to user needs	
Reference Services	Issuance of Library Clearance Letters (SBKP)	51 documents	13 working days
	Input of e-proceedings into OJS	204 documents	
	Catalog document monitoring	30 documents	

Service Area	Type of Activity	Quantitative Achievement	Effective Duration
	Article templating for e-proceedings	41 documents	
	Article templating for TELKATIKA journal	1 document	
	Refinitiv access services	9 documents	
	Shelving BI Corner & periodicals	Scheduled daily routine	
Library Material Processing	Cataloging of printed magazines	13 items	10 working days
	Cataloging of printed journals	15 items	
	Comprehensive e-book processing	83 items	
	Processing of donated collections	61 items (students & lecturers)	
	Metadata editing & validation	100+ bibliographic records	

Source: P3KNK Activities, 2025

Significant quantitative achievements are particularly evident in reference services, with 204 student scholarly documents successfully input into the Open Journal System (OJS) e-proceedings platform and 51 Library Clearance Letters issued. These figures reflect the library's strategic role in supporting final-year students' academic processes while also contributing to the dissemination of institutional scholarly work. In the area of library materials processing, the comprehensive processing of 83 e-book collections and the revision of more than 100 bibliographic metadata records indicate the extent of content curation and metadata standardization activities undertaken during the program. Such standardization efforts are crucial, as metadata consistency is a determining factor for collection discoverability in online catalogs and for interoperability with other repository systems.

## Circulation Services

Circulation services at Telkom University Open Library constituted the first focus of the program, with the longest duration of 17 effective working days (see **Figure 1**). This area encompassed various transactions between librarians and users, including borrowing and returning materials, paying late fines, renewing loans, and reserving and paying for discussion rooms. The system implemented in this service utilized two schemes: direct transactions facilitated by librarians and self-service transactions through self-loan kiosks. User identity verification was conducted by scanning Student Identity Cards (Kartu Tanda Mahasiswa), employee cards, or barcodes within the Open Library application using KTM readers and barcode readers.



Berkas Koleksi	Judul	Unit	Perencanaan	Harus kembali	Preparasi	Status	Aksi
Anggoro	23.33.000-1 The midnight library, Prolog: Sebuah Malam	S1 Teknik Telekomunikasi	16-12-2024	27-12-2024	0	Dikembalikan	0 / 0
Yandiana	18.01.300-1 Teori Organisasi - 4E	S1 Manajemen (manajemen Basis Telekomunikasi & Informatika)	16-12-2024	27-12-2024	0	Dikembalikan	0 / 0
Anggoro	09.01.1209-01 Perilaku Organisasi	S3 Sistem Informasi	16-12-2024	27-12-2024	0	Dipinjam	0 / 0
Anggoro	15.01.310-2 Analisis Pemasaran	S2 Manajemen	16-12-2024	03-01-2025	1	Dikembalikan	0 / 0
Anggoro	22.01.200-1 Dasar-dasar Jurnalistik	S1 Ilmu Komunikasi	16-12-2024	03-01-2025	1	Dikembalikan	0 / 0
Anggoro	18.01.401-9 Pengantar Ilmu Jurnalistik	S2 Manajemen	16-12-2024	03-01-2025	1	Dikembalikan	0 / 0
Anggoro	15.370.01** Komunikasi Sosial Media Massa: Kebutuhan Perangkat Media Massa, Keanakroniman, dan Kebutuhan Komunikasi serta Kiat-kiat Terpadu Peter L. Berger & Thomas Luckmann	S1 Ilmu Komunikasi	16-12-2024	03-01-2025	1	Dikembalikan	0 / 0
Anggoro	10.014.01** Analisis Data Media: Suatu Pengantar untuk Analisis Wacana, Analisis Semiotik, dan Analisis Framing	S1 Desain Komunikasi Visual	16-12-2024	27-12-2024	0	Dikembalikan	0 / 0
Anggoro	22.01.200-4 Dasar-dasar Jurnalistik	S1 Ilmu Komunikasi	16-12-2024	27-12-2024	0	Dikembalikan	0 / 0
Anggoro	23.01.000-1 Komunikasi Massa	S1 Ilmu Komunikasi	16-12-2024	27-12-2024	0	Dikembalikan	0 / 0

