

Market Access Readiness among Small Scale Fishers in Digital Marketing Literacy Programs

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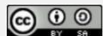
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Abstract

The fishing communities in the village of Minaesa face several challenges such as dependence on tengkulak (broker) and low digital literacy, which limit market access and economic opportunities in fishing. The purpose of this community empowerment program is to improve the digital marketing skills of the people in the fishing community so that it can reduce the dependency of intermediaries and increase the market reach of the fishermen. The program used a Service Learning (SL) model combined with the participatory seminar method, which was carried out in five consecutive thematic sessions and a facilitated Focus Group Discussion was held on March 27, 2026, in a single-day format. Twenty participants were purposively selected and received a pre- and post-test instrument based on a structured Likert scale (five dimensions and 1–5 scale, and converted to percentage scores). The average scores showed an improvement of 49.9 percentage points on each of the five dimensions: digital marketing understanding, digital data use, digital competitive strategy, digital public policy awareness, and motivation to adopt digital. Public policy awareness saw the biggest increase (+55 pp), and motivation to digital marketing had the highest score post activity (87%), which falls into the 'Very Good' category. Participant satisfaction averaged 81.6% (4.08/5.0). The results indicate that a context-specific, one-day workshop has the potential to yield real and lasting gains in knowledge and motivation among members of the fishing community who have received little prior digital exposure, but ongoing behavioral change takes the form of a series of carefully designed programs. The program's contribution to SDG 8 and SDG 17 is reflected in enhanced participant capacity for digital market access, and the demonstrated higher education community partnership model.

INTRODUCTION

The coastal fishing community still is one of the most disadvantaged groups of the Indonesian people. Wori District in North Minahasa Regency has a population of about 1,800 people in Minaesa Village (Talawaan Bajo) who sustain their livelihood through fishing, which is about 80% of the total population. The community has three structural constraints: the necessity to operate with the support of a tengkulak (broker) for operational financing, meaning that the fishermen do not have the opportunity to set their own prices and the prevalence of almost full household electrification but limited digital literacy, as well as the recent closure of the Village-Owned Enterprise (BUMDes) due to the decline in the prices of recyclable materials and the limited scope of income diversification options (Badan Pusat Statistik Kabupaten Minahasa Utara, 2025; Kementerian Kelautan dan Perikanan, 2024). This situation is representative of the larger problem that the fisheries sector is facing in Indonesia, especially small-scale coastal fishermen who still have low levels of access to markets, bargaining power, and penetration into digital economic systems (Kementerian Kelautan dan Perikanan, 2024). All these combine to lock the community into different levels of dependency and market isolation.

The growing digital economy in Indonesia offers great potential to overcome these conditions. National internet penetration reached 78.19% in 2023 (Asosiasi Penyelenggara Jasa Internet Indonesia, 2023). Micro-entrepreneurs have been able to go around the traditional distribution chain by leveraging and e-commerce platforms like Tokopedia, Shopee, and Bukalapak, as well as social media channels like Instagram, TikTok, and WhatsApp Business (Chaffey & Ellis-Chadwick, 2019; Kotler & Keller, 2021). The spread of Internet connectivity to rural and coastal communities has also been shown to have positive effects on subjective well-being and market participation of small-scale fishermen (Putri et al., 2024). Digital transformation is not just about digital promotion activities; it also involves adopting and embedding technology, consumer interaction, and data-driven decision-making to sustain competitive advantage, according to Digital Marketing 5.0 (Girsang, 2024). However, many residents of Minaesa Village lack digital marketing knowledge and skills, which are needed for transitioning to digital marketing (Irmal et al., 2025). There are positive results reported from previous digital marketing for the fishing community and the coastal UMKM community in Indonesia (Prasetyo & Sutopo, 2018).

