User-Centric Approaches to Information Literacy: Measuring Impacts at the Ardi Koesoema Library

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Abstract
The enhancement of library service quality is pivotal to meeting user expectations. As a specialized library in Indonesia, the RI Ardi Koesoema (AK) Library is committed to user-focused service improvement through its information literacy programs, including forest information services and ecoliteracy initiatives. This study evaluates user satisfaction and examines the impact of these information literacy programs, emphasizing their relevance to user needs. Employing a qualitative methodology, the study involved 30 respondents for assessing user satisfaction and 19 respondents for evaluating the ecoliteracy program. Data were gathered through questionnaires and analyzed using a Likert scale followed by qualitative interpretation. Findings reveal that most users were satisfied with the library's free access, professionalism of librarians, and friendly environment, though 30% highlighted dissatisfaction with the collections. To address this, the library must enhance its collections while maintaining regular ecoliteracy programs to strengthen its role in promoting environmental and forestry literacy. By addressing user satisfaction, applying data-driven strategies, and integrating eco-literacy, the RI Ardi Koesoema Library strengthens its role in environmental education and community empowerment. These efforts contribute to national literacy goals while advancing sustainable development.

Keywords: Customer Satisfaction, Extensive Library Services, RI Ardi Koesoema Library, Ecoliteracy, Environmental Awareness

1. Introduction

Indonesia boasts a substantial number of libraries, with the 2018 census by the National Library recording 164,610 libraries nationwide. According to the International Federation of Library Associations and Institutions (IFLA), this figure ranks Indonesia as having the second-largest number of libraries globally, following India (Perpustakaan Nasional Republik Indonesia, 2021). This achievement positions Indonesia as a potential global role model for high-standard library management and services (Adam, 2017).

However, despite this impressive quantity, many Indonesian libraries face challenges in meeting quality management standards. Enhancing these standards, such as through accreditation, is essential to improve library services. Accreditation serves as a benchmark for standardizing and elevating library management practices. Among libraries embracing this approach is the RI Ardi Koesoema Library, which earned an A accreditation from the National Library Accreditation Institute in 2020. As one of only 68 special libraries in Indonesia meeting such standards, the RI Ardi Koesoema Library specializes in forestry and environmental collections under the Ministry of Environment and Forestry. Established in 2004, it manages over 40,000 titles, including historical documents, research findings, and antique maps.

In addition to maintaining its extensive collection, the library is dedicated to improving service quality through initiatives like mobile library services, reference assistance, and information literacy programs. These efforts align with the concept of delivering excellent service, which emphasizes customer satisfaction as a critical factor for fostering sustainable competitive advantages and building loyalty (Angelova & Zekiri, 2011).

The Library Continuum Theory underscores the continuous role of libraries in serving users across different life stages, from childhood to adulthood. Gorman (2003) asserts that this theory expands library services beyond traditional book provision, encompassing information, education, and community empowerment. This approach highlights the importance of information literacy services in addressing the evolving information needs of library users, enabling them to access, evaluate, and effectively use information in educational, research, and everyday contexts.

Despite the significant role of information literacy, gaps remain in integrating these services within broader societal contexts, such as ecological literacy programs for specific communities. Maughan (2008) observes that although information literacy is widely recognized in formal education, its application within local and environmental settings is under-researched. This gap points to the necessity for more research on the contextual impact of information literacy programs, as exemplified by the RI Ardi Koesoema Library's eco-literacy initiatives (Indah & Handisa, 2019). These initiatives, such as the "Pekan Wisata Ilmiah" (Scientific Tourism Week) and "sciencetainment" events, highlight the library's commitment to integrating environmental education through innovative and engaging formats. Furthermore, Handisa (2021) discusses the shift to hybrid literacy formats during the COVID-19 pandemic, emphasizing the challenges and opportunities in reaching audiences, particularly in under-targeted communities. These findings reinforce the need for libraries to adapt information literacy services to the specific needs of diverse user groups, ensuring relevance and effectiveness.

