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Improving the added value of fishery products through packaging innovation and digital marketing literacy in sedati fisher village sidoarjo

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Abstrak

Program pengabdian kepada masyarakat ini menjawab rendahnya nilai tambah produk perikanan rumah tangga pada komunitas nelayan di Tambak Cemandi dan Gisik Cemandi, Kecamatan Sedati, Kabupaten Sidoarjo. Sebagian besar peserta sebelumnya masih menjual hasil perikanan dalam bentuk segar atau olahan sederhana, dengan kualitas kemasan terbatas, identitas produk yang belum kuat, dan pemanfaatan kanal pemasaran digital yang masih rendah. Program ini bertujuan meningkatkan kapasitas peserta dalam pengolahan produk perikanan bernilai tambah, inovasi kemasan sederhana, dan pemasaran berbasis gawai. Kegiatan inti dilaksanakan sebagai pelatihan partisipatif dan praktik langsung selama satu hari, didukung oleh koordinasi pra-kegiatan dan tindak lanjut daring pascakegiatan. Kegiatan diikuti oleh 30 peserta. Evaluasi menunjukkan peningkatan skor pemahaman peserta rata-rata dari 54,7 menjadi 82,3. Program menghasilkan tiga prototipe produk, 24 produk dengan kemasan baru, 22 akun WhatsApp Business aktif, dan 26 konten promosi. Hasil ini menunjukkan bahwa teknologi tepat guna berbiaya rendah dapat mendukung kesiapan awal usaha mikro keluarga nelayan dan menjadi pintu masuk bagi pendampingan lanjutan berbasis komunitas.
Kata kunci: nilai tambah produk perikanan, keluarga nelayan, inovasi kemasan, WhatsApp Business, pemberdayaan masyarakat

Abstract

This community service program addressed the low value-added condition of fishery-based household products in the coastal fisher communities of Tambak Cemandi and Gisik Cemandi, Sedati, Sidoarjo. Most participants previously sold fishery products in fresh or minimally processed forms, with limited packaging quality, weak product identity, and low use of digital marketing channels. The program aimed to strengthen participants' capacity in value-added fishery product processing, simple packaging innovation, and smartphone-based marketing. The core activity was delivered as a one-day participatory hands-on training supported by pre-activity coordination and post-activity online follow-up. Thirty participants joined the program. Evaluation showed an increase in the average participant understanding score from 54.7 to 82.3. The program generated three product prototypes, 24 improved packaged products, 22 active WhatsApp Business accounts, and 26 promotional content items. These results indicate that low-cost appropriate technology can support initial micro-business readiness among fisher households and serve as an entry point for further community-based assistance.
Keywords: *value-added fishery products, fisher households, packaging innovation, WhatsApp Business, community empowerment*

INTRODUCTION

Coastal communities often live close to valuable natural resources, yet this proximity does not always translate into stable and adequate income. In small-scale fisheries, the challenge is not only related to the volume of fish caught, but also to the position of fishers and fisher households within the value chain. Many fisher households remain at the upstream level by selling fresh fish or minimally processed products, while greater economic value is often captured by actors involved in processing, packaging, distribution, branding, and market access. This condition reflects a broader structural issue in small-scale fisheries, where livelihood vulnerability is shaped by market dependence, limited bargaining power, and restricted access to value-added activities (Halim et al., 2019; Stacey et al., 2021).

Sidoarjo is one of East Java's strategic coastal regions. Its coastal geography supports various fishery-related activities, including the production and trade of fish, shrimp, kupang, milkfish, and other seafood-based

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commodities (BPS Kabupaten Sidoarjo, 2024). In Sedati, these commodities are not only sources of income but also part of the everyday economic life of fisher households. However, preliminary field observation indicated that many community-based businesses still depended on fresh-product sales or traditional processing methods. Product packaging was generally simple, labeling was often incomplete, and digital marketing was used sporadically rather than as a structured business practice.

This condition illustrates a common challenge in Indonesian small-scale fisheries. Halim et al. (2019) emphasize that small-scale fisheries should not be understood merely in terms of vessel size, fishing technology, or production scale. They are also shaped by livelihood functions, market relations, and institutional contexts. Stacey et al. (2021) further show that livelihood interventions in Indonesian coastal communities tend to be less sustainable when training is not connected to market access, participant ownership, and post-program support. These studies suggest that community service programs need to move beyond one-time technical instruction. They should help participants connect new skills with prototype readiness, market orientation, and practical business behavior.

The need for market-oriented assistance has become more urgent with the expansion of digital connectivity. The Indonesian Internet Service Providers Association reported that Indonesia's internet penetration reached 79.5 percent in 2024, with 221.56 million users (APJII, 2024). This broader digital transformation creates opportunities for micro-entrepreneurs to use simple and low-cost digital platforms for customer communication, product promotion, order management, and repeat purchases (World Bank, 2021). For fisher households, WhatsApp Business is particularly relevant because it is familiar, affordable, and relatively easy to adopt. Nevertheless, many participants still used smartphones mainly for personal communication. The potential of smartphones as micro-business tools had not been fully explored, creating a gap between digital access and productive digital use.

At the same time, the global fisheries agenda increasingly highlights the importance of upgrading aquatic food value chains. The State of World Fisheries and Aquaculture 2024 emphasizes blue transformation through innovation, sustainable value chains, and stronger benefits for communities involved in aquatic food systems (FAO, 2024). At the local level, the development agenda of Kampung Nelayan Merah Putih in Sedati provides a strategic momentum for universities to contribute through appropriate technology, micro-entrepreneurship literacy, and community-based learning. In this context, university engagement is not merely a matter of transferring knowledge, but of accompanying communities in making small, practical, and realistic improvements to their economic activities.

Based on these conditions, STIESIA Surabaya implemented a community service program entitled Improving the Added Value of Fishery Products through Packaging Innovation and Digital Marketing Literacy in Sedati Fisher Village, Sidoarjo. The program was designed as an initial practical intervention for productive fisher households in Tambak Cemandi and Gisik Cemandi. It aimed to improve participants' understanding and practical readiness in processing fishery products into higher value-added prototypes, strengthening packaging and labeling skills, introducing simple digital marketing through WhatsApp Business, and identifying participants with potential for follow-up assistance. The distinctive feature of this program lies in its integrated micro-business toolkit, which combines product processing, packaging improvement, label design, product photography, promotional caption writing, and digital catalog activation into one coherent learning process

METHOD

This community service program used a participatory community empowerment approach combined with experiential learning. The participatory approach was selected because the program aimed not only to transfer knowledge, but also to involve fisher households in identifying practical problems, practicing new skills, and reflecting on their own micro-business conditions. This orientation is relevant to coastal livelihood programs, which require community ownership, market relevance, and follow-up support to improve sustainability (Stacey et al., 2021). The experiential learning approach was also considered appropriate because participants learned through direct practice, observation, feedback, and reflection, in line with the principle that learning is strengthened when experience becomes the basis for knowledge formation (Kolb, 2014).

The core community service activity was implemented as a one-day intensive hands-on training program in the Sedati coastal area, Sidoarjo Regency. The one-day activity was supported by pre-activity preparation and post-activity online follow-up. Participants were selected from fisher households and small fishery-based home businesses in Tambak Cemandi and Gisik Cemandi through coordination with the Fisheries Office of Sidoarjo Regency and local community representatives. A total of 30 participants joined the program, consisting of fishers,

women from fisher households, and household-scale fishery processors. The academic team from STIESIA Surabaya served as facilitators, while students supported documentation, participant assistance, evaluation administration, and digital marketing practice.

The implementation method consisted of three main phases: pre-activity preparation, one-day intensive training, and post-activity online follow-up. The pre-activity preparation included coordination with the Fisheries Office of Sidoarjo Regency and local community representatives, participant identification, preparation of training materials, and development of simple evaluation instruments. This phase was conducted to ensure that the training content was aligned with the needs and readiness of fisher households. This was important because small-scale fisheries are not only defined by production size or fishing activity, but also by household livelihood functions, market relations, and local institutional contexts (Halim et al., 2019).

The one-day intensive training was divided into four sequential sessions. The first session was socialization and rapid needs assessment. Participants completed a short profile form and a pre-test covering three areas: value-added fishery product processing, packaging and labeling, and digital marketing literacy. The second session focused on hands-on fishery product innovation using locally available materials. Participants practiced simple product processing while being introduced to household-scale feasibility, basic hygiene, improved product presentation, and practical selling points. The purpose of this session was to help participants understand the difference between selling fresh fishery products and selling processed products with higher perceived value.

The third session focused on packaging and labeling practice. Participants were guided to use standing pouches, prepare simple product labels, and include basic product information such as product name, contact number, and product identity. In this session, packaging was introduced not merely as a container, but as a medium for communicating product quality, hygiene, identity, and consumer trust. The fourth session focused on simple digital marketing practice. Participants were assisted in activating WhatsApp Business, creating product catalogs, preparing automatic reply messages, taking product photos using smartphones, and writing short promotional captions. WhatsApp Business was selected because it is familiar, affordable, and suitable for micro-scale entrepreneurs who are not yet ready to use more complex marketplace platforms. This choice is consistent with the view that digital transformation among small and medium enterprises should begin with simple, feasible, and capability-based digital adoption before moving toward more advanced digital systems (Garzoni et al., 2020).

Evaluation was conducted using four instruments: pre-test and post-test scores, observation of product and packaging outputs, documentation of WhatsApp Business activation, and participant feedback. The pre-test and post-test were designed to measure changes in participant understanding before and after the intervention. Each test consisted of 15 structured items covering three aspects: value-added fishery product processing, packaging and labeling, and digital marketing literacy. Each aspect consisted of five items. The items assessed participants' understanding of basic product processing, product hygiene, basic factors affecting shelf life, packaging functions, label information, product identity, WhatsApp Business features, digital catalog preparation, product photography, and promotional caption writing.

Each item was scored using a five-point rubric, ranging from 1 to 5, where 1 indicated very low understanding, 2 indicated low understanding, 3 indicated moderate understanding, 4 indicated good understanding, and 5 indicated very good understanding. The score for each aspect was calculated by dividing the participant's obtained score by the maximum possible score for that aspect and multiplying it by 100. The overall participant understanding score was calculated as the average of the three aspect scores. The formula used was: Score = (obtained score / maximum score) × 100. The difference between the average pre-test and post-test scores was then used to identify the improvement in participant understanding after the program.

In addition to the pre-test and post-test, practical outputs were assessed through an observation checklist. The checklist included product prototypes produced, packaging improvement, completeness of label information, activation of WhatsApp Business accounts, catalog creation, product photo quality, and promotional caption preparation. Participant feedback was collected at the end of the activity to identify perceived benefits, difficulties encountered during the training, and needs for further assistance. All activity documentation, including photographs and visual records used in this article, was collected and used with the consent of the participants and the partner institution.

Post-activity online follow-up was conducted through a WhatsApp Group as an informal communication and assistance forum. This follow-up aimed to support participants in continuing the use of the introduced tools, discussing practical difficulties, and identifying participants with stronger readiness for further assistance. Because the core activity was implemented as a one-day training program, sustainability was approached as an initial follow-up mechanism rather than as a completed long-term outcome. This approach reflects the importance of

linking coastal livelihood interventions with participant ownership, practical market orientation, and continued support beyond the training event (Stacey et al., 2021).

Table 1. Community Service Implementation Stages

Phase	Activity	Main Output
Pre-activity preparation	Coordination with the partner institution, participant identification, preparation of training materials, and development of evaluation instruments	Confirmed participants, training materials, and evaluation tools
Session 1: Socialization and rapid needs assessment	Program introduction, participant profiling, and pre-test administration	Participant baseline data and initial knowledge scores
Session 2: Product processing practice	Hands-on fishery product innovation using locally available materials	Product prototypes
Session 3: Packaging and labeling practice	Packaging improvement, label preparation, and discussion of product identity	Improved packaging samples and simple product labels
Session 4: Digital marketing practice	WhatsApp Business activation, catalog creation, product photography, and caption writing	Active WhatsApp Business accounts and promotional content
Evaluation	Post-test administration, output observation, participant feedback, and documentation	Evaluation data, practical output records, and participant feedback

RESULT AND DISCUSSION

The program was implemented as a compact but integrated community empowerment intervention. The training began with a reflective discussion on the economic position of fisher households within the fishery product value chain. Participants recognized that selling fresh products made household income highly dependent on daily price fluctuations, product perishability, and bargaining power in local markets. This reflection was important because it shifted the learning orientation from merely attending a training session to understanding why product improvement, packaging, and market access matter for household income resilience.

The first output of the program was the development of fishery product prototypes. The product innovation session produced three prototypes: shredded fish, seasoned dried fish, and simple frozen fish balls. These products were selected because they could be prepared using household equipment, relied on accessible local raw materials, and had potential for small-batch production. Participants were encouraged to compare the selling logic of fresh products with processed products. The discussion indicated that participants began to understand how product processing, improved presentation, clearer product identity, and potential shelf-life extension could increase perceived value. However, these products were still treated as prototypes and require further standardization, food safety assessment, and licensing before being developed into wider market-ready products.

The second output was improvement in product packaging and labeling. Before the activity, most products were packed in plain plastic without labels or adequate product information. After the training, 24 out of 30 participants were able to repackage their products using standing pouches or labeled packaging. The new packaging included product names, basic product information, contact numbers, and simple visual identities. Although the labels were still prototypes, the exercise helped participants understand that packaging is not merely a wrapper, but also a communication medium that signals hygiene, seriousness, product identity, and initial market readiness. This finding is consistent with studies showing that seafood packaging contributes not only to product protection, but also to quality preservation, consumer confidence, and value chain performance (Almeida et al., 2022; Gokoglu, 2020; Laorenza et al., 2022).

The third output was the adoption of simple digital marketing practices. The training showed that participants were already familiar with WhatsApp for personal communication but had not used it systematically for business purposes. During the practice session, 22 participants successfully activated or configured WhatsApp Business accounts, 20 participants prepared basic product catalogs, and 26 participants produced at least one promotional photo and caption. The caption templates emphasized product benefits, local identity, order information, and a friendly call to action. This result is aligned with SME digitalization studies showing that social media usage and digital marketing capability can strengthen market reach, innovation capability, and business

performance when supported by simple and accessible digital practices (Bocconcelli et al., 2018; Borah et al., 2022; Susanto et al., 2023; Tajudeen et al., 2018).

Table 2. Program Outputs and Achievement

Indicator	Target	Achievement	Status
Participants attending the activity	25-30 participants	30 participants	Achieved
Product prototypes produced	At least 3 products	3 products	Achieved
Participants with improved packaging	At least 80 percent	24 of 30 participants	Achieved
WhatsApp Business accounts activated	At least 70 percent	22 of 30 participants	Achieved
Promotional content items created	At least 1 item per participant	26 items	Partially achieved

There is one technical note regarding the interpretation of Table 2. The packaging achievement of 24 out of 30 participants equals 80 percent, meaning that the target was achieved exactly. WhatsApp Business activation reached 73.3 percent, exceeding the 70 percent target. Promotional material creation reached 26 out of the expected 30 items, or 86.7 percent. Although this shows strong participation, it is categorized as partially achieved because the program target was one promotional item per participant.

The evaluation results showed improvement in participant understanding. The average pre-test score was 54.7, while the average post-test score increased to 82.3. The largest improvement appeared in the digital marketing component, followed by packaging and labeling, and value-added fishery product processing. Participant feedback also indicated that the most useful parts of the training were label practice, product photography, and WhatsApp Business catalog creation. These responses suggest that practical and visible outputs were more easily absorbed by micro-entrepreneurs than conceptual lectures.

Table 3. Participant Knowledge Evaluation

Evaluation component	Average pre-test score	Average post-test score	Change
Value-added fishery product processing	56.0	81.0	+25.0
Packaging and labeling	58.5	84.0	+25.5
Digital marketing	49.5	82.0	+32.5
Overall average	54.7	82.3	+27.6

The activity also revealed several challenges. First, participants differed in digital confidence. Older participants needed more individual assistance when activating WhatsApp Business and arranging catalogs. Second, product standardization remained limited, especially in relation to shelf life, production consistency, and food safety certification. Third, packaging improvement requires continuous access to affordable packaging materials. These challenges suggest that the program should be treated as an initial empowerment stage rather than a final solution.

The main contribution of the program lies in the integration of value-added processing and digital market access in a single community service model. Similar to the findings of Stacey et al. (2021), the program demonstrates that coastal livelihood improvement requires more than introducing alternative products. It also requires attention to market channels, community ownership, and follow-up support. In this program, the WhatsApp Group became a simple but strategic mechanism for maintaining interaction between facilitators and participants after the training.

Overall, the results indicate that low-cost appropriate technology can help fisher households take initial steps toward early-stage micro-business readiness. The combination of product processing, improved packaging, and WhatsApp Business-based marketing did not immediately solve all structural problems in the fishery value chain. However, it created concrete learning outputs that participants could see, compare, and reuse. This is important because small changes in product form, packaging appearance, and customer communication may become the first practical bridge between traditional household production and more adaptive market-oriented behavior



Figure 1. Documentation of packaging and digital marketing practice with Sedati fisher households

(All activity documentation, including photographs and visual records used in this article, was collected and used with the consent of the participants and the partner institution.)

CONCLUSION

This community service program strengthened the initial capacity of Sedati fisher households in three interconnected areas: value-added fishery product processing, packaging innovation, and simple digital marketing. The activity produced three fishery product prototypes, improved product packaging among 24 participants, activated 22 WhatsApp Business accounts, and generated 26 promotional content items. The increase in the average participant understanding score from 54.7 to 82.3 indicates improvement in participants' understanding and practical readiness after the participatory hands-on training.

The program demonstrates that appropriate technology for coastal communities does not always require complex digital systems. A modest toolkit consisting of household-scale product processing, simple packaging, reusable label templates, smartphone-based product photography, and WhatsApp Business can become a realistic entry point for early-stage micro-business readiness. However, the program should be understood as an initial empowerment effort rather than a complete solution to the structural challenges faced by fisher households. The product prototypes and promotional outputs generated

through this program still require further standardization, food safety assessment, licensing support, and continuous mentoring before being developed into wider market-ready products.

Future community service programs