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Developing a Needs-Based Information Literacy Mentoring Model through Karang Taruna in the Kepulauan Seribu

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ABSTRACT
In archipelagic communities, access to digital libraries remains constrained by limited infrastructure, uneven digital skills, and inadequate local support. This study developed and evaluated a needs-based information literacy mentoring model involving Karang Taruna members in the Kepulauan Seribu, Jakarta. Using a participatory action-oriented design, data were collected through needs assessments involving 15 respondents, mentoring activities with 16 participants from nine administrative villages, workshop observations, and 16 action plans. Descriptive and thematic analyses identified structural barriers related to transportation, internet connectivity, reading facilities, and local economic activities. The findings revealed four key roles for information literacy agents: facilitators, service liaisons, activity organizers, and promoters of ethical information use. Participants developed context-specific action plans integrating digital library services with community needs in education, tourism, and fisheries. The proposed model provides a practical framework for strengthening community-based information literacy through youth participation and institutional collaboration. However, its long-term effectiveness requires further evaluation of behavioral changes and sustained community engagement.

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Introduction

Kepulauan Seribu is an archipelago comprising settlements distributed across small islands. These geographical conditions create disparities in access to services, infrastructure, and information resources across the islands. Studies of the digital divide in rural Indonesia show that disparities extend beyond device ownership and internet connectivity to include the skills required to use technology and the benefits residents derive from it (Onitsuka et al., 2018). Research on digital library access in rural areas has also found that connectivity, device availability, and user support affect service utilization (Mamabolo & Durodolu, 2023).

Various digital library services and community reading facilities are available to expand access to reading materials. However, platform availability alone does not guarantee regular service use. Research on public libraries shows that technology support, mentoring, and services aligned with community needs are essential to digital inclusion (Bertot et al., 2016a; Jaeger et al., 2012; Noh, 2019). Therefore, the challenge in the Kepulauan Seribu is not merely to introduce applications but also to establish community-based roles that connect residents with these services.

Karang Taruna occupies a strategic position because it is embedded in local communities and can mobilize young people to participate in community activities. Studies on the digital literacy of Karang Taruna members in Indonesia show that young people can contribute social capital to community empowerment, although stronger infrastructure and sustained learning opportunities remain necessary (Setiadi et al., 2023). Research on the role of Karang Taruna also emphasizes its contribution to youth empowerment, skills development, and social participation (Murdiono & Rodiyah, 2024; Wardhani et al., 2026). In the context of information literacy, these capacities can be developed into the roles of facilitator, liaison, information curator, and organizer of activities responsive to residents' needs.

Initial coordination and needs mapping by the research team indicated that the program should clarify the role of Karang Taruna members as information literacy agents and prepare them to promote existing services. This role includes recognizing citizens' information needs, demonstrating how to find appropriate sources, helping citizens access digital collections, encouraging residents to assess the credibility of information, and organizing information-related activities appropriate to the local context. This approach conceptualizes information literacy as a social practice shaped by context, interaction, and information use, rather than solely as a set of individual technical skills (Pilerot, 2016; Hicks, 2020).

Previous research provides a foundation for community-based approaches to digital inclusion. Detlor et al. (2022) identified the importance of supportive learning environments, facilitator capacity, program accessibility, and systematic evaluation in

digital literacy training led by local organizations. Similarly, public libraries have been recognized as important sites of digital inclusion because they provide access to technology and tailored user assistance (Kulikauskienė & Šaparnienė, 2020; McKrell, 2014), while studies on coastal communities highlight the relevance of digital literacy to residents' capabilities and local economic activities (Yanfika et al., 2022). In the Indonesian youth context, research on Karang Taruna has primarily examined the acquisition of general digital skills, sports participation, and civic engagement (Murdiono & Rodiyah, 2024; Setiadi et al., 2023; Wardhani et al., 2026). However, limited empirical evidence explains how Karang Taruna members can function systematically as grassroots information intermediaries connecting formal digital library platforms with the socioeconomic needs of geographically dispersed island communities. This study addresses this empirical and practical gap by developing and evaluating a needs-based community mentoring model that positions Karang Taruna members as active intermediaries between digital library services and island residents in the Kepulauan Seribu.

This study examines the development and initial outcomes of a needs-based community mentoring model designed to position Karang Taruna members as information literacy agents in the Kepulauan Seribu. Rather than evaluating general technical literacy training, this research focuses on how youth representatives conceptualize their intermediary roles, align digital library services (such as iJakarta, iPusnas, BintangPusnas, and JakLitra) with community needs, and formulate village-level action plans intended to support sustainable services. Specifically, this study addresses three empirical research questions:

1. What community characteristics, structural constraints, and localized information needs are identified across the island communities of the Kepulauan Seribu?
2. How are the core roles and operational functions of Karang Taruna members as information literacy agents conceptualized through participatory digital library mentoring?
3. How are village-level action plans formulated to translate these agent roles into sustainable, locally relevant information services?

Methods

Research Design and Unit of Analysis. This study employed a participatory action-oriented evaluation design to develop and assess a needs-based community mentoring model to strengthen young people's roles as information literacy agents. Rather than treating participants as passive recipients of one-way instruction, the participatory design enabled youth representatives to identify regional needs collaboratively and formulate locally relevant service strategies, aligning with established frameworks for community-based digital literacy training (Detlor et al., 2022; Wahid et al., 2024). The study

incorporated two complementary units of analysis: (1) the *individual level*, examining how Karang Taruna representatives conceptualized their roles and navigated digital library platforms; and (2) the *community/kelurahan level*, examining localized structural constraints, community characteristics, and village-specific action plans across the Kepulauan Seribu Administrative Regency, DKI Jakarta.