This study aims to assess user satisfaction with the information literacy programme through the library's forest information services and explore how its eco-literacy program, particularly on mercury contamination in Nanggung Subdistrict, West Java, meets community needs. There are two approaches which use to identify user satisfaction e.i. intern and extern satisfaction. Inter satisfaction focused on forest researcher's satisfaction who used library resources, and extern satisfaction focused on how the RI Ardi Koesoema librarians do service communities. There are two communities who get services by librarians e.i. community around the gold mining area and community indigenous people in Baduy, Banten Province. Located near the Halimun Salak National Park and Pongkor gold mining area, Nanggung villagers play a crucial role in environmental conservation. The eco-literacy program engages children and students, promoting environmental awareness through targeted resources like children's books and magazines. By addressing community needs, this program underscores the library's commitment to fostering environmental knowledge and sustainability. Baduy's indigenous people are located in Lebak Regency Banten Province bordering on Bogor Regency West Java. They have rules that writing and calculation by pen is forbidden by tradition. So, no one Baduy's people get formal study in

the schools. For them, the formal study is breaking customs so that schools are never needed for these indigenous people. For obedience to the customs, the Baduy indigenous people only know oral tradition and not written. However, even though their tradition forbade written tradition, the Baduy can also use electronic devices such as handphones to communicate to each other, especially with other non Baduy communities. These indigenous people divide three communities e.i. Inner Baduy, Outer Baduy and *Dangka*. Inner Baduy are people who preserve the custom based on their inheritance before. Implementing the pure custom is very important for them. Outer Baduy are people who accepted outer influence so that they no longer preserve and keep the customs. They tried to adapt with outer influence however writing culture was still forbidden for this community. And the last, Dangka is part of Baduy indigenous people but they never used to practice the custom anymore. Most of them have different religions with the Inner dan Outer Baduy's i.e. *Sunda Wiwitan*. Dangka set Islam as their religion.

2. Research Method

This study integrates data from customer satisfaction surveys and environmental research to provide comprehensive insights into the effectiveness of the RI Ardi Koesoema Library in supporting forestry and environmental studies. The research was conducted in Bogor, West Java, Indonesia, as part of broader research and development activities related to forestry and environmental issues. Data collection took place in May 2021 for the customer satisfaction survey and in September 2020 for the mercury contamination study. In May 2022, additional mercury contamination data from Baduy's indigenous community were collected by the RI Ardi Koesoema librarian, providing updated information for the ecoliteracy program and enabling comparative analysis between communities in West Java and Banten Province.

The study employed a mixed-method approach by integrating qualitative and quantitative data, with primary emphasis on customer satisfaction among researchers utilizing library services. A random sample of 30 researchers was selected from a total population of 458 participants. Data were collected through questionnaires distributed via email and social media platforms. The questionnaire consisted of seven items evaluating service comfort, relevance of collections, ease of information retrieval, staff professionalism, and overall service quality, with responses measured using a Likert scale and classified into satisfied and unsatisfied categories.

The environmental component of the study focused on mercury contamination among elementary school students in Nanggung Sub-regency, Bogor Regency. Hair samples from 19 students representing 10 schools were analyzed in collaboration with the Center for Quality and Environmental Laboratory. In addition, mercury contamination data were collected from 35 children of Baduy's indigenous community, resulting in a total of 54 children involved in this part of the study, thereby providing a broader perspective on mercury exposure among different community groups.

Data from the customer satisfaction survey were analyzed using the Likert scale method to calculate percentages, average scores, and interval scales. Responses were grouped into "satisfied"

(strongly agree and agree) and "unsatisfied" (strongly disagree and disagree) categories. This analytical approach enabled a systematic interpretation of user perceptions while complementing the environmental data, thereby strengthening the overall assessment of the RI Ardi Koesoema Library's role in supporting research and ecoliteracy initiatives.

Data analysis in this study was conducted using several formulas. The percentage of responses was calculated using the formula $P = \frac{F \times 100}{N}$, where P represents the percentage, F is the frequency of responses, and N is the total number of samples. The average score was calculated using the formula $X = \frac{(S_1 \times F_1) + (S_2 \times F_2)}{N}$, where X denotes the average score, S_1 and S_2 represent the highest and lowest scores on the Likert scale, F indicates the frequency of responses at each score, and N is the total number of samples. The interval scale was determined using the formula $I = \{a(m - n) : b\}$, where a is the number of attributes, m is the highest score, n is the lowest score, and b is the number of rating scales. The satisfaction criterion was based on a scale ranging from 1.00 to 5.00, in which scores between 3.01 and 5.00 were categorized as "satisfied," while scores between 1.00 and 3.00 were categorized as "unsatisfied."

3. Results and Discussions

The results of the respondent satisfaction survey, which assess the quality of services provided by the RI Ardi Koesoema library, are presented in Table 2. The survey includes seven key questions aimed at evaluating different aspects of library services. The overall findings indicate that the majority of respondents expressed satisfaction with the library's services, as reflected in the high percentage of positive responses across various criteria.

Table 1. Respondent Satisfaction Evaluation

Evaluation Criteria	Satisfaction (S)	Unsatisfaction (NS)	Total	S (%)	NS (%)	Total Score	Average Score	Valuation
Comfortable and safe arrangement of library room	29	1	30	96.67	3.33	145	4.87	Satisfy
The collection meets information needs	21	9	30	70	30	105	3.80	Satisfy
Environmental and forestry information is relevant	24	6	30	80	20	120	4.20	Satisfy
Searching for collections in the catalog is easy	28	2	30	93.33	6.67	140	4.73	Satisfy
Library services are free of charge	30	0	30	100	0	150	5.00	Satisfy

Evaluation Criteria	Satisfaction (S)	Unsatisfaction (NS)	Total	S (%)	NS (%)	Total Score	Average Score	Valuation
Librarians provide services in a professional and timely manner	30	0	30	100	0	150	5.00	Satisfy
Librarians provide friendly services	30	0	30	100	0	150	5.00	Satisfy

3.1. Analysis of Satisfaction

From Table 1, it is evident that the majority of respondents are satisfied with the library's services. The highest satisfaction rates were observed for questions related to the professional, friendly, and timely manner of the librarians, as well as the free of charge nature of services (Questions 5, 6, and 7). However, a closer examination reveals a notable exception: 30% of respondents were unsatisfied with the library's collection in terms of meeting their information needs (Question 2). This issue should be addressed to ensure that the library continues to serve its research community effectively. Prior studies have indicated that researchers often perceive the collection quality as insufficient, particularly when there is a lack of up-to-date or diverse resources (Handisa, 2018). To maintain user satisfaction and avoid negative perceptions, the library should focus on expanding its collection and ensuring it is aligned with the needs of its users.

Furthermore, the library's physical environment, particularly the arrangement of the library room, received overwhelmingly positive feedback (Question 1). This indicates that the library's atmosphere contributes to a satisfying user experience, which is critical for maintaining high levels of satisfaction in public service spaces. The introduction of security measures, such as lockers for visitors, could further enhance the library's safety and comfort, preventing theft and loss while ensuring users feel secure during their visits (Slessor, 2003).

In terms of information relevance, the respondents expressed general satisfaction with the environmental and forestry information available in the library (Question 3), although 20% of respondents found it lacking. This highlights an opportunity for the library to improve its environmental and forestry collections to better meet the needs of researchers. The findings from this study suggest that librarians should be responsive to user needs, and open communication with researchers could help the library to align its resources with current demands (Emezie & Nwaohiri, 2013).

Lastly, the free-of-charge service policy (Question 5) aligns with the principles of public service institutions, where charging fees could lead to ethical concerns such as corruption (Iheanacho, 2020). Offering free services while maintaining a high level of professionalism, timeliness, and friendliness in library services is crucial for sustaining user satisfaction.

3.2. Mercury Contamination and Environmental Health in the Context of Eco-literacy Program

The survey conducted on mercury contamination in the Nanggung Sub District reveals significant public health risks associated with mercury exposure, offering important insights that can guide the development of eco-literacy programs. As shown in Table 3, all participants exhibited detectable levels of mercury in their hair samples, indicating widespread contamination. Of particular concern is Participant 8, whose mercury levels surpassed the World Health Organization's threshold of 2.0 µg/g in human hair, it is identically containing mercury in human hair 1-2 mg/kg (Nasir *et.al*., 2021), highlighting the severity of exposure in the area.

This data emphasizes the importance of including environmental health issues, such as mercury contamination, in eco-literacy programs. By integrating such critical topics, the program can raise awareness and educate the community about the risks of mercury pollution and its long-term health implications. Expanding the library's collection to include resources on environmental health, such as mercury contamination, would further support the eco-literacy initiative, offering participants access to the latest research and information on how to mitigate environmental hazards in their communities.

To complete the data of mercury contamination in human hair, the team of eco-literacy also search data on Baduy's Indigenous People using the same method. It is assumed that mercury contamination can came from food and also children's snacks which easily sell by trader in that area. Table 3 is figure out data of mercury contamination in children indigenous people. Using Table 2 and Table 3, we can compare and contrast how the mercury contamination influence human live style in both villages.

Table 2. Mercury Contamination in Participant Hair Samples in The Gold Mining Community

Participant	Age (Years)	Hg Contamination (mg/Kg)
1	10	0.76
2	9	2.1
3	11	0.99
4	11	1.5
5	11	1.7
6	12	0.81
7	11	0.70
8	10	8.1
9	10	1.6
10	10	0.86
11	12	1.7
12	10	1.2
13	10	1.1
14	10	0.33
15	10	1.2
16	10	1.2

Participant	Age (Years)	Hg Contamination (mg/Kg)
17	11	1.2
18	11	0.80
19	11	2.0

Table 3. Mercury Contamination in Participant Hair Samples in The Baduy Indigenous People

Participant	Age (Years)	Hg Contamination (mg/Kg)
1	10	0.71
2	9	0.60
3	10	0.44
4	11	0.67
5	10	0.42
6	7	0.29
7	12	0.65
8	10	0.43
9	10	0.20
10	10	0.50
11	11	0.34
12	11	0.28
13	11	0.33
14	11	0.59
15	7	0.33
16	11	0.22
17	13	0.53
18	11	0.57
19	8	0.30
20	11	0.50
21	11	0.28
22	12	0.32
23	12	0.48
24	12	0.25
25	12	0.62
26	10	0.24
27	12	0.55
28	12	0.26
29	12	0.23
30	11	0.34
31	12	0.54
32	11	0.91
33	11	0.44
34	13	0.63
35	12	0.63

3.3. Satisfaction and Service Quality in Enhancing Eco-literacy

The RI Ardi Koesoema Library's satisfaction ratings reveal valuable insights into service quality, with particular emphasis on user needs. While the library has been well-received overall, gaps in the collection's relevance underline the need for continuous improvement. Using the Continuum Theory Model, which emphasizes iterative progression, the library can transition from a basic service provider to an influential knowledge hub. This can be achieved by regularly consulting users and curating collections that directly address emerging environmental and forestry concerns, such as eco-literacy and public health issues.

The eco-literacy program, which focuses on educating the community about environmental health risks like mercury contamination, provides a strategic direction for collection development. Incorporating resources that align with field data—such as those related to mercury exposure in the Nanggung Sub-District—can enhance the library's relevance. For example, Participant 8's mercury levels exceeding WHO thresholds (Nasir et.all, 2021) illustrate a pressing need for accessible, science-based resources to inform the public.

Based on Table 4, using the same method, we can describe that mercury contamination in indigenous people hair children is low. And there is different situation with children in Nanggung Village that two children have high mercury contamination in their hair. One child has highest mercury contamination 8.1 mg/kg of body mass. All children in Baduy's indigenous people has below the threshold mercury contamination 1-2 mg/kg of body mass so that we can contrast both villages about mercury contamination. The traditional lifestyle of indigenous people influences of their way of life so that they avoid contaminant lifestyle influence their tradition, for example junk food. The Baduy's indigenous people depend on natural food i.e. field rice with natural fertilizer, honey bee, traditional music, religion, and customary law. They are very obedient to the customary law and to their traditional leader (*puun*).

By both tables, librarian can inform to decision maker that their people in Nanggung Village was contaminated of mercury in the certain level. This information can help government employee, politician and village head to mitigate deployment of mercury to the children in their village, especially near the boundary of gold mining. Choosing to more health of lifestyle.

3.4. Knowledge as Power in an Eco-literate Society

The RI Ardi Koesoema Library embodies the concept of "knowledge as power" by providing access to ideational resources that shape public understanding and policy. Its extensive collection of 37,000 titles, ranging from books and journals to antique maps, reinforces its role as a critical knowledge repository. However, according to Cartensen and Schmidt (2016), power is multidimensional encompassing material, bargaining, and ideational aspects. It is capacity of actor (individual or group) to influence other actor to accept and adopt their views through the use of ideational elements. On the other hand, inclusivity of alternative idea also being part of this power so that other actors have beliefs that the idea can help them to act and learn by their experience.

Eco-literacy programs can leverage this framework by connecting ideational power (knowledge) with material (technology and resources) and bargaining power (stakeholder collaboration). For instance, the library could integrate digital platforms and capital investments to make eco-literacy resources universally accessible. Leadership plays a vital role in multiplying these access points, fostering an ecosystem where knowledge influences attitudes and actions toward environmental stewardship.

3.5. Collection Development Through Data-Driven Eco-literacy Initiatives

The eco-literacy program serves as a cornerstone for aligning library resources with national literacy policies and environmental priorities. Field data from mercury contamination studies in Nanggung Sub-District, such as those shown in Table 3, guide targeted collection enhancements. These insights inform the acquisition of materials addressing mercury risks, public health, and sustainable practices, filling critical gaps in the library's offerings.

For instance, derivative data from mercury contamination studies (Figure 3) enrich the library's collections, enabling users to explore connections between environmental hazards and health outcomes. This iterative process aligns with the Continuum Theory Model, emphasizing phased development and continuous adaptation.

By integrating eco-literacy into its strategic vision, the library not only fulfills its mandate to provide free and accessible services but also cultivates an informed, environmentally conscious community. With strengthened ideational power and robust support from technology and social identity networks, the RI Ardi Koesoema Library is poised to lead in the dissemination of critical environmental knowledge.

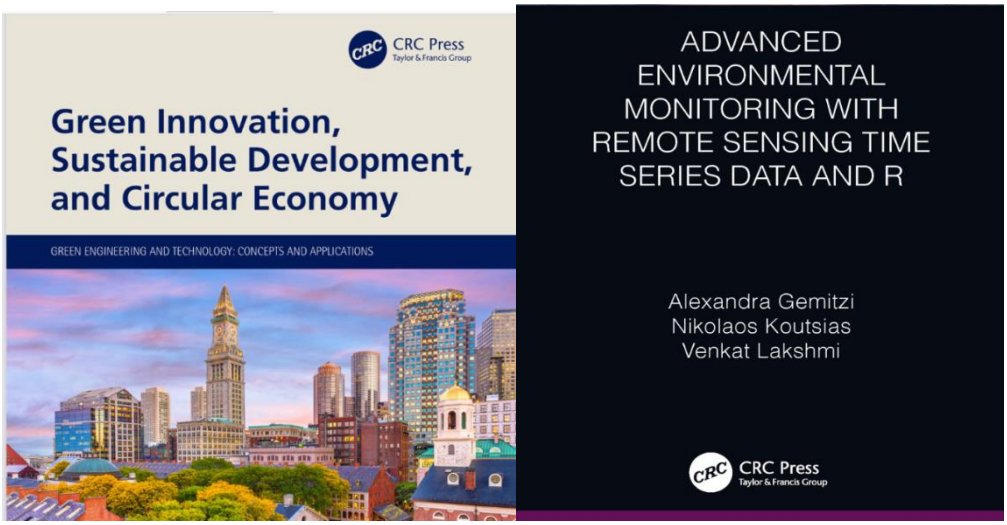

Figure 1. New Collection in RI AK Library for Environment Information from e-book

4. Conclusion

This study reaffirms the importance of customer satisfaction as a fundamental indicator of library service effectiveness. High levels of satisfaction not only reflect operational efficiency but also provide a strong foundation for aligning library programs with user expectations and needs. Libraries that consistently apply user-centered approaches are better positioned to sustain their role as providers of knowledge and community learning resources.

The findings indicate that although most users are satisfied with the services of the RI Ardi Koesoema Library, around 30% remain dissatisfied with the availability of information. This condition highlights the urgency of targeted improvements, particularly in expanding and updating collections to cover emerging and relevant issues such as mercury contamination and literacy education. Addressing this gap is essential to ensure that the library remains responsive to contemporary research and community demands.

Eco-literacy programs play a crucial role in strengthening the library's contribution to environmental awareness and education. Through these programs, the library empowers users with critical knowledge, encourages sustainable thinking, and supports community engagement. When implemented consistently, eco-literacy initiatives align with the Continuum Theory Model by promoting phased development through ideational, material, and bargaining dimensions, thereby transforming the library into a dynamic and adaptive knowledge hub.

By integrating user satisfaction assessment, data-driven service improvements, and eco-literacy programs, the RI Ardi Koesoema Library enhances its function in environmental education and community empowerment. These combined efforts support national literacy objectives while simultaneously contributing to sustainable development goals, demonstrating the library's strategic role beyond traditional information services.

To further improve performance and responsiveness, several recommendations are proposed, including expanding collections based on user feedback, conducting regular service evaluations, strengthening community engagement through eco-literacy collaborations, integrating digital technologies for better information access, and organizing targeted educational workshops on environmental and sustainability issues. Implementing these strategies will not only increase user satisfaction and participation but also reinforce the RI Ardi Koesoema Library's position as a center for knowledge dissemination and eco-literacy development.

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