**Figure 1.** Shelving of circulation collections and circulation transactions  
*Source: Author Documentation, 2021*

The outcomes of circulation service activities included the systematic arrangement of circulation collections in the quiet zone area according to subject and classification numbers in numerical and alphabetical order; the complete recording of borrowing, return, late fine payment, and loan renewal transactions within the system; the documentation of discussion room reservation and payment transactions; the fulfillment of users' service access and information needs; and the tagging of all collections within the RFID scan application system, thereby preparing them for the shelving process.

The integration of technology in circulation services through a dual-track system—combining manual services provided by librarians and self-service via self-loan devices—demonstrates the library's adaptation to the heterogeneous needs of users with diverse interaction preferences. This system provides flexibility for users who prefer librarian assistance while accommodating those who prioritize efficiency and autonomy. However, findings regarding errors in self-loan devices and the library's internet network indicate that successful technology implementation depends not only on the adoption of automation systems but also on consistent infrastructure maintenance and adequate technical support.

## **Reference Services**

Reference services, as the second focus of the program, were conducted over 13 effective working days and centered on providing access to information and collections with more specific needs, particularly to support academic requirements and the completion of students' research. The collections served in this area consisted of non-circulating materials that could not be borrowed outside the library and were accessible only on-site, such as printed journal articles, magazines, newspapers, dictionaries, and encyclopedias. Meanwhile, digital reference collections, such as students' scholarly works, remained accessible remotely through the available online catalog.

One of the primary services in the reference area was the issuance of the Library Clearance Letter (Surat Bebas Kewajiban Perpustakaan/SBKP), which serves as a prerequisite for final-year students registering for the graduation clearance process (yudisium). The management of students' scholarly documents for publication purposes in Telkom University e-proceedings and the TELKATIKA scientific journal also constituted a major focus of reference services. A total of 204 student scholarly documents were successfully submitted to the OJS e-proceedings system, along with their metadata, and template adjustments were applied to 41 documents across four main subject areas: engineering, applied science, management, and art design. This activity also included monitoring and generating documents on the OLFAFA webpage to complete incomplete PDF files of students' "to be published" articles. The process involved verifying the number of articles displayed in the monitoring and generating menus of the OLFAFA e-proceedings website, and then completing incomplete articles by downloading PDF files from the self-upload page.

Reference services during the program also included access to Refinitiv. This application provides specialized information on stocks and economics and is typically used by students in the Faculty of Economics and Business. This service involved verifying users' identities using system booking data, followed by assisting users in accessing the application using their registered username and password on a designated computer in the multimedia reference area. A total of nine Refinitiv access services were completed during the program. Routine shelving activities for the BI Corner collection and the display of periodical collections, including magazines and newspapers, were conducted regularly to ensure that these collections remained well-organized and up to date.

This practice aligns with the concept of the modern library, which functions not only as a provider of physical collections but also as a facilitator of knowledge dissemination and as a manager of institutional repositories that enhance the visibility of higher-education scholarly outputs (Rozikin, 2023). Contemporary higher education libraries are required to transform into active knowledge hubs that manage and disseminate the intellectual works of the academic community, rather than merely storing and lending collections (Balqis & Puspita, 2023).

### **Library Material Processing**

Library material processing activities during the P3KNK were conducted over 10 effective working days. They encompassed the management of both physical and digital library materials, including circulation and reference collections acquired through various procurement schemes. These procurement schemes included purchases from publishers and donations from final-year students, as a prerequisite for obtaining the Library Clearance Letter (SBKP), and from lecturers, as contributions of their scholarly works to the library.

Processing began with the verification of library material requests submitted by study programs or faculties via the library material request webpage, followed by cataloging, which involved entering bibliographic data into the library's online catalog. For both physical and digital collections, periodic checks were conducted to identify duplicate copies with the same title to prevent duplication in the catalog. For collections not yet owned by the library, complete bibliographic data were entered, including basic information, subject headings, publication details, authorship, publisher, acquisition status, circulation information, and the upload of related content. For collections whose titles were already available in the catalog, bibliographic data entry was limited to adding copies by completing fields such as catalog number, barcode, number of copies, collection status, supplier, and collection location.

For physical collections, the inventory process was carried out by affixing several physical identity elements, including an institutional stamp indicating the date of entry and barcode number, a borrow slip, and an RFID tag, as well as printing barcodes and spine labels on the front cover and spine of the book using Zebra Designer and Microsoft Excel applications. Subsequently, the collection was covered, and the RFID tags were entered into the circulation system. Library material processing also included catalog metadata editing activities, particularly for e-book collections, to complete subject headings, classifications, and other metadata elements that were incomplete or inconsistent during the program period.

### **Competency Development through Experiential Learning**

The P3KNK activities significantly contributed to the development of the student interns' competencies, aligned with the Indonesian National Work Competency Standards (SKKNI) in the Library Sector, through an experiential learning approach. Direct involvement in library operations enabled students to develop technical competencies, including cataloging and classification of library materials based on AACR2, DDC 23rd edition, and Dublin Core; mastery of library automation systems (online catalog, circulation system, OJS); as well as the operation of service-supporting technologies such as RFID, barcode scanners, and self-loan systems. In reference services, technical competencies were further strengthened through the management of electronic journals and proceedings, metadata input and validation, and the preparation of articles for scholarly publication.

In addition to technical competencies, the program also enhanced the non-technical and managerial competencies of the student interns. Intensive interactions with users and librarians fostered improvements in communication skills, service excellence, teamwork, and problem-solving within a

dynamic service context. The rotation system played a crucial role in facilitating layered knowledge transfer: vertically from supervising librarians to students, horizontally among students during area transitions, and collectively through periodic reflective discussions. Practical experience in handling hundreds of document transactions and services reinforced professionalism, adaptability to modern library systems, time-management skills, and continuous self-reflection as foundational elements of future librarians' professional development.

## **Operational Challenges and Proposed Solutions**

During the implementation of P3KNK activities, six primary issues were identified that affected the effectiveness of library services and require attention in future improvements. The first issue relates to users' limited understanding of library access, services, and collections, stemming from gaps in information literacy and the suboptimal implementation of user education programs. This condition led to repeated inquiries, underutilization of collections, and increased user frustration. Addressing this issue requires strengthening regular information literacy classes, providing visual guides and video tutorials, and integrating information literacy into the academic curriculum.

The second issue concerns disruptions to digital devices, such as self-service loan machines and the library's internet network, caused by insufficient periodic maintenance, aging equipment, limited bandwidth, and high system load. These disruptions affected service workflows and increased user queues. Improvement efforts may include replacing malfunctioning devices, implementing routine maintenance, increasing bandwidth capacity, and separating network access for librarians and users. The third issue involves inconsistencies in transaction records for borrowing, returning, and fine payments due to human error, suboptimal integration between manual and automated systems, and weak verification procedures. This situation poses risks to data accuracy and may trigger service-related conflicts. Therefore, periodic staff training, double-check mechanisms, and strengthened system integration are necessary.

The fourth issue concerns user complaints about borrowing policies for recently returned collections, stemming from uniform policies that do not adequately account for variations in user needs. The impact includes dissatisfaction and perceptions of unfairness, particularly among users with intensive research requirements. Proposed solutions include revising policies using a contextual approach, developing an online reservation system, and implementing automatic renewal for low-demand collections. The fifth issue concerns the selection of classification numbers and main subject headings within the catalog system, which remains insufficient due to limitations in the local metadata scheme, thereby complicating information retrieval. Improvements can be achieved through classification enrichment, periodic taxonomy reviews, and adjustments to metadata schemes to meet local needs.

The final issue concerns catalog system errors triggered by sensitive content or phrases, caused by overly strict system security configurations and weak input validation mechanisms. The impact includes interruptions to data-entry processes and potential data loss. Alternative solutions include adjusting system security settings, strengthening input validation mechanisms, and evaluating the catalog system to enhance adaptability and reliability. Overall, the mapping of these issues and proposed solutions underscores the importance of sustained collaboration among librarians, library management, and information technology teams to enhance the quality of higher-education library services.

## **Discussion**

The implementation of the three pillars of library services—circulation, reference, and collection processing—within the P3KNK program demonstrates effective integration that supports the role of higher

education libraries as learning resource centers and institutional repositories of scholarly works. Significant quantitative achievements, particularly in reference services, with 204 student scholarly documents uploaded to the OJS e-proceedings system and 51 Library Clearance Letters issued, reflect the library's strategic role in supporting final-year students' academic processes and in contributing to the dissemination of institutional scholarly output. These achievements align with the concept of the modern library, which functions not only as a provider of physical collections but also as a facilitator of knowledge dissemination and a manager of institutional repositories that enhance the visibility of university research outputs (Rozikin, 2023). Contemporary academic libraries are expected to transform into active knowledge hubs that manage and disseminate the intellectual works of the academic community, rather than merely storing and lending collections (Balqis & Puspita, 2023). In this context, the management of e-proceedings and the publication of student scholarly works through the OJS system demonstrates a concrete effort by Telkom University Open Library to implement this function.

The use of technology in circulation services through a dual-track system, combining librarian-assisted manual services and self-service via self-loan devices, demonstrates the library's adaptation to heterogeneous user needs and diverse interaction preferences. This system provides flexibility for users who prefer librarian assistance while accommodating those who prioritize efficiency and independence. However, findings related to errors in self-loan devices and the library's internet network indicate that successful technology implementation depends not only on the adoption of automation systems but also on consistent infrastructure maintenance and adequate technical support. Library automation systems emphasize that long-term commitments to routine maintenance, continuous staff training, and responsive technical support must accompany investment in technology. The absence of any of these elements may lead to declining service quality and user frustration, ultimately counterproductive to the original goal of enhancing service efficiency through technology (Ikwuanusi *et al.*, 2024; Kamariah, 2024).

The findings regarding users' limited knowledge of library access, services, and collections reveal a substantial information literacy gap, despite the availability of multiple access channels, including mobile applications, online catalogs, and self-service devices. This gap indicates that the mere availability of technological infrastructure is insufficient to ensure optimal use of library resources without systematic, sustainable information literacy programs. This phenomenon is consistent with research identifying that Indonesian university students' information literacy skills, particularly in utilizing digital library resources, remain at a moderate to low level and require structured educational interventions (Kiramang & Rusanda, 2024). The proposed solution of organizing regular literacy classes represents a proactive and relevant approach; however, its implementation must consider variations in literacy needs across faculties, academic levels, and disciplinary contexts (Watkins *et al.*, 2021). Effective information literacy programs should not stand alone as separate workshops. However, they should be integrated into the curriculum and tailored to the specific learning contexts of each field of study, enabling students to apply information literacy skills directly to their academic work (Kiramang & Rusanda, 2024).

The processing of e-book collections, revision of bibliographic metadata, and document templating for e-proceedings across four subject areas demonstrate the intensity of content curation and metadata standardization activities undertaken during the program. These standardization efforts are crucial, as metadata consistency is a determining factor for the discoverability of collections in online catalogs and for interoperability with other repository systems. Previous research on metadata quality in institutional repositories emphasizes that metadata quality is not merely about completeness and accuracy, but also about system flexibility in accommodating content variation and the ability to support user-friendly input processes without compromising data consistency (Aydın Çolak & Eroğlu, 2025). Libraries that successfully manage institutional repositories with high metadata quality generally adopt metadata schemes tailored to local needs while remaining compatible with international standards such as Dublin

Core and MARC 21, and implement systems that enable batch editing to accelerate metadata correction and enhancement (Salse *et al.*, 2024).

User complaints regarding borrowing policies for recently returned collections reflect the tension between the principle of equitable access to information and individual users' needs for continued access to specific materials. Such policies are fundamentally designed to ensure fair opportunities for other users, particularly for high-demand collections. In collection management, effective circulation policies should be formulated based on data regarding collection usage levels and user feedback (Cunha-Oliveira *et al.*, 2024; Mohod *et al.*, 2024). Libraries, therefore, need to consider adjusting borrowing policies through a more contextual approach that balances equity, demand, and research intensity (Asari *et al.*, 2025).

The discrepancies between recorded transactions for borrowing, returns, and fine payments and actual conditions constitute a serious issue that may undermine data integrity and service system accountability. This problem may arise from various factors, including human error in data entry, limited integration between manual and self-service borrowing systems that can lead to data inconsistencies, and weak verification and quality-control procedures. In the context of academic libraries that increasingly rely on transaction data for decision-making related to collection development, budget planning, and service evaluation, data accuracy and reliability are fundamental (Yolanda, 2025).

Addressing these issues requires a multilayered approach, including enhancing staff competencies through periodic training; conducting routine audits of transaction samples to identify patterns of error; improving system integration to minimize manual interventions that are prone to error; and developing real-time monitoring dashboards to detect transaction anomalies at an early stage. Research indicates that libraries that consistently maintain data integrity typically possess an organizational culture that emphasizes data quality, clear and well-documented standard operating procedures, and systems equipped with automated validation and error-checking mechanisms (Lubis & Nasution, 2025).

The P3NKK program provided comprehensive experience related to the operations of a modern academic library, ranging from user-facing services to supporting processes such as cataloging and technical processing. Direct practical experience in handling more than 300 document transactions, including data input into electronic journal systems, cataloging new collections, document verification for certification purposes, and preparing articles for publication, contributed significantly to the development of professional competencies among prospective librarians. The issues identified during the program further underscore the complexity of managing contemporary digital libraries, which requires not only mastery of technical skills but also problem-solving abilities, adaptability to technological advancements, and a commitment to continuous learning.

The success of P3NKK demonstrates that practice-based learning models within operational library environments are effective strategies for bridging the gap between formal library education and the realities of professional practice. This model holds strong potential for replication in other academic libraries, with adjustments to local contexts. However, its successful implementation requires adequate technological infrastructure, integrated library management systems, institutional commitment to service development, and structured mentoring mechanisms. The sustainability of similar programs also depends on the availability of periodic evaluations to measure their impact on participants' competency development and library service quality, as well as the institution's capacity to respond to evolving user needs amid rapid developments in information technology and the dynamic information-seeking behaviors of the digital generation.

## CONCLUSION

Based on the implementation of the Library Professional Strengthening Program for Non-Educational Track (P3KNK), it can be concluded that the program was effectively carried out as part of the development of the *Tridharma Perguruan Tinggi* (the Three Pillars of Higher Education), organized by the Library and Information Science Study Program, Faculty of Educational Sciences, Universitas Pendidikan Indonesia. The second period of P3KNK was conducted over 40 working days, from November 18, 2024 to January 24, 2025, with Telkom University Open Library serving as one of the partner institutions. As a private university library that embraces openness in access, information, and collaboration, the Telkom University Open Library provided a relevant environment for students to apply academic knowledge to professional practice. Throughout the program, student interns were actively involved in three main activities: circulation services, reference services, and collection processing, implemented through a rotation system arranged based on communication and agreement with the library management. Intensive mentoring by professional librarians enabled students to gain comprehensive understanding of operational workflows, service standards, and the dynamic working environment of an academic library. The implementation of the rotation system within P3KNK proved effective in supporting holistic competency development, encompassing both technical skills and non-technical competencies such as service communication, problem-solving, teamwork, and adaptability.

## AUTHOR'S NOTE

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