Participants were recruited through purposive sampling in coordination with the Kepulauan Seribu Regency Karang Taruna organization and local village administrations. Eligibility criteria included active Karang Taruna membership, residence in the target island communities, and the ability to serve as youth liaisons within their communities. Two overlapping participant cohorts took part in different research stages:

1. Baseline Needs-Mapping Cohort ($n = 15$): Fifteen Karang Taruna representatives from multiple islands (including Kelapa, Tidung, Untung Jawa, Panggang, Harapan, and Pari/Lancang Islands) participated in pre-intervention distribution mapping to capture baseline community characteristics and structural challenges.
2. Mentoring and Action-Planning Cohort ($n = 16$): From an initial target of 18 representatives (two per *kelurahan* across all nine *kelurahan* in the regency), 16 youth representatives actively participated in both the virtual socialization and the in-person workshop, covering all nine kelurahan (an 88.9% individual participation rate).

Data collection was embedded within a three-stage participatory mentoring protocol conducted between August 2 and August 5, 2026:

1. Stage 1: Baseline Distribution Mapping and Virtual Socialization (August 2, 2026): Prior to the in-person session, baseline mapping data were gathered from 15 Karang Taruna respondents using a structured open-ended needs-mapping questionnaire covering community traits, local obstacles, proposed programs, and residents' expectations. A synchronous virtual meeting via Zoom was subsequently held with the 16 participants to establish rapport, confirm local resources and opportunities, and align technical schedules.
2. Stage 2: Institutional Field Coordination (August 4, 2026): The research team conducted on-site institutional coordination at the Tidung Island Village Office to verify infrastructure readiness (internet connectivity, audiovisual equipment), align administrative support with village officials, and document contextual field notes.
3. Stage 3: Participatory Mentoring Workshop and Action Plan Formulation (August 5, 2026): Conducted in the Pattern Room of the Tidung Island Village Office (09:00–15:00 Western Indonesian Time), this core stage combined interactive role-conceptualization discussions, guided hands-on exploration of four digital library platforms (iJakarta, iPusnas, BintangPusnas, and JakLitra), group mapping of

community target groups and access barriers, and structured drafting of village-level action plans.

Multiple instruments were used to collect empirical data across these stages: (a) a baseline distribution mapping questionnaire; (b) official attendance and participation logs; (c) structured observation logbooks documenting participant interactions and platform exploration; (d) audio-visual documentation; and (e) 16 written village-level action plan documents.

Data Analysis Procedures. The collected data were analyzed using complementary descriptive quantitative and qualitative approaches:

1. Quantitative Descriptive Analysis: Participation metrics, village representation, module distribution, and action plan completion rates were summarized as frequencies and percentages and compared with predetermined output benchmarks (Table 1).
2. Qualitative Thematic Content Mapping: Responses from the 15 baseline mapping questionnaires, workshop discussion notes, and the 16 community action plans were systematically coded and categorized into thematic matrices. Coding focused on four analytical dimensions: respondent/island social characteristics (Table 3), structural barriers and community expectations (Table 4), conceptualized agent functions, and localized action strategies (Table 2).

To enhance trustworthiness and rigor, this study applied methodological and source triangulation by cross-checking findings across baseline questionnaires, facilitator observation logbooks, group discussion outputs, and written village action plans. Member checking was performed during the workshop plenary sessions, during which participants reviewed and confirmed the accuracy of the identified local resources and proposed action plans.

Regarding research ethics, institutional permission was obtained from the Institute for Research and Community Service (LPPM) of Universitas Negeri Jakarta and the Tidung Island Village Administration. All participants were informed of the study's objectives prior to data collection and voluntarily consented to participate and to the documentation of their activities. To protect respondent confidentiality in the baseline mapping (Table 3), personal names were anonymized using numerical codes and village affiliations.

The activity was carried out in the Pattern Room, Tidung Island Village Office, South Kepulauan Seribu District, Kepulauan Seribu Administrative Regency, DKI Jakarta, from August 2 to 5, 2026. Participants were recruited through purposive sampling based on the presence of active Karang Taruna organizations across the inhabited islands of the Kepulauan Seribu Administrative Regency. Specifically, nine administrative village units (kelurahan) with established Karang Taruna branches were selected as the geographical

sampling frame. To ensure balanced geographical representation and foster peer-supported implementation within each island, a target sample of 18 participants was established by allocating two youth representatives per location (9 units $\times$ 2 representatives).

Recruitment was conducted in coordination with the Kepulauan Seribu Regency Karang Taruna leadership and local village officials. To be eligible, prospective participants had to meet four inclusion criteria: (1) active membership in their local Karang Taruna unit; (2) residence in the island community they represented; (3) basic familiarity with mobile devices or digital applications; and (4) willingness to participate in all mentoring stages and formulate a community action plan.