Prior community service programs addressing digital marketing for fishing and coastal UMKM communities in Indonesia have reported positive outcomes in comparable settings (Guntoro et al., 2024; Nizar & Sholeh, 2021; Veranita et al., 2023; Widiastuti et al., 2022). However, the programs are still limited for the coastal fishing communities in North Sulawesi, especially in terms of contextual design factors such as tengkulak dependency, BUMDes termination and readiness of digital infrastructure. This is the main reason why the current programme is in existence. Therefore, this community service program (Pengabdian Kepada Masyarakat/PKM) aimed to build the digital marketing skills of the members of the fishing community in Minaesa Village through an interactive seminar and facilitated Focus Group Discussion (FGD) which is contextually grounded. The activity was carried out at Akademi Bisnis dan Keuangan Primaniyarta (ABKP) Manado on March 27, 2026, with the aim to improve: (1) participants' understanding of digital marketing concepts and platforms; (2) participants' ability to use digital data for marketing decision making; (3) participants' knowledge of competitive strategy related to products of the fishing community; (4) participants' awareness of public policy which supports digitalization of UMKM; and (5) participants' motivation to use digital marketing in their business activities. This paper describes this programme, its design, implementation and evaluated outcomes.

IMPLEMENTATION METHOD

The method of community service was done by applying Service Learning (SL) and participatory seminar method. The SL approach was chosen because it allows higher education institutions to provide structured curriculum-based learning, and at the same time to produce measurable community benefits, which are aligned with the Tridharma and the learning program's capacity building goals (Knowles et al., 2020). Evidence suggests that service learning as a pedagogy has a proven impact in reducing inequalities and empowering marginalized groups in the context of Higher Education outside of the context of Higher Education (Martínez-Heredia et al., 2022). The implementation methodology followed five sequential stages as presented in Figure 1, follows Service-Learning principles of reciprocity, thoughtfully organized service, and integrated reflection so the activity both meets Minaesa's needs and produces applied learning for university facilitators (Coelho & Menezes, 2021; Mortari & Ubbiali, 2021).

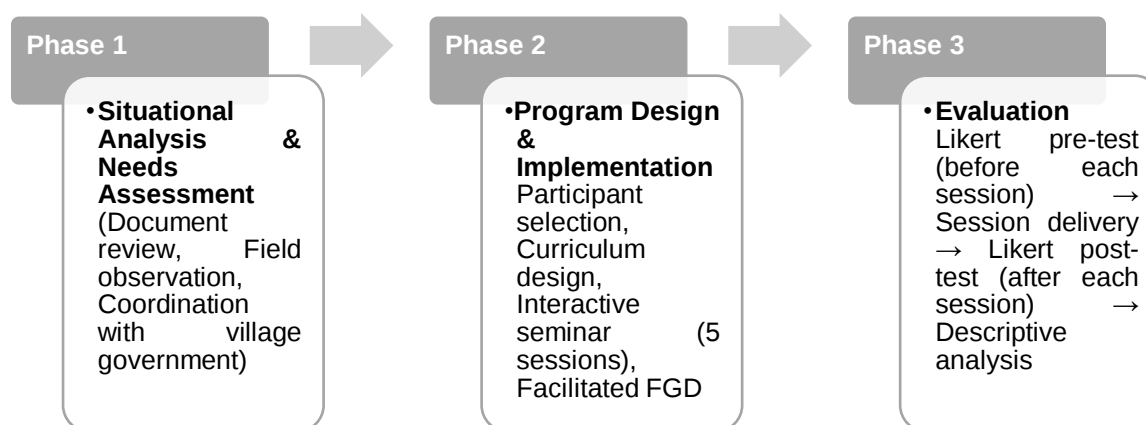


Figure 1. Program Implementation Flowchart

1. Problem Identification and Needs Assessment

The team carried out a situational analysis of Minaesa Village prior to designing the program by reviewing documents and making observations, and in coordination with village government officials. The findings that guided program design were as follows: (1) All fishermen required operational financing through *tengkulak*; (2) fishermen were not that much exposed to digital marketing tools, though the majority of fishermen had smartphones and almost all the fishermen households were equipped with electricity at home; (3) there were some processing activities that added value to the fishermen products that needed market expansion, such as smoked fish and processed snacks; and (4) the Village-Owned Enterprise (BUMDes) ceased functioning due to the decreasing price of the recyclables. The results of these findings directly influenced curriculum of the seminar and selection of participants.

2. Planning and Participant Selection

Twenty participants were recruited through purposive sampling, coordinated with the Minaesa Village Government and designated community leaders during the pre-program site visit. The participants' selection was guided by two criteria: (1) active engagement in fishing as a primary livelihood, or having a household member with a minimum of five years' documented experience in the sector; and (2) voluntary consent and full commitment to attend the complete program. The resulting cohort spanned five occupational and social sub-groups, active fishermen, fish-processing spouses, processed fish product UMKM operators, village youth representatives, and village government officials and community leaders, reflecting the principal roles embedded in the local fishing economy value chain. This purposive design ensured that participants possessed sufficient contextual immersion in the structural realities of the Minaesa fishing community, including *tengkulak* dependency and limited digital tool exposure, to render program content immediately recognizable and actionable within their daily economic activities.

3. Implementation

The seminar was held at Minaesa Village Hall on March 27, 2026, in the Wori District, North Minahasa Regency. It used an interactive approach that consisted of experimental presentation, open question and answer session, and the facilitated FGD with faculty members of ABKP Manado. There were five sequential thematic sessions, each lasting 30 minutes, followed by a 60-minute FGD (Session V). Thematic design was carried out in a way compatible with scaffolded adult learning, in line with the macro-level concepts of the digital economy and applied platform strategy, and with the structural policy context (Knowles et al., 2020). Live demonstrations of WhatsApp Business, Shopee and Instagram were employed to bring theoretical knowledge to life throughout, allowing participants to relate it to what they experience in their daily lives.

4. Evaluation

The program was evaluated using a structured Likert scale pre- and post-test instrument before and after every session. The instrument consisted of 20 items (4 for each dimension) on a 5-point scale (1 = strongly disagree / no knowledge, 5 = strongly agree / full knowledge). The Raw Likert scores were transformed to percentage scores as per the following formula:

$$\text{Percentage Score (\%)} = [(Total Actual Score - Minimum Possible Score) / (Maximum Possible Score - Minimum Possible Score)] \times 100$$

For each 4-item dimension with N=20 participants: minimum possible score = $20 \times 4 \times 1 = 80$; maximum possible score = $20 \times 4 \times 5 = 400$. The percentage of 0% will then represent the lowest possible score (all responses = 1) and a score of 100% will represent the highest possible score (all responses = 5). This conversion allowed for a direct percentage comparison across dimensions and pre- and post-test. The five different dimensions assessed were: (1) understanding of digital marketing; (2) ability to use digital data for business purposes; (3) Knowledge of competitive marketing strategies; (4) awareness of public policy issues; and (5) motivation toward digital marketing practices. A separate 5 item Likert satisfaction survey was completed after Session V to assess participant satisfaction.

5. Follow-Up Planning

Based on the identified barriers during the FGD, the program team drafted a follow up plan comprising: (1) development of a structured practical training module including at least 2-3 sessions on WhatsApp Business account setup, creation of a Shopee store, and Instagram content creation; (2) establishment of a village-level digital fisheries marketing group for continued peer support; and (3) linkage with Dinas Kelautan dan Perikanan and Dinas Koperasi dan UMKM of North Minahasa Regency, to connect participants with available government support programs. There is also a delayed post-test assessment (30-60 days after the intervention) for assessing knowledge retention.

RESULTS

1. Participant Profile

Table 1 presents participants' distribution by community sub-group alongside key demographic characteristics, including age range and educational background.

Table 1. Participant Profile by Community Group and Demographics

No.	Participant Group	n	Age Range	Education Level
1	Active fishermen	8	30–55	SD–SMP
2	Fishermen's spouses (fish processing)	5	28–48	SD–SMA
3	UMKM operators (processed fish products)	4	25–45	SMP–SMA
4	Village youth representatives	2	25–28	SMA
5	Village government officials & community leaders	1	45–50	SMA–D3
Total	All groups	20	25–55	SD–D3

Active fishermen constituted the largest sub-group (n = 8), followed by spouses engaged in fish processing activities (n = 5), together accounting for the majority of the cohort and representing the community's core production and primary processing roles. UMKM operators producing processed fish products (n = 4) and village youth representatives (n = 2) contributed commercialization and intergenerational perspectives relevant to the digital adoption objectives of the program. The inclusion of a village government official and community leader ensured institutional representation, which proved particularly significant for the public policy awareness dimension of the curriculum. The age distribution (25–55 years) and educational background spanning SD to D3 are characteristic of the adult population profile in rural coastal communities

of North Minahasa, and directly informed the program's decision to ground all content in familiar, community-specific commercial contexts rather than generic digital literacy frameworks.

2. Pre- and Post-Activity Knowledge Evaluation

Knowledge and motivational outcomes were assessed using a structured pre- and post-test instrument administered immediately before and after each thematic session. Results are presented dimension by dimension across Tables 2 through 6, with each table followed by a brief interpretive note, and are consolidated in Table 7.

Table 2. 1st Indicator Pre- and Post-Activity Evaluation Results

N o	Statement	Pre- Activity (%)	Post- Activity (%)	Improvement (%)	Category
1	I can explain the fundamental differences between traditional physical markets (e.g., fish auctions/traditional markets) and digital markets.	31.0%	87.0%	56.0%	Very Good
2	I am familiar with at least two types of digital platforms that can be used to promote fishery products.	30.0%	80.0%	50.0%	Good
3*	My knowledge regarding the functions of promotional features on social media is still very limited	32.0%	80.0%	48.0%	Good
4	I understand that product photos taken with specific techniques can influence consumer buying interest online.	37.0%	79.0%	42.0%	Good
Understanding of digital marketing concepts & platforms		32.5%	81.5%	49.0%	Good

Category based on Likert percentage interpretation: <60% = Poor; 60–75% = Sufficient; 76–85% = Good; 86–100% = Very Good; () Reverse Code.

Pre-activity scores on this dimension were uniformly low, clustering well below the threshold for even the "Sufficient" category, indicating that participants entered the program with minimal foundational exposure to digital marketing concepts regardless of prior smartphone ownership. This baseline is fully consistent with the needs assessment finding: physical access to digital devices does not, by itself, produce commercial digital literacy in communities whose economic transactions have remained almost entirely offline. Following the seminar, the most pronounced item-level gain was recorded on participants' ability to distinguish between traditional fish auction markets and digital market environments, a distinction that, when framed around familiar local contexts such as the Wori fish market and Tokopedia, appears to have served as a highly effective conceptual entry point. The post-activity dimension average advanced substantially into the "Good" category, with all four items registering meaningful improvement. This foundational knowledge acquisition, covering platform types, promotional features, and visual marketing principles, establishes the prerequisite conceptual base upon which the data-utilization skills examined in the second dimension are built.

Table 3. 2nd Indicator Pre- and Post-Activity Evaluation Results

No	Statement	Pre-Activity (%)	Post-Activity (%)	Improvement (%)	Category
1	I know how to monitor fish market prices outside the North Minahasa region using digital devices.	34.0%	77.0%	43.0%	Good
2	I am able to identify types of processed fish products that are currently popular or in high demand through internet trends.	27.0%	84.0%	57.0%	Good
3*	I find it difficult to determine the right target audience even after viewing information on digital media	30.0%	77.0%	47.0%	Good
4	I understand that customer order data or digital interactions can be used to plan future fish stock.	26.0%	79.0%	53.0%	Good
Ability to utilize digital data for marketing decisions		29.3%	79.3%	50.0%	Good

Category based on Likert percentage interpretation: <60% = Poor; 60–75% = Sufficient; 76–85% = Good; 86–100% = Very Good; () Reverse Code.

This dimension recorded the lowest pre-activity baseline of all five assessed areas, a finding that reflects the structural nature of the knowledge gap rather than individual deficiency. Fishermen operating within tengkulak-dependent supply chains have historically had no independent access to external price signals, demand trend information, or consumer behavior data; their commercial decisions have been made under conditions of enforced informational opacity. Following the session's practical demonstrations, the dimension advanced substantially into the "Good" category, with the sharpest item-level improvement observed on participants' capacity to identify high-demand processed fish products through internet trend monitoring, an outcome directly attributable to the live demonstration format, which enabled participants to observe market intelligence retrieval as a concrete, repeatable act rather than an abstract digital concept. The uniform attainment of "Good" level scores across all four items indicates that participants have acquired the foundational data literacy required to support informed marketing decisions, creating the practical competency base that the competitive strategy knowledge in the third dimension is designed to activate.

Table 4. 3rd Indicator Pre- and Post-Activity Evaluation Results

No	Statement	Pre-Activity (%)	Post-Activity (%)	Improvement (%)	Category
1	I know the steps required to make my fishery products look distinct (unique) compared to competitors in the digital market.	31.0%	79.0%	48.0%	Good
2	I understand the importance of using visual identity (such as brands or logos) to build trust with online buyers.	31.0%	77.0%	46.0%	Good
3*	I believe that product quality is the only factor determining sales, without the need for specific marketing strategies.	34.0%	79.0%	45.0%	Good

No	Statement	Pre-Activity (%)	Post-Activity (%)	Improvement (%)	Category
4	I have an idea of how to respond to customer complaints or inquiries digitally to maintain their loyalty.	29.0%	78.0%	49.0%	Good
	Knowledge of competitive advantage-based digital marketing strategies	31.3%	78.3%	47.0%	Good

**Category based on Likert percentage interpretation: <60% = Poor; 60–75% = Sufficient; 76–85% = Good; 86–100% = Very Good; (*) Reverse Code.*

The third dimension recorded meaningful post-activity improvement across all four items, with the overall average advancing clearly into the "Good" category. The comparatively more modest absolute improvement relative to the policy awareness and digital marketing foundations dimensions is analytically interpretable rather than anomalous: strategic positioning concepts, encompassing product differentiation, visual brand identity, and digital customer relationship management, require a degree of conceptual abstraction that typically consolidates more incrementally than declarative factual knowledge, particularly among adult learners encountering these frameworks for the first time (Knowles et al., 2020). The post-activity scores nonetheless indicate that participants have acquired a functionally operational awareness of competitive differentiation as applied to their specific fishery products, distinguishing them by origin, processing method, and visual presentation, sufficient to inform initial implementation. This strategic orientation is a necessary but not self-activating condition: it becomes commercially actionable when participants also understand the institutional and policy environment that either enables or constrains digital market entry, which is precisely the domain addressed by the fourth dimension.

Table 5. 4th Indicator Pre- and Post-Activity Evaluation Results

No	Statement	Pre-Activity (%)	Post-Activity (%)	Improvement (%)	Category
1	I am aware of basic regulations or rules that protect sellers and buyers in digital transactions.	26.0%	80.0%	54.0%	Good
2	I have information regarding digitalization assistance or mentoring programs provided by the government for coastal communities.	29.0%	80.0%	51.0%	Good
3*	I feel that legality requirements (such as NIB or business permits) have no connection to the success of digital marketing.	23.0%	88.0%	65.0%	Very Good
4	I know which institutions or communication channels to contact to gain support for micro-business development.	30.0%	80.0%	50.0%	Good
	Awareness of public policies supporting UMKM digitalization	27.0%	82.0%	55.0%	Good

**Category based on Likert percentage interpretation: <60% = Poor; 60–75% = Sufficient; 76–85% = Good; 86–100% = Very Good; (*) Reverse Code.*

This dimension produced the most striking evaluative pattern across the entire instrument: the lowest pre-activity average among the five dimensions, combined with the highest absolute improvement, resulting in a post-activity average that crossed well into the "Good" category. The

sharpest individual item gain, on the connection between business legality requirements such as NIB registration and digital marketing outcomes, captured a domain where participants had entered with virtually no prior informational exposure, and where Session IV's specific, program-referenced content proved immediately and dramatically effective. The practical significance of this improvement extends beyond the dimension itself: participants who become aware of accessible institutional resources, acquire the enabling knowledge to sustain their digital development beyond the program period, which is a precondition for the motivational gains measured in the fifth dimension to translate into durable behavioral change.

Table 6. 5th Indicator Pre- and Post-Activity Evaluation Results

No	Statement	Pre-Activity (%)	Post-Activity (%)	Improvement (%)	Category
1	I intend to use digital technology as a primary instrument in expanding my business marketing reach.	46.0%	97.0%	51.0%	Very Good
2	I am willing to allocate time and effort to independently learn about the development of digital marketing tools.	31.0%	82.0%	51.0%	Good
3*	I feel safer running my current traditional business model rather than switching to a digital system full of uncertainty.	38.0%	82.0%	44.0%	Good
4	I believe that mastering digital marketing will provide economic independence for the community in Minaesa Village.	39.0%	87.0%	48.0%	Very Good
Motivation to adopt digital marketing in daily business practice		38.5%	87.0%	48.5%	Very Good

Category based on Likert percentage interpretation: <60% = Poor; 60–75% = Sufficient; 76–85% = Good; 86–100% = Very Good; () Reverse Code.

The fifth dimension achieved both the highest post-activity score and the sole "Very Good" category classification in the post-activity aggregate, placing it in a category above all knowledge-based dimensions and reflecting a level of aspirational alignment with digital marketing adoption that substantially exceeded the program's threshold for knowledge outcomes. Notably, this dimension also entered the program with the highest pre-activity baseline, indicating a pre-existing motivational disposition that the structured seminar environment appears to have successfully mobilized into more confident and specific adoption intentions. The near-ceiling post-activity score on the item measuring participants' intention to use digital technology as a primary instrument for market expansion is particularly significant: in the Theory of Planned Behavior, high behavioral intention combined with increased perceived behavioral control, delivered through the session's practical demonstrations and policy awareness content, constitutes a direct precursor to behavior adoption (Ajzen, 1991). Taken together with the knowledge and awareness gains documented across the preceding four dimensions, these motivation outcomes complete a convergent picture of participants who are simultaneously informed, institutionally oriented, and affectively primed for digital practice, a multi-dimensional readiness profile that the consolidated evaluation in Table 7 captures at the program level.

Table 7. All Indicators Pre- and Post-Activity Evaluation Results

Program Achievement Indicators	Pre-Activity (%)	Post-Activity (%)	Improvement (%)	Category
Understanding of digital marketing concepts & platforms	32.5	81.5	+49.0	Good
Ability to utilize digital data for marketing decisions	29.3	79.3	+50.0	Good
Knowledge of competitive advantage-based digital marketing strategies	31.3	78.3	+47.0	Good
Awareness of public policies supporting UMKM digitalization	27.0	82.0	+55.0	Good
Motivation to adopt digital marketing in daily business practice	38.5	87.0	+48.5	Very Good
Average	32.0	81.6	+49.9	Good

*Category based on Likert percentage interpretation: <60% = Poor; 60–75% = Sufficient; 76–85% = Good; 86–100% = Very Good

The consolidated five-dimension profile reveals a coherent and uniform pattern of substantial improvement, with every dimension transitioning from pre-activity scores in the "Poor" category to post-activity scores within the "Good" or "Very Good" range. The consistency of this pattern across dimensions that measure qualitatively distinct competencies, from declarative knowledge of platform types through strategic positioning to institutional awareness and adoption motivation, indicates that the program's integrated, contextually grounded multi-session design addressed the full breadth of the digital marketing readiness gap rather than producing isolated performance spikes in more familiar domains. The dimension recording the largest absolute gain, public policy awareness reflects the depth of the information asymmetry that has historically compounded the community's market exclusion, and demonstrates the high marginal yield achievable through targeted informational intervention in domains of near-total prior deprivation. The dimension recording the highest post-activity score, motivation to adopt digital marketing, signals that participants exit the program not merely with improved knowledge but with the affective and intentional orientation toward digital practice that the literature identifies as the necessary precondition for sustained behavioral change (Melati et al., 2020; Pratama & Takarini, 2023; Veranita et al., 2023).

3. Participant Satisfaction

Activity end satisfaction was measured using a 5-item Likert satisfaction survey at the end of Session V. Satisfaction results by item can be seen in Table 8.

Table 8. Participant Satisfaction Results (N = 20)

Satisfaction Item	Mean Score (1–5)	Percentage (%)	Category
Overall program usefulness	4.15	83.0	Good
Relevance of content to daily work	4.10	82.0	Good
Quality of facilitation	4.05	81.0	Good
Appropriateness of materials	4.00	80.0	Good
Intention to recommend program to peers	4.10	82.0	Good
Overall Average	4.08	81.6	Good

Average overall satisfaction was 4.08/5.0 (81.6%). Participant were satisfied with all measurement items. Qualitative comments written during the FGD reveal aspects participants appreciated include demonstration of how to create WhatsApp Business accounts and Shopee accounts and explanation of government support programs available for fishermen.

4. Summary of Activity Implementation

Community Empowerment activity was implemented on time on March 27, 2026. Session I (Yoan P. Bahalau) discussed the digital economy on macro level and its relation to fishermen's independent economy. Session II (Paske Victory Modaso) spoke about using digital data to make marketing decisions. Session III (Fitayantri Tamau) discussed digital marketing strategy based on competitive advantage (place-based branding, creating social media content). Porter (2008) states that fishermen can obtain a sustainable competitive advantage if fishermen can differentiate their products and create perceived value that is unique to them. Including place-based branding, creating digital promotion and customer focused marketing. Session IV (Marthin Th. Mumpunan) talked about support from the government, such as GBBi with digital training, fisheries assistance, and the Ministry of Cooperatives facilitation in digitalization. Session V (Sherly E. Susanto) was a facilitated FGD where fishermen found issues that are beneficial to them, such as data costs, barriers in using platforms, and photography and made commitment to action, such as creating WhatsApp Business account and creating 1 account social media account for fishermen community.

DISCUSSION

The results indicate that a structured, contextually designed digital marketing seminar can produce meaningful improvements in knowledge and motivation among fishing community members within a single-day format. This discussion addresses the significance of these outcomes, the degree to which program objectives were achieved, barriers observed during implementation, and considerations for program sustainability.

The transition from pre-activity scores uniformly within the "Poor" category to post-activity scores predominantly within the "Good" and "Very Good" range across all five dimensions suggests that the program successfully addressed the core knowledge and motivational deficits identified during the needs assessment. Previous community service initiatives have likewise reported that participatory digital marketing programs contribute positively to the competitiveness and digital readiness of UMKM actors and community-based enterprises (Hamdani et al., 2025). The magnitude of gains across dimensions is consistent with documented patterns of first-exposure learning among adult populations with limited prior access to formal digital knowledge systems (Knowles et al., 2020; Veranita et al., 2023; Widiastuti et al., 2022), and likely reflects the compounding effect of high contextual need, low prior exposure, curriculum designed around community-specific referents, and active facilitation.

The dimension recording the highest absolute improvement was public policy awareness, a finding consistent with literature indicating that rural and coastal UMKM operators systematically underutilize available government digitalization support due to informational barriers rather than programmatic ineligibility. This pattern also aligns with the Theory of Planned Behavior, which positions awareness of enabling resources and perceived behavioral control as key antecedents of behavioral intention; participants who become concretely aware of accessible institutional support programs are meaningfully better positioned to form and sustain digital adoption intentions (Ajzen, 1991). Session IV's dedicated focus on specific government mechanisms (such as GBBi training, KKP fisheries assistance, and Ministry of Cooperatives facilitation) appears to have directly and efficiently closed this informational gap. The motivation dimension similarly achieved the highest post-activity score and substantial absolute gain, indicating that the program successfully fostered the affective orientation toward digital adoption that functions as a necessary precondition for sustained behavioral change (Veranita et al., 2023). According to Diffusion of Innovations theory, practices such as digital marketing are more readily adopted when communities perceive clear economic benefits, receive adequate communication support, and observe successful uptake within their own social environment (Rogers et al., 2019).

The sequential curriculum architecture, progressing from foundational digital economy concepts through applied platform strategy and competitive positioning to policy enablers, culminating in a practice-oriented FGD, reflects a scaffolded approach consistent with andragogical principles (Knowles et al., 2020). The FGD surfaced specific implementation barriers: mobile data costs, platform navigation difficulties, and product photography, providing a direct diagnostic map for the follow-up training modules planned in the subsequent program.

phase. Prior scholarship on digital transformation in small enterprise contexts emphasizes that meaningful adoption depends not only on technological access but on organizational readiness, digital capability, and continuous external support (Omran et al., 2024). Participants' self-generated action commitments, including plans to establish a WhatsApp Business account and a shared community social media presence, represent behavioral intentions that structured follow-up support can translate into sustained practice (Pratama & Takarini, 2023). Social Cognitive Theory further affirms that new behaviors are most reliably adopted when individuals develop concrete self-efficacy through observation and guided practice, rather than through declarative instruction alone (Bandura, 1991).

The program's design, specifically the integration of service learning as an institutional framework with interactive participatory delivery, merits consideration as a replicable model for community digital capacity building in comparable coastal settings. The SL approach structured the program around curriculum-grounded learning outcomes while simultaneously generating measurable community benefits, producing an alignment between institutional Tridharma obligations and the tangible digital readiness needs of a marginalized fishing community (Knowles et al., 2020). Research on service learning in analogous higher education contexts affirms its efficacy as a mechanism for reducing structural inequalities and empowering communities with historically limited access to formal knowledge systems (Martínez-Heredia et al., 2022). The live demonstration of WhatsApp Business, Shopee, and Instagram account operations within the session format served as a critically important bridge between declarative and procedural knowledge, enabling participants to encounter digital platforms not as abstract technological constructs but as recognizable and practically accessible tools with immediate relevance to their commercial realities. For adult learners with limited prior digital exposure, this pedagogical grounding in the tangible and familiar is not merely a facilitation preference; it is the mechanism through which perceived inaccessibility is effectively challenged.

The program's outcomes also speak to the structural economic transformation that sustained digital capacity building could enable for the Minaesa community over time. Tengkulak dependency is not simply a knowledge or skills deficit; it is a structural condition sustained by asymmetric access to market price information, constrained distribution channels, and limited collective bargaining capacity. Research on digital adoption among smallholder coastal producers has demonstrated that direct access to market price data and platform-based distribution meaningfully attenuates intermediary dependency and supports improved income outcomes (Putri et al., 2024). The Digital Marketing 5.0 framework further establishes that genuine community-level economic transformation through digitalization requires embedding technology into ongoing consumer interaction and data-informed decision-making, not merely exposure to promotional tools during a bounded learning event (Girsang, 2024). The barriers surfaced during the FGD, particularly recurring mobile data costs and platform navigation challenges, are well-documented structural constraints in analogous Indonesian coastal UMKM programs (Guntoro et al., 2024; Prasetyo & Sutopo, 2018), and underscore that the present program should be understood as the evidence-grounded first stage of a phased intervention sequence rather than a self-contained outcome.

With respect to SDG 8 (Decent Work and Economic Growth), the program has the potential to enhance participants' capacity to access digital markets and reduce tengkulak dependency, consistent with evidence that digital platform adoption by smallholder producers in developing countries can improve net income margins. Empirical evidence from MSMEs similarly indicates that e-commerce and digital marketing adoption positively affect financial performance and business sustainability (Gao et al., 2023). With respect to SDG 17 (Partnerships for the Goals), the program demonstrates a higher education–community government collaboration model that combines ABKP Manado's academic expertise with the Minaesa Village Government's community facilitation capacity. It is important to note, however, that these SDG contributions are assessed at the level of knowledge and motivation gains; follow-up data on income changes, actual transactions, or confirmed market access would be required to substantiate economic impact claims.

Several limitations must be acknowledged. The single-day format, while effective for knowledge and motivational gains, cannot deliver the sustained hands-on platform practice

required for durable skill acquisition. Social desirability effects may have contributed to post-activity score inflation. The sample of twenty participants limits the generalizability of quantitative findings. No follow-up measurement has yet been conducted. Furthermore, structural constraints, including *tengkulak* dependency and the absence of collective bargaining mechanisms, represent institutional barriers that digital marketing capacity alone cannot resolve, and require complementary interventions addressing credit access and value chain integration.

CONCLUSIONS

This community service program successfully achieved its objectives of improving digital marketing knowledge and adoption motivation among fishing community members in Minaesa Village. The findings also indicate that digital marketing training can support gradual business transformation among coastal community enterprises by improving digital communication capability, market reach, and competitiveness in the digital economy era. Evaluation results confirm that a contextually grounded, single-day seminar produced meaningful gains across all five assessed dimensions; an outcome consistent with program objectives and comparable findings from analogous programs targeting Indonesian coastal UMKM communities. The program's contribution to SDG 8 and SDG 17 is reflected in enhanced participant capacity for digital market access, and the demonstrated higher education community partnership model. However, more moderate claims are warranted, given that no follow-up data on income changes or actual market transactions are available. Future programs are recommended to incorporate structured follow-up practical training, formation of a village level digital marketing group, government program linkages, and a delayed post-test to measure sustained knowledge retention.

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ETHICAL CONSIDERATIONS

All participants provided informed verbal consent prior to participation. No personally identifiable data were collected beyond participant group categorization. The study was conducted in accordance with the principles of community service research ethics.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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AUTHOR CONTRIBUTIONS

Marthin Thomas Mumpunan: conceptualization, program coordination, Session IV delivery (government support programs), manuscript preparation and review. Sherly Ernawaty Susanto: Session V facilitation (FGD), data collection coordination, manuscript review. Fitayantri Tamau: Session III delivery (competitive strategy), manuscript drafting. Paske Victory Modaso: Session II delivery (digital data utilization), data interpretation, manuscript review. Yoan Purnamasari Makapuase Bahalau: Session I delivery (digital economy), results analysis, manuscript review. All authors reviewed and approved the final manuscript.

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