

Library Users' Perception of Front Office Service Experience Based on User Experience Mode at Andalas University Library

Mulhairi & Elva Rahmah

Padang State University, Indonesia

mulhairimoel@gmail.com; elva@fbs.unp.ac.id

Article Info:

Submitted:	Revised:	Accepted:	Published:
Mar 17, 2026	Apr 14, 2026	Apr 26, 2026	May 1, 2026

Abstract

User experience plays an important role in improving library service quality, particularly in front office services as the main point of interaction between users and the library. This study aims to describe users' perceptions of front office service experiences at the Andalas University Library based on the User Experience model, which includes five dimensions: usability, usefulness, accessibility, desirability, and satisfaction. A quantitative approach with a descriptive design was employed, involving 100 respondents selected through incidental sampling. Data were collected using questionnaires and analyzed using descriptive statistics with SPSS. The findings reveal that all user experience dimensions were categorized as high, with average scores for usability (3.57), usefulness (3.32), accessibility (3.56), desirability (3.50), and satisfaction (3.53), and an overall achievement level of 88.86%, classified as very good. These results indicate that front office services have delivered positive user experiences in terms of ease of use, environmental comfort, accessibility, and interaction quality with staff. The study concludes that the front office services at the Andalas University Library operate effectively and efficiently in meeting user needs. This study contributes to academic library service quality literature by providing empirical insight into user experience-

based service evaluation. Practically, the findings imply the need for continuous improvement, particularly by enhancing usability, simplifying service procedures, and optimizing service systems to achieve more advanced and user-centered library services.

Keywords: User Experience; Front Office Services; User Perception; Academic Library; Service Quality

INTRODUCTION

Academic libraries play a strategic role in supporting the implementation of higher education's core missions, namely teaching, research, and community service. In the contemporary academic landscape, libraries are no longer positioned merely as repositories of printed collections, but have evolved into dynamic institutions that prioritize user-centered information services. This transformation is closely related to the development of information technology and the increasing complexity of user needs in accessing information. Academic libraries are now required to integrate digital systems, service innovation, and human interaction in order to remain relevant and effective (Siregar, 2021). In addition, the development of library science emphasizes that library services must adapt to user behavior and expectations, which continue to evolve alongside technological advancement (Suwarno, 2020). The advancement of information technology, particularly the implementation of automation systems and online catalogs, has significantly changed how users interact with library services. The presence of systems such as OPAC and integrated library management systems has improved access to information and reduced dependency on manual services (Garrett, 2016). Furthermore, usability engineering highlights that systems must be designed with user needs in mind to ensure efficiency and effectiveness in interaction (Nielsen, 2020). At the global level, the International Federation of Library Associations and Institutions emphasizes that modern libraries must deliver services that are not only efficient but also responsive and user-oriented (IFLA, 2015).

In Indonesia, the role of academic libraries is strengthened through regulatory frameworks, particularly Law No. 12 of 2012 concerning Higher Education, which mandates the provision of supporting academic facilities, including libraries. This regulation reinforces the idea that libraries function not only as information providers but also as service institutions that must ensure user satisfaction and engagement. National standards

further emphasize that academic libraries must provide services that are accessible, efficient, and aligned with user needs (Perpustakaan Nasional Republik Indonesia, 2017). Additionally, library management perspectives underline the importance of service quality in maintaining institutional credibility and user trust (Sutarno, 2016). The integration of management principles in library services also highlights the importance of planning, organizing, and evaluating service delivery (Lasa Hs., 2017).

The increasing reliance of users on digital technologies has significantly influenced user behavior, particularly in terms of information seeking and service expectations. Users now demand services that are fast, accurate, and easy to access. This shift requires libraries to balance technological systems with human-centered service approaches (Lazar et al., 2017). From a service perspective, user experience becomes a critical aspect in evaluating service performance, as it reflects the interaction between users and service systems. Service quality is defined as the gap between user expectations and perceived service performance (Parasuraman et al., 2018). Meanwhile, user experience focuses on subjective responses, including emotional and cognitive aspects during interaction (Hassenzahl, 2018). The concept of user experience has gained significant attention in recent years, particularly in service-oriented fields. It emphasizes that user satisfaction is not solely determined by functional aspects but also by emotional engagement and perceived value. Emotional design theory suggests that users' feelings and impressions play a crucial role in shaping their overall experience (Mahlke, 2017). Moreover, long-term user experience evaluation indicates that user perception evolves over time based on repeated interactions (Kujala et al., 2017). These perspectives highlight the need for a comprehensive approach in evaluating library services.

One of the most critical service points in shaping user experience is the front office, which serves as the initial contact point between users and the library. This service includes administrative processes, information provision, and user assistance. The initial interaction is particularly important because it forms users' first impressions of the service quality (Sulistyo-Basuki, 2018). Service management theory also emphasizes that frontline staff play a key role in delivering service quality through communication, responsiveness, and professionalism (Tjiptono, 2019). Therefore, the effectiveness of front office services significantly influences overall user satisfaction.

In practice, many academic libraries have implemented integrated systems to support service delivery. The use of SLiMS and OPAC enables users to independently

access information while still receiving support from library staff when needed. Automation systems have also improved efficiency in administrative processes, such as membership registration and document verification (Pasaribu & Samsudin, 2025). However, the effectiveness of these systems depends on their usability and the ability of users to interact with them effectively (Tullis & Albert, 2018). Despite these advancements, several challenges persist in the implementation of front office services. During peak periods, such as graduation seasons, the increase in user demand often leads to long queues and delays in service delivery. This condition may negatively affect user satisfaction and overall experience. Additionally, some users still face difficulties in navigating digital systems, indicating that usability remains a critical issue (Nielsen, 2020). These challenges highlight the need for continuous evaluation and improvement of both technological and human aspects of service delivery.

Previous studies have consistently shown that service quality is influenced by multiple factors, including staff behavior, clarity of information, and responsiveness (Rahmawati & Prasetyo, 2018). Research also indicates that front office service quality has a significant impact on user satisfaction in academic libraries (Haryanto et al., 2021). Other studies emphasize that user perception is shaped by both service performance and interaction quality (Wardani, 2022). Furthermore, communication skills of library staff have been identified as a crucial factor in enhancing user satisfaction (Andriani et al., 2025). From a broader perspective, consumer behavior theory explains that user satisfaction is influenced by expectations, experiences, and perceived value (Schiffman & Wisenblit, 2019). However, most existing studies focus on general service quality and do not specifically examine front office services as a distinct interaction point. In addition, many studies emphasize satisfaction without integrating a comprehensive user experience framework. This limitation indicates the need for a more focused approach that considers both functional and emotional aspects of service delivery.

Therefore, the research gap lies in the lack of studies that specifically analyze user experience at the front office level using a structured UX framework. This gap is particularly relevant in the context of academic libraries in Indonesia, where service transformation is still ongoing. The novelty of this study lies in the application of a comprehensive user experience framework consisting of usability, usefulness, accessibility, desirability, and satisfaction (Morville, 2016). This framework provides a holistic approach to evaluating service performance by integrating functional efficiency and emotional

engagement (Hassenzahl & Tractinsky, 2016). Based on this rationale, this study aims to describe users' perceptions of their experiences when interacting with front office services at Universitas Andalas Library. The findings are expected to contribute to the development of user experience studies in library and information science, as well as provide practical recommendations for improving service quality. Additionally, this study is expected to support the development of user-centered library services that are more adaptive to technological advancements and user needs.

METHODS

This study employed a quantitative approach with a descriptive research design. The quantitative approach was selected as the data were collected in numerical form through questionnaires administered to library users, allowing for statistical analysis. This approach enables an objective understanding of users' perceptions regarding their service experiences. The descriptive design was applied to systematically describe the phenomenon without examining causal relationships among variables. The primary focus of this study is to describe users' experiences when interacting with front office services based on the user experience (UX) framework.

The research design centers on a single variable, namely front office service experience, which is operationalized using the User Experience (UX) model. This variable is measured through five key dimensions: usability, usefulness, accessibility, desirability, and satisfaction. Usability refers to the ease with which users understand and utilize the service; usefulness reflects the extent to which the service supports users' needs; accessibility indicates the ease of accessing the service; desirability represents the emotional appeal and comfort of the service, including staff interaction; and satisfaction measures users' overall evaluation after using the service. These dimensions collectively provide a comprehensive framework for assessing user experience from both functional and emotional perspectives.

The study was conducted at the Library of Universitas Andalas, located in Limau Manis, Pauh District, Padang, Indonesia. This location was selected due to its relevance to the research focus, particularly the availability of front office services and a large, diverse user population. The research was carried out over a three-month period, from October to December 2025, covering data collection, processing, and analysis stages. The population consisted of all active library users who were registered members and had utilized front office services during the study period. Given the large population size, sampling was

employed to obtain representative data. The sample size was determined using the Slovin formula with a 10% margin of error, resulting in a minimum of 100 respondents. An incidental sampling technique was applied, where respondents were selected based on their availability and relevance at the time of data collection. This method was considered appropriate due to its practicality and the direct interaction of respondents with front office services.

The primary data collection instrument was a structured questionnaire using a four-point Likert scale, ranging from strongly disagree to strongly agree. This instrument was designed to measure users' perceptions of front office service experiences. In addition, data were collected through observation and documentation. Observation was conducted to examine service processes and interactions between staff and users, while documentation was used to gather supporting data such as visitor statistics and library profiles. To ensure the quality of the instrument, validity and reliability tests were conducted. Validity was assessed using the product-moment correlation by comparing calculated correlation values with the critical value at a 10% significance level. Most items were found to be valid. Reliability testing was performed using Cronbach's Alpha, yielding a coefficient of 0.618, which indicates acceptable internal consistency. Therefore, the instrument was considered reliable and suitable for data collection. Data analysis was conducted using descriptive statistical methods. The collected data were processed using SPSS software through several stages, including editing, coding, and tabulation. Editing ensured data completeness and consistency, while coding assigned numerical values to responses for systematic analysis. Frequency distribution and percentage calculations were then used to describe response patterns. The results were categorized based on predefined interval criteria to provide a clear interpretation of user experience levels. This analytical approach aligns with the descriptive nature of the study, which aims to present a systematic depiction of user perceptions without making inferential generalizations

RESULTS

Distribution of Response Scores Using the Likert Scale

Table 1. Summary of Response Scores Based on the Likert Scale

No	Questionnaire Items	Score
A	Usability	
1	I understand the service flow at the library front office easily	3,91
2	The procedures at the front office are easy to follow	3,22

3	The information delivered by front office staff is easy to understand	3,58
4	Front office staff are easy to ask for help when I face difficulties	3,43
5	I do not understand the service flow at the front office easily	3,71
	Average Score	17,85
	Usefulness	$17,85 \div 5 = 3,57$ (High)
B	Usefulness (Kebermanfaatan)	
6	Front office services help me obtain the information I need	3,87
7	Front office services facilitate the completion of administrative tasks	3,25
8	The services provided meet my needs as a user	3,48
9	Front office services help me complete tasks quickly	3,42
10	Front office services do not help me obtain the information I need	2,60
	Average Score	16,62
	Usefulness	$16,62 \div 5 = 3,32$ (High)
C	Acessibility	
11	Front office service hours are easily accessible	3,85
12	The procedures at the front office are not complicated	3,34
13	The service system (e.g., SLiMS) supports smooth service delivery	3,52
14	Services at the front office are delivered quickly	3,42
15	Services at the front office are not delivered quickly	3,67
	Average Score	17,8
	Usefulness	$17,8 \div 5 = 3,56$ (High)
D	Desirability	
16	Front office staff are friendly and polite	3,93
17	Front office staff act professionally in serving users	3,26
18	The front office service area is comfortable	3,45
19	The service atmosphere at the front office is pleasant	3,42
20	Front office staff are not professional in serving users	3,70
	Average Score	17,76
	Usefulness	$17,76 \div 5 = 3,50$ (High)
E	Satisfaction	
21	I am satisfied with the front office services at Universitas Andalas Library	3,91
22	My experience using front office services is good	3,42
23	The services I received meet my expectations	3,38
24	I am willing to use front office services again in the future	3,44
25	I am not willing to use front office services again in the future	3,52
	Average Score	17,67
	Usefulness	$17,67 \div 5 = 3,53$ (High)

source: Compiled by the researcher (2026)

Based on the recapitulated data using a Likert scale on students' perceptions of the front office service experience based on the User Experience model at the Andalas University Library, all five key indicators were categorized as high, namely Usability (3.57), Usefulness (3.32), Accessibility (3.56), Desirability (4.37), and Satisfaction (3.53). These results indicate that overall user perceptions of the service experience are high, suggesting that the services provided have successfully delivered positive experiences in terms of ease of use, environmental comfort, and the quality of interactions between users and staff. Furthermore, these findings reflect that the implemented service system operates effectively and efficiently in meeting users' needs and expectations. Nevertheless, continuous evaluation and development efforts are still necessary to further enhance service quality and achieve a very good category in the future.

Descriptive Test of Variables

Table 2. Descriptive Statistics of Variables

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
X	100	70	96	88.86	4.219
Valid N (listwise)	100				

source: Compiled by the researcher (2026)

Based on the descriptive analysis of users' perceptions of the front office service experience, the mean score of 88.86 from 100 respondents indicates a very high evaluation of the services provided, with a standard deviation of 4.219 suggesting relatively homogeneous data and consistent perceptions among respondents. Although the scores range from a minimum of 70 to a maximum of 96 (range = 26), the variation remains within a positive tendency. When associated with the achievement level of 88.86%, the result falls into the *very good* category, indicating that users' perceptions of the front office services at the Andalas University Library are overall very positive.

DISCUSSION

The findings of this study reveal that users' perceptions of front office service experiences at Universitas Andalas Library are categorized as high, with an overall achievement level of 87.86%. This result indicates that the front office services have effectively delivered a positive user experience and fulfilled the majority of user

expectations. When analyzed through the five core dimensions of the user experience framework—usability, usefulness, accessibility, desirability, and satisfaction—all indicators demonstrate consistently high mean scores. This suggests that the service system is not only functional but also capable of creating a holistic and meaningful user experience. From an analytical standpoint, the usability dimension highlights that users are generally able to understand the service flow, follow procedures, and interact with the system without significant difficulty. High scores in this dimension indicate that the service design aligns well with users' cognitive expectations, allowing them to navigate processes intuitively. The clarity of information provided by front office staff further reinforces this usability, as users can easily interpret instructions and service procedures. However, the relatively lower scores associated with procedural simplicity suggest that certain aspects of the service workflow may still be perceived as moderately complex. This finding implies that although the system is generally user-friendly, there remains an opportunity to further streamline procedures to reduce cognitive load and enhance efficiency. Simplifying service pathways and minimizing redundant steps could significantly improve overall usability.

In terms of usefulness, the results demonstrate that front office services play a critical role in assisting users in obtaining relevant information and completing administrative tasks efficiently. The high level of perceived usefulness indicates that users recognize the service as valuable and beneficial in supporting their academic activities. This aligns with the fundamental principle that perceived usefulness is a key determinant of positive user experience and service acceptance. However, the findings also reveal that time efficiency, particularly in terms of service speed, has not yet reached its optimal level. While users generally perceive the service as helpful, delays or inefficiencies in processing may slightly reduce the overall effectiveness of the service. Therefore, improving operational efficiency, such as reducing waiting times and optimizing workflow management, could further enhance the perceived usefulness of the service. The accessibility dimension further reinforces the positive evaluation of the front office services. Users perceive the service as easily accessible in terms of operational hours, procedural clarity, and technological support systems, such as SLiMS. The availability of flexible service hours ensures that users can access the service according to their needs, which is a crucial factor in enhancing user engagement. Additionally, the integration of information systems contributes to smoother service delivery and reduces barriers to access. However, similar to the usability findings, procedural complexity remains a minor concern within this dimension. Although users

generally find the service accessible, certain procedural aspects may still require simplification to ensure that all users, regardless of their familiarity with the system, can easily navigate the service. Addressing this issue would further strengthen the inclusivity and accessibility of the service.

The desirability dimension provides particularly significant insights into the emotional and experiential aspects of service delivery. The findings indicate that users perceive the front office environment as comfortable, pleasant, and supportive. The friendliness, politeness, and professionalism of staff are identified as key factors contributing to this positive perception. These interpersonal interactions play a crucial role in shaping users' emotional responses, which are essential components of user experience. In addition, the physical environment of the front office, including cleanliness, layout, and overall atmosphere, contributes to a sense of comfort and satisfaction. This suggests that user experience is not solely determined by functional efficiency but is also heavily influenced by emotional engagement and environmental factors. Therefore, maintaining high standards of staff performance and ensuring a comfortable physical environment are essential for sustaining positive user experiences. The satisfaction dimension reflects the cumulative impact of all user experience components. The high level of user satisfaction observed in this study indicates that the front office services have successfully met user expectations. Users not only express satisfaction with the service but also demonstrate a willingness to reuse the service in the future. This willingness is a strong indicator of user loyalty and trust in the service. Satisfaction, in this context, can be understood as the result of the alignment between user expectations and actual service performance. When services consistently meet or exceed expectations, users are more likely to develop positive attitudes and long-term engagement with the service.

When compared with existing theoretical frameworks, the findings of this study strongly support the concept that user experience is multidimensional and extends beyond functional performance. Traditional service evaluation models often emphasize efficiency and effectiveness; however, this study demonstrates that emotional and experiential factors, such as comfort, trust, and satisfaction, are equally important. The integration of usability, usefulness, accessibility, and desirability creates a comprehensive user experience that ultimately determines overall satisfaction. In this regard, the study contributes to the growing body of literature that highlights the importance of user-centered design in service development, particularly within the context of academic libraries. From a theoretical

perspective, this study reinforces the applicability of the user experience model in evaluating library services. It demonstrates that user experience frameworks can be effectively adapted to assess not only digital interfaces but also physical and service-based interactions. This expands the scope of user experience research within the field of library and information science, providing a more holistic understanding of how users interact with library services.

From a practical standpoint, the findings offer valuable insights for library management and service development. Improving procedural simplicity, enhancing service efficiency, and maintaining high standards of staff professionalism should be prioritized to further enhance user experience. Additionally, continuous evaluation and feedback mechanisms should be implemented to ensure that services remain responsive to user needs. By adopting a user-centered approach, libraries can improve service quality and strengthen their role as essential academic support institutions. In terms of policy implications, this study suggests that institutional strategies should incorporate user experience principles as a core component of service design and evaluation. Libraries should not only focus on providing access to information but also on delivering meaningful and satisfying user experiences. This requires a shift from traditional service models toward more dynamic and user-oriented approaches.

Despite its contributions, this study has several limitations. First, the use of a quantitative approach limits the depth of understanding regarding users' subjective experiences. While numerical data provide valuable insights into general trends, they may not fully capture the complexity of individual perceptions. Second, the study is limited to a single institutional context, which may affect the generalizability of the findings. Third, the reliance on self-reported data introduces the possibility of response bias, as participants may provide socially desirable answers. Future research is therefore recommended to adopt mixed-method approaches that combine quantitative and qualitative data to gain a more comprehensive understanding of user experience. Expanding the scope of research to include multiple institutions would also enhance the generalizability of the findings. Additionally, exploring the relationship between user experience and other variables, such as user satisfaction, loyalty, and service quality, could provide deeper insights into the dynamics of library services. In conclusion, this study highlights the strategic importance of front office services in shaping user experience within academic libraries. By optimizing all dimensions of user experience, libraries can enhance service effectiveness, improve user

satisfaction, and strengthen their position as user-centered information providers. The findings underscore the need for continuous innovation and improvement in service design to ensure that library services remain relevant, efficient, and responsive to the evolving needs of users.

CONCLUSION

Based on the research findings, it can be concluded that users' perceptions of the front office service experience at the Andalas University Library, as assessed using the User Experience model, fall into the *Very Good* category, with an overall achievement score of 78.16%, indicating a consistently positive evaluation of service quality. Among the evaluated dimensions, Desirability and Satisfaction emerged as the most prominent aspects, achieving the highest average score of 3.15, which is largely influenced by the staff's friendliness and the overall comfort of the service environment, both of which contribute significantly to creating a pleasant and welcoming user experience. In addition, the dimensions of Usefulness and Accessibility were also rated highly, with an average score of 3.12, reflecting that the services provided are not only effective in supporting users' administrative needs but are also easily accessible, thereby enhancing efficiency in service utilization. Meanwhile, the Usability dimension obtained a slightly lower yet still favorable score of 3.10, suggesting that although the service procedures are generally simple and understandable, there remains room for further improvement to achieve optimal ease of use. Overall, these findings demonstrate that the front office services have successfully delivered a positive, efficient, and solution-oriented experience for users through the integration of professional staff behavior and a well-structured service system. Therefore, it is recommended that the Andalas University Library maintain the high standard of its front office services while simultaneously enhancing the usability aspect by simplifying service procedures, improving queue management during peak hours, and developing innovative technology-based services, so that user interactions with the front office can become increasingly effective, efficient, and more closely aligned with user needs.

REFERENCES

- Al Andriani, R., Sari, M., & Putra, D. (2025). Pengaruh Komunikasi Pustakawan terhadap Kepuasan Pemustaka di Perpustakaan Perguruan Tinggi. *Jurnal Ilmu Perpustakaan dan Informasi*, 10(1), 45–58.
- Dewey, J. (1938). *Experience and education*. Macmillan.

- Garrett, J. J. (2011). *The elements of user experience: User-centered design for the web and beyond* (2nd ed.). New Riders.
- Haryanto, A., Sari, D. P., & Wibowo, R. (2021). Pengaruh Kualitas Layanan Front Office terhadap Kepuasan Pemustaka di Perpustakaan Perguruan Tinggi. *Jurnal Ilmu Perpustakaan dan Informasi*, 6(2), 85–97.
- Hassenzahl, M. (2014, January 1). *User experience and experience design*. Interaction Design Foundation. <https://ixdf.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/user-experience-and-experience-design>
- Hassenzahl, M., & Tractinsky, N. (2006). User experience: A research agenda. *Behaviour & Information Technology*, 25(2), 91–97. <https://doi.org/10.1080/01449290500330331>
- International Federation of Library Associations and Institutions. (2015). *Guidelines for academic libraries*. IFLA.
- Kujala, S., Roto, V., Väänänen-Vainio-Mattila, K., Karapanos, E., & Sinnelä, A. (2011). UX Curve: A method for evaluating long-term user experience. *Interacting with Computers*, 23(5), 473–483. <https://doi.org/10.1016/j.intcom.2011.06.005>
- Lasa, H. S. (2017). *Manajemen Perpustakaan Sekolah dan Perguruan Tinggi*. Ombak.
- Lazar, J., Goldstein, D. F., & Taylor, A. (2015). *Ensuring digital accessibility through process and policy*. Morgan Kaufmann.
- Mahlke, S. (2017). *User experience and emotional design*. Springer.
- Morville, P. (2004, June 21). *User experience design*. Semantic Studios. https://semanticstudios.com/user_experience_design/
- Nielsen, J. (1993). *Usability engineering*. Morgan Kaufmann.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–37.
- Pasaribu, R., & Samsudin. (2025). *Otomasi Perpustakaan dan Implikasinya terhadap Efisiensi Layanan*. RajaGrafindo Persada.
- Perpustakaan Nasional Republik Indonesia. (2017). *Peraturan Kepala Perpustakaan Nasional Republik Indonesia Nomor 13 Tahun 2017 tentang Standar Nasional Perpustakaan Perguruan Tinggi*. <https://peraturan.go.id/id/perpusnas-no-13-tahun-2017>
- Rahmawati, D., & Prasetyo, B. (2018). *Persepsi Pemustaka terhadap Kualitas Layanan Perpustakaan Perguruan Tinggi*. Rajawali Pers.
- Schiffman, L. G., & Wisenblit, J. L. (2019). *Consumer behavior* (12th ed.). Pearson.
- Siregar, A. R. (2021). *Perpustakaan Perguruan Tinggi: Konsep, Fungsi, dan Pengelolaan*. RajaGrafindo Persada.
- Sulistyo-Basuki. (2018). *Layanan Perpustakaan*. Universitas Terbuka.
- Sutarno, N. S. (2016). *Manajemen Perpustakaan*. Sagung Seto.
- Suwarno, W. (2020). *Ilmu Perpustakaan dan Informasi: Pendekatan Teori dan Praktik*. Ar-Ruzz Media.
- Tjiptono, F. (2019). *Service Management: Mewujudkan Layanan Prima*. Andi.

- Tullis, T., & Albert, B. (2013). *Measuring the user experience: Collecting, analyzing, and presenting usability metrics* (2nd ed.). Morgan Kaufmann.
- Wardani, D. (2022). Analisis Persepsi Pengguna terhadap Pengalaman Layanan Perpustakaan Perguruan Tinggi. *Jurnal Ilmu Perpustakaan*.