Methodologically, this study distinguishes between three participant groups across different analytical stages to maintain transparency in the evaluation:

1. Target Population ($N = 18$): The planned quota comprised two representatives from each of the nine participating kelurahan and served as the denominator for assessing program reach and quantitative achievement (Table 1).
2. Baseline Needs-Mapping Cohort ($n = 15$): Fifteen Karang Taruna representatives from six island villages (Kelapa, Tidung, Untung Jawa, Panggang, Harapan, and Pari/Lancang Islands) completed the pre-intervention distribution mapping questionnaire. This group constituted the analytical sample for baseline community characteristics, structural constraints, proposed programs, and residents' expectations (Tables 3 and 4).
3. Actual Mentoring and Action-Planning Cohort ($n = 16$): Sixteen representatives who attended both the virtual socialization and the in-person workshop, achieving an 88.9% individual participation rate while maintaining 100% geographical representation across all nine *kelurahan*. The two-person shortfall was attributed to inter-island sea transportation and scheduling constraints. This cohort of 16 participants served as the analytical group for role conceptualization, digital platform exploration, and the production of 16 village-level action plans (Tables 1 and 2).

The participatory mentoring intervention was conducted in two main phases, supported by prior on-site coordination with Tidung Island Village officials (August 4, 2026) to ensure institutional alignment, venue readiness, and reliable internet connectivity for digital platform demonstrations.

1. Pre-Intervention Virtual Socialization (August 2, 2026): A synchronous meeting via Zoom was conducted with prospective participants from all nine *kelurahan* to establish initial rapport, align schedules, and capture preliminary insights into each island’s local resources and information needs.

2. Participatory Mentoring Workshop (August 5, 2026): The core six-hour session (09:00–15:00 WIB) was held in the Pattern Room of the Tidung Island Village Office and comprised four structured components:

    a. *Role Conceptualization Discussion:* Interactive sessions were used to define Karang Taruna's four core functions as information literacy agents—citizen facilitators, library service liaisons, activity drivers, and promoters of responsible information use.
    b. *Digital Library Exploration:* Guided hands-on demonstrations introduced the iJakarta, iPusnas, BintangPusnas, and JakLitra platforms to familiarize participants with the platforms so they could assist residents.
    c. *Participatory Needs and Barrier Mapping:* Small-group discussions enabled participants to identify target resident groups, localized information needs, and island-specific access barriers.
    d. *Village Action Plan Formulation:* Participants drafted structured follow-up action plans tailored to each island's socioeconomic opportunities and community needs.

To move beyond purely administrative metrics and systematically evaluate the immediate capacity-building outcomes of the mentoring model, assessment was structured across two analytical levels: *program reach outputs* and *substantive readiness outcomes*. First, program reach was measured quantitatively through attendance logs, geographical representation across the nine *kelurahan*, and action plan completion rates. Second, substantive readiness was evaluated qualitatively using structured assessment criteria applied to observation logbooks and written village action plans across three dimensions: (1) role conceptualization clarity, assessed by participants' ability to articulate the four core agent functions (facilitator, liaison, activity driver, and ethical information guardian) rather than merely describing technical application use; (2) operational service mediation readiness, observed through participants' ability to navigate digital library platforms and match specific services with local target groups; and (3) action plan contextual alignment, evaluated based on whether each village's proposed activities directly addressed mapped local resources and opportunities (e.g., marine tourism, fisheries, or education) and specified realistic implementation targets. Consistent with the cross-sectional scope of this initial evaluation, these criteria capture immediate cognitive and operational readiness (*short-term outcomes*) rather than longitudinal behavioral changes or sustained community-level service adoption, which require subsequent post-intervention tracking.

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Result and Discussion

1. Activity Implementation Process

To evaluate the empirical outcomes of the needs-based mentoring model, program reach and direct output indicators were measured against predetermined benchmarks across the participating island communities. As summarized in Table 1, the mentoring intervention achieved 100% geographical representation across all nine targeted *kelurahan* in the Kepulauan Seribu Administrative Regency, with 16 of the 18 targeted Karang Taruna representatives (88.9%) completing both the pre-intervention virtual socialization and the in-person workshop. All 16 participating representatives produced written village-level action plans (88.9% of the 18-document target), and 23 copies of the structured training module were distributed.



Figure 1. Needs-Based Community Information Literacy Mentoring Model

Table 1. Quantitative Achievement of Activities

Indicator	Target	Realization	Remarks
Number of trainees	18 participants	16 participants	Achieved 88.9%
Number of villages represented	9 kelurahan	9 kelurahan	Achieved 100%
Participants attending the pre-workshop Zoom meeting	18 participants	16 participants	88.9%
Structured training module	1 Module	23 Copies	Achieved 100%
Written action plans	18 Documents	16 Documents	Achieved 88.9%

Discussions and group activities focused on clarifying the role of Karang Taruna members in connecting residents with the information they need. The principal roles identified were:

a. Facilitator: helping residents identify their information needs and locate relevant sources.

b. Liaison: introducing residents to available digital library services and community reading facilities.
c. Activity organizer: designing information-sharing activities related to education, the economy, tourism, fisheries, and environmental issues.
d. Promoter of responsible information use: encouraging residents to verify sources, follow ethical information-sharing practices, and protect personal data.

Following the hands-on exploration of iJakarta, iPusnas, BintangPusnas Edu, and JakLitra, observation records and group discussions yielded three key findings regarding participants' operational readiness and service mediation strategies:

a. Functional Mapping of Services to Resident Segments: Participants successfully identified the specific functions of each platform for specific community target groups—identifying *BintangPusnas Edu* and *iPusnas* as primary resources for students and educators, while positioning *iJakarta* and *JakLitra* as accessible reading and practical reference tools for other residents, micro-, small-, and medium-sized enterprise (MSME) operators, and tourism workers.
b. Shift from Passive Users to Active Mediators: Rather than treating platform mastery as an end in itself, participants demonstrated the ability to translate technical access procedures (such as account registration and keyword searching) into step-by-step guidance tailored for residents with limited digital experience.
c. Identification of Context-Specific Access Constraints: Through live testing, participants identified practical operational barriers affecting island-level deployment, particularly fluctuating mobile internet bandwidth on outlying islands, varying smartphone storage capacities among residents, and the need for offline or low-bandwidth guidance strategies when assisting residents.

Participants were introduced to digital library services that could support their work as information literacy agents:

1. iJakarta: a digital library application provided by the DKI Jakarta Library and Archives Office that offers free e-books, audiobooks, and magazines.
2. iPusnas: a digital library service provided by the National Library of Indonesia.
3. BintangPusnas.edu: an integrated platform of the National Library of Indonesia designed to support independent learning.

Platform demonstrations were incorporated into discussions of the agents' roles rather than treated as the ultimate objective of the intervention. Literacy agents need to understand how services work in order to help citizens find appropriate resources, explain access steps, and connect local needs with digital collections. This form of mediation is consistent with research on libraries as facilitators of digital inclusion and access to information (Bertot et al., 2016; Jaeger et al., 2012; Noh, 2019).

Participating representatives prepared action plans tailored to the resources and needs of their respective communities.

Table 2. Action Plan per Village

Village	Local Potential	Activity Plan
Tidung Island	Marine tourism	Marine tourism information assistance for tour managers and students
Pramuka Island	Educational administration	Educational information referral clinic for students and educators
Kelapa Island	Fisheries and aquaculture	Assistance in finding information on aquaculture and marketing of fishery products
Harapan Island	Fisheries tourism	Sharing marine information sources and MSME development
Untung Jawa Island	Tourism	Information access assistance for homestay and tourism operators

The action plan connects the functions of information literacy agents with local resources and needs. This needs-based approach is in line with research showing that digital literacy is more meaningful when it is relevant to everyday life and community empowerment objectives (Setiadi et al., 2023; (Yanfika et al., 2022; Prado et al., 2016).

2. Mapping Needs and Local Resources Based on Karang Taruna Distribution Data

Baseline Needs-Mapping Data Collection and Analytical Procedures. To establish an empirical baseline prior to the in-person mentoring workshop, distribution mapping data were collected from 15 active Karang Taruna representatives between July 28 and August 2, 2026, coinciding with the pre-intervention virtual coordination phase. Data were gathered using a structured online questionnaire comprising open-ended items distributed via digital messaging channels in coordination with Karang Taruna administrators. The instrument comprised respondent identification items (island/kelurahan affiliation and organizational role) alongside four core open-ended prompts designed to elicit qualitative insights regarding: (1) local social and community characteristics; (2) primary structural and literacy-related obstacles; (3) community programs needed locally; and (4) residents' broader development expectations.

The 15 respondents represented six inhabited island communities across the Kepulauan Seribu Administrative Regency: Kelapa Island ($n = 5$), Tidung Island ($n = 2$), Untung Jawa Island ($n = 2$), Panggang Island ($n = 2$), Harapan Island ($n = 2$), and Pari/Lancang Island ($n = 2$). To ensure methodological transparency, raw open-ended responses were processed through a three-step qualitative content analysis: (1) data compilation and anonymization, wherein individual names were replaced with sequential respondent codes tied to their respective *kelurahan* (Table 3); (2) inductive open coding, wherein recurring phrases describing community barriers, proposed initiatives, and residents' expectations were extracted and grouped into semantic clusters; and (3) thematic matrix synthesis, wherein coded findings were consolidated into three overarching analytical dimensions—main obstacles, proposed programs, and public

expectations (Table 4)—and cross-checked by two research team members for consistency.

Table 3. Profiles and Community Characteristics Reported by Karang Taruna Respondents

No	Respondent	Kelurahan/Island of Origin	Reported Community Characteristics
1	Representative of the Kelapa Island Village Karang Taruna 1	Kelapa Islands	Solidarity is quite high and friendly to immigrants
2	Representative of the Tidung Island Village Karang Taruna 2	South Kepulauan Seribu/Tidung Island	Kind, friendly, caring, and successful
3	Representative of the Kelapa Island Village Karang Taruna 2	Kelapa Islands	Mutual cooperation, care, sharing
4	Representative of the Kelapa Island Village Karang Taruna 3	Kelapa Islands	Kind and friendly to the surrounding community
5	Representative of the Kelapa Island Village Karang Taruna 4	Kelapa Islands	Friendly, with strong mutual cooperation; mostly fishermen, traders, and civil servants
6	Karang Taruna representative from Kelapa Island Village 5	Kelapa Islands	Friendly and adaptable
7	Representative of the Karang Taruna of Untung Jawa Island Village 1	Untung Jawa Island	Limited social cohesion; groups tend to operate separately
8	Representative of the Karang Taruna of Untung Jawa Island Village 2	Untung Jawa Island	Friendly, humanist, kind
9	Representative of the Pulau Panggang Village Karang Taruna 1	Panggang Island	Friendly, unique
10	Representative of the Tidung Island Village Karang Taruna 1	Tidung Island	Fishermen, tourism
11	Representative of the Harapan Island Village Karang Taruna 1	Harapan Island	Hospitality and mutual cooperation
12	Representative of the Harapan Island Village Karang Taruna 2	Harapan Island	Friendly, chatty
13	Representatives of the Pari Island Village Karang Taruna 1	Lancang Island/Pari Island	Kind, cohesive, and reserved
14	Representatives of the Pari Island Village Karang Taruna 2	Lancang Island/Pari Island	Proud of the residents, friendly, socially integrated with neighbors
15	Representative of the Pulau Panggang Village Karang Taruna 2	Panggang Island	Modest, kind, polite, helpful, caring, and knowledgeable

Table 4. Summary of Constraints, Proposed Programs, and Community Expectations

Aspects	Findings
Main obstacles	Inter-island and ship transportation; limited fuel/diesel; limited access to island tourism; unreliable internet connectivity; low interest in reading and literacy; limited book availability; limited library space; lack of literacy activities for children and adolescents; limited public facilities; narrow open space; no football/futsal field; limited employment and commercial opportunities; unmanaged waste; lack of educational forums; lack of student monitoring; unfair competition for tour guides
Proposed programs	Building libraries and mobile libraries; creating reading corners/mini libraries; holding reading activities together; reading promotion activities; literacy and discussion forums; training and guidance programs; environmental literacy, especially waste; construction of public facilities; procurement of clean water and toilets; sports fields and tournaments; development of the tourism sector; ecotourism; tour guide training; cooperatives; reserves of Karang Taruna; cultivation of rumpon/fish houses; foreign language training; MBG; community service
Public expectations	Improved public facilities; availability of jobs; sustainable literacy; greater public interest in reading and learning; a stronger tourism sector that supports economic activity and MSME growth; fish prices are stable; availability of reliable tour guides; people are more concerned about the environment; residents are becoming more cohesive; the government continues to address community needs

To derive analytical categories from the raw open-ended responses ($n = 15$), all reported obstacles, proposed programs, and expectations in Table 4 were subjected to inductive thematic coding and grouped into five empirical need domains: (1) literacy and educational support, reflected in respondent entries highlighting *"low interest in reading and literacy," "lack of availability of books," "narrow library,"* and proposals for *"creating reading corners/mini libraries"* and *"literacy and discussion forums"*; (2) digital connectivity and basic infrastructure, represented by responses noting *"weak internet network," "limited public facilities,"* and requests for *"procurement of clean water and toilets"* and *"sports fields"*; (3) inter-island mobility and energy access, evidenced by entries citing *"inter-island and ship transportation"* and *"limited fuel/diesel"*; (4) local economic and tourism livelihoods, illustrated by responses identifying *"limited employment and selling fields," "unfair competition for tour guides,"* and proposals for *"tour guide training," "cooperatives," "cultivation of rumpon/fish houses,"* and *"foreign language training"*; and (5) environmental stewardship, demonstrated by entries pointing to *"unmanaged waste"* and *"environmental*

literacy, especially waste." This empirical categorization demonstrates that residents' information needs are deeply embedded in broader structural, transportation, economic, environmental, and public service challenges. While information literacy agents cannot directly resolve physical infrastructure deficits, these findings indicate that agents can play a critical intermediary role by connecting citizens with relevant public services, curating practical livelihood and environmental information, and articulating community needs to local stakeholders—consistent with the community informatics perspective that positions information and technology as enablers of social, economic, and civic participation (Kirya & Lutaaya, 2024).

3. The Role of Karang Taruna as a Liaison between Residents and Information Resources

The empirical findings of this study highlight an important distinction between technical proficiency in operating digital applications and the social capacity to act as an information literacy agent. Rather than functioning merely as end users of platforms such as iJakarta, iPusnas, BintangPusnas, or JakLitra, participants conceptualized their role as active intermediaries who diagnose residents' information needs, locate credible sources, assess the relevance of information, and promote ethical information sharing. When critically compared with prior literature, this finding extends practice-based theories of information literacy—which frame literacy as a situated social practice rather than an isolated cognitive skill (Pilerot, 2016; Hicks, 2020)—into the underexplored context of archipelagic youth organizations. While previous Indonesian studies on Karang Taruna have largely emphasized individual digital skill acquisition for general youth empowerment (Setiadi et al., 2023a), our findings indicate that in geographically dispersed island settings, technological access remains underutilized unless mediated by trusted local actors. A plausible explanation for this mechanism lies in Karang Taruna's embedded social capital—such as strong traditions of mutual cooperation (*gotong royong*) and community familiarity identified in the baseline mapping (Table 3)—which may lower residents' psychological and technical barriers to seeking information. Conceptually, therefore, this study contributes a broader understanding of Karang Taruna members not merely as beneficiaries of digital literacy training, but as *grassroots information intermediaries* bridging formal digital library infrastructures with residents' everyday socioeconomic realities.

In the context of the Kepulauan Seribu, the liaison role is relevant when residents seek information about education, business opportunities, aquaculture, product marketing, tourism, or environmental management. Karang Taruna can help identify needs, identify relevant digital resources, and organize information-sharing activities. Research on Karang Taruna youth in Indonesia shows that digital capabilities can support personal empowerment and economic development, but support for access and sustainable learning is still needed (Setiadi et al., 2023a).

Detlor et al. (2022) emphasized that the success of community-based digital literacy programs is influenced by learning conditions, implementation capacity, accessibility, and evaluation. Therefore, Karang Taruna members therefore need clearly defined roles, support from local administrations and libraries, accessible learning materials, and opportunities to undertake follow-up activities. This approach is also in line with research on community empowerment through digital information services, which emphasizes assistance and resident participation (Wahid et al., 2024).

Studies on coastal communities show that digital literacy can help communities expand access to knowledge that is relevant to social and economic needs (Yanfika et al., 2022). In this program, the objective is not to turn Karang Taruna members into experts in every field but to equip them as facilitators who can connect residents with reliable information sources, including resources relevant to business development and local economic opportunities.

Karim et al. (2021) examined the relationship between young people's perceived information literacy and their evaluations of information services and guidance. These findings support the importance of agents' ability to understand user needs and service quality. Research on misinformation also shows that information literacy plays a role in recognizing hoaxes and considering decisions to share content on social media (Kurniasih et al., 2024). Therefore, agents' roles extend beyond disseminating information to encouraging source verification and responsible information-sharing practices.

Although participants articulated their intermediary roles and formulated village-level action plans, the cross-sectional scope of this initial intervention did not measure post-mentoring behavioral changes, direct impacts on residents' information literacy, or the long-term sustainability of implementation. Consequently, these findings should not be interpreted as evidence of long-term program effectiveness; rather, this study provides preliminary empirical evidence of agent readiness, a baseline mapping of archipelagic community needs, and structured follow-up action designs. Determining whether these immediate outputs translate into sustained community-wide impact requires longitudinal monitoring of activities implemented by Karang Taruna, resident participation rates, digital library usage metrics, and documented instances of assistance with residents' information needs. As emphasized in community-led digital literacy research, systematic outcome tracking is essential to ensure that community initiatives progress beyond initial attendance records and planning documents toward measurable social inclusion (Detlor et al., 2022).

4. Mastery of Digital Library Platforms and the Challenge of Sustainable Access

Participants were introduced to iJakarta, iPusnas, BintangPusnas, and JakLitra as resources that agents could use to assist residents in finding reading materials and information sources. The introductory materials focused on how Karang Taruna members

could explain access procedures, guide basic searches, and inform target groups about available services. Public libraries can become part of the social infrastructure supporting digital inclusion when access to technology is accompanied by education and assistance with technology use (Bertot et al., 2016b; Jaeger et al., 2012; Kulikauskienė & Šaparnienė, 2020).

Guided information searches gave participants an initial understanding of procedures they could subsequently demonstrate to residents. However, technical proficiency demonstrated during a workshop cannot, by itself, establish sustained mentoring capability. The role needs to be strengthened through repeated practice, simple guidance, shared responsibilities, and evaluation based on residents' needs. Community-based digital training studies recommend facilitator support, appropriate program access, sustainable funding, and outcome measurement (Detlor et al., 2022).

Post-training access challenges also require attention. Mamabolo and Durodolu (2023) show that the use of digital libraries in rural areas is related to infrastructure, devices, user skills, and service support. Onitsuka et al. (2018) also explained that the digital divide in rural Indonesia has several layers, and therefore requires responses beyond merely providing internet connectivity. For Karang Taruna, this means that action plans must account for local network conditions, available devices, and residents' time constraints.

Community reading facilities with digital services can provide initial access to information sources. However, literacy agents need to recognize the limitations of these services and adapt mentoring to residents' circumstances, including unstable internet connectivity. Studies on libraries and digital inclusion show that technology, mentoring, and organizational support must be combined to make services accessible to diverse groups (Noh, 2019; Kulikauskienė & Šaparnienė, 2020).

To sustain these roles, several measures are needed: first, appoint coordinators and assign responsibilities within Karang Taruna; second, prepare activity schedules and concise mentoring guidelines; third, integrate digital service introductions into village activities, reading clubs, or MSME mentoring; fourth, coordinate with libraries and local governments; and fifth, maintain simple records of residents' questions, service referrals, and access barriers. These steps are in line with studies that place libraries and community organizations as intermediaries supporting digital inclusion (Jaeger et al., 2012; McKrell, 2014; Detlor et al., 2022).

5. Action Plan Based on Local Potential and Information Needs

Table 2 shows that participating communities developed action plans tailored to their local resources and opportunities. On Tidung Island, participants designed information literacy activities for tourism operators and students. On Pramuka Island,

participants proposed information referral clinics for students and educators. On Kelapa Island, participants proposed assistance with accessing information on aquaculture and fisheries marketing. On Harapan Island, participants proposed sharing information resources related to fisheries, tourism, and MSME development. On Untung Jawa Island, participants proposed information assistance for homestay and tourism operators.

The action plans show that the role of information literacy agents needs to be linked to the specific needs of local communities. Information is not treated as abstract material, but as a resource to help citizens find learning opportunities, understand services, develop businesses, improve tourism services, or manage the environment. The community informatics perspective emphasizes that the use of information technology should be guided by community goals and needs (Kirya & Lutaaya, 2024; Prado et al., 2016).

Yanfika et al. (2022) discuss the relevance of digital literacy in building the capacity of coastal communities, while Setiadi et al. (2023) examine the digital literacy of Karang Taruna youth in the context of community empowerment. Together, these studies support action planning that connects young people's roles with local resources and opportunities. In practice, Karang Taruna can serve as an initial point of contact and collaborate with librarians, educators, business actors, and village officials if the needs of residents require special skills.

A commitment to organize at least two activities per month at each reading facility is an early indicator of sustainability. However, this commitment needs to be tested through monitoring. Potential risks include participant fatigue, budget limitations, changes in village priorities, and weak coordination between islands. Therefore, each action plan should identify a person responsible, a schedule, success indicators, and a simple reporting mechanism.

6. Mapping Needs as the Basis for the Role of Information Literacy Agents

Tables 3 and 4 show that information literacy challenges in Kepulauan Seribu are interconnected with broader community conditions. Across the responses of 15 Karang Taruna representatives, friendliness, mutual cooperation, and concern for others emerged as prominent community characteristics. However, one respondent also noted limited social cohesion, suggesting that social capital may vary across islands.

Table 4 summarizes the main obstacles: inter-island and ship transportation, limited fuel/diesel, limited access to island tourism, unreliable internet connectivity, low interest in reading and literacy, limited book availability, limited library space, lack of literacy activities for children and adolescents, limited public facilities, narrow open spaces, no football/futsal fields, limited employment and commercial opportunities,

unmanaged waste, lack of educational forums, lack of student monitoring, and unfair competition for tour guides.

These obstacles show that literacy is not only a matter of providing reading materials. Literacy is closely related to transportation infrastructure, energy access, internet connectivity, the economy, the environment, and local governance. Residents who face long sea journeys, fuel shortages, and unreliable communication signals may struggle to use digital libraries effectively. Similarly, limited interest in reading cannot be separated from the lack of public facilities, open spaces, and educational activities for children and adolescents.

The programs proposed by the community are also multidimensional: building libraries and mobile libraries, creating reading corners, organizing collective reading activities, reading promotion campaigns, literacy forums, training and guidance, environmental literacy, especially waste, construction of public facilities, provision of clean water and sanitation facilities, sports fields and tournaments, tourism development, ecotourism, tour guide training, cooperatives, Karang Taruna reserves, cultivation of rumpon/fish houses, foreign language training, MBG, and community service.

The community's expectations also reflect the same needs: adequate public facilities, employment opportunities, sustained literacy programs, people who love to read and learn, a stronger tourism sector, growth in the local economy and MSMEs, stable fish prices, reliable tour guides, people who care about the environment, stronger community cohesion, and continued government attention to community needs.

The literature indicates that technology availability alone is insufficient to achieve digital inclusion. Access, infrastructure, usage support, service design, and community needs also influence utilization (Jaeger et al., 2012; Bertot et al., 2016; Mamabolo & Durodolu, 2023; Onitsuka et al., 2018). Therefore, information literacy agents need to act as liaisons, identify information needs, and communicate barriers that cannot be solved by the community itself.

Karang Taruna’s role in information literacy should be developed at three levels. At the individual level, members understand the functions and boundaries of their role and recognize relevant sources of information. At the community level, they organize activities and help residents access services. At the institutional level, they establish coordination with libraries, local administrations, schools, and community groups. This collaborative model is in line with research that places local organizations and libraries as partners in fostering digital inclusion (Detlor et al., 2022; Kulikauskienė & Šaparnienė, 2020;Abramowitz, 2025).

7. Supporting and Inhibiting Factors for Program Implementation

Beyond the primary empirical findings, field observations and implementation reflections from the research team highlight several contextual factors that facilitated or constrained the mentoring intervention. Regarding enabling conditions, two factors were corroborated by participation metrics and workshop logs: first, adopting a hybrid design—initiating socialization via Zoom before in-person sessions—enabled youth from remote islands to engage without immediate sea travel, reflected in the 88.9% attendance rate (16 of 18 targeted participants) (Table 1); second, active participant engagement was observed throughout group discussions, platform demonstrations, and action plan drafting. Complementing these observed patterns, field reflections indicate that institutional backing from local authorities (specifically the Tidung Island Village Head and administrative staff in providing venue access and coordination) and the availability of existing public literacy resources (such as JakLitra and regency reading points) served as essential operational foundations.

Conversely, inhibiting factors emerged from both empirical mapping data and implementation reflections. Directly supported by the baseline mapping (Table 4) and attendance records, archipelagic geography, inter-island sea transportation schedules, fuel constraints, and unstable internet connectivity posed persistent structural barriers—accounting for the 11.1% shortfall in attendance (two invitees who did not attend) and restricting live digital platform exploration. From an implementation reflection standpoint, two additional constraints warrant attention: varying smartphone device capacities among residents and the brief duration of the single-day workshop, which prevented direct observation of post-training behavioral adoption.

To address these constraints in future iterations, implementation reflections point toward transitioning from a single workshop to a continuous mentoring cycle—comprising periodic online follow-ups, scheduled inter-island field visits, advanced agent training, self-paced offline-compatible modules, and sustained institutional collaboration with the DKI Jakarta Library and Archives Office.

Additional implementation barriers were also identified. First, island geography restricts the mobility of participants and research teams. Second, two invited representatives did not attend, resulting in an 88.9% achievement rate for the targeted participants and action plans. Third, weak internet connections and device limitations can interfere with hands-on practice with digital platforms. Fourth, fuel shortages and inter-island transportation limitations affect the sustainability of mentoring. Fifth, the short training period did not allow long-term behavioral change to be measured.

Potential mitigation strategies include periodic online monitoring, scheduled field visits, advanced training for literacy agents, preparation of modules that can be used independently, and collaboration with the DKI Jakarta Library and Archives Service.

Mentoring should therefore extend beyond a single training session and become a continuous cycle of training, practice, follow-up support, evaluation, and improvement.

8. Theoretical and Practical Implications

Conceptually, the program combines a community-based approach with efforts to strengthen young people's roles as information intermediaries. Karang Taruna is positioned as a community resource; digital library platforms and reading facilities serve as information-service resources; and tourism, fisheries, education, and environmental concerns shape the context of local information needs. The community informatics literature emphasizes the importance of connecting technology with social, economic, cultural, and citizen participation goals (Kirya & Lutaaya, 2024; Prado et al., 2016). Research on youth organizations also highlights the potential of youth organizations as spaces for social participation and leadership development (Murdiono & Rodiyah, 2024; Wardhani et al., 2026).

Practically, this program generated an initial understanding of information literacy agents' roles, introduced digital library services as practical tools, mapped community needs, and supported the preparation of local action plans. These outputs form the basis for subsequent program development. Long-term success needs to be assessed through evidence of the implementation of activities, citizen involvement, service utilization, and the quality of the information sources provided, not just the number of participants or plan documents. This kind of evaluation approach is supported by research on community-based digital training (Detlor et al., 2022).

A central policy implication is the need to integrate digital literacy programs with transportation, energy, internet connectivity, education, tourism, and economic empowerment policies in the Kepulauan Seribu. Without such integration, literacy programs will face structural constraints that are difficult for the community itself to overcome.

This program has the potential to support SDG 4 (Quality Education) by expanding opportunities for citizens to find learning resources and SDG 10 (Reduced Inequalities) by connecting island communities to information services. This potential depends on follow-up and access support. Studies on public libraries show that access, education, and technical assistance can support digital inclusion (Bertot et al., 2016; Noh, 2019; Sanjaya et al., 2025), while research on digital disparities in rural Indonesia emphasizes the importance of considering infrastructure and usage factors (Onitsuka et al., 2018).

In addition, this program indirectly supports SDG 8 (Decent Work and Economic Growth) through literacy links with MSMEs, tourism, and fisheries; and SDG 11 (Sustainable Cities and Communities) through environmental literacy and waste

management. However, these contributions remain potential benefits that require follow-up activities before measurable impacts can be established.

Several limitations should be acknowledged. First, the intervention was brief, so the evaluation could not assess whether Karang Taruna members sustained their roles after the workshop. Second, the evaluation relied on attendance lists, logbooks, documentation, discussions, and action plans; no standardized instrument was used to measure changes in participants' competencies or impacts on residents. Third, two invited participants did not attend. Fourth, infrastructure and connectivity limitations constrained access. Community-based digital training research emphasizes the need for outcome measurement and follow-up evaluation to assess program effectiveness (Detlor et al., 2022; Robby et al., 2026).

Conclusion

This study examined the development and initial readiness outcomes of a needs-based community mentoring model designed to position Karang Taruna members as information literacy agents in the Kepulauan Seribu. Addressing the study's research questions, three empirical conclusions emerged from the data:

1. Interdependence of Information Needs and Structural Context: Baseline mapping ($n = 15$) revealed that while island communities exhibit social capital reflected in friendliness and mutual cooperation (*gotong royong*), their information needs are inseparable from structural constraints—including inter-island transportation, fuel limitations, weak internet connectivity, limited reading spaces, and livelihood demands in marine tourism and fisheries.
2. Conceptualization of Social Intermediary Roles: Through participatory mentoring across all nine *kelurahan* ($n = 16$, achieving 88.9% of the 18-participant target), youth representatives articulated four intermediary functions that extended beyond the role of technical application users: citizen facilitators, service liaisons for digital libraries (iJakarta, iPusnas, BintangPusnas Edu, and JakLitra), activity drivers, and promoters of ethical information verification.
3. Localization of Service Strategies: Participants successfully translated these intermediary roles into 16 written village-level action plans aligned with specific local resources and opportunities, such as marine tourism information clinics, educational referral services, and aquaculture marketing assistance.

Theoretically and conceptually, this research contributes an operational community-informatics framework that links digital library infrastructure with grassroots youth agency across individual, community, and institutional levels. Nevertheless, because this cross-sectional evaluation measured immediate cognitive and operational readiness rather than longitudinal behavioral shifts, long-term effectiveness and sustained community adoption have not yet been established. Practically and from a

policy perspective, sustaining the role of Karang Taruna as information literacy agents requires periodic post-mentoring monitoring, institutional support from the Kepulauan Seribu Administrative Regency Government and the DKI Jakarta Library and Archives Office, and cross-sectoral policies that address underlying connectivity, transportation, and public facility deficits alongside digital literacy initiatives.

The initial mapping of 15 Karang Taruna members identified community needs related to public facilities, transportation, employment, internet access, reading activities, tourism, and the environment. These findings show that information literacy agents need to understand the local context and cooperate with other institutions, because not all problems can be solved through digital library services. This activity produced initial outputs including role clarification, service introductions, and action plans; effects on service utilization and community behavior remain to be evaluated through follow-up activities.

Suggestions:

1. The service team should conduct periodic monitoring and evaluation through field visits and online mentoring to assess the implementation of the role of information literacy agents and action plans.
2. The Kepulauan Seribu Administrative Regency Government and the Jakarta Library and Archives Office should support the sustainability of information literacy agents' roles through coordination, improved service access, and resource provision.
3. The program could be extended through advanced training materials on community facilitation, information needs assessment, public communication, resource evaluation, and management of information literacy agent activities.
4. The service team should prepare a comprehensive policy recommendation document to encourage the strengthening of digital literacy programs in the Kepulauan Seribu.
5. Local governments and stakeholders should address structural issues identified through the distribution mapping, such as inter-island transportation, fuel availability, internet connections, sports facilities, and employment, so that digital literacy programs are integrated with efforts to address basic community needs.
6. Karang Taruna should be encouraged to update island-specific information literacy needs assessments regularly, allowing the mentoring program to respond to each community's resources and constraints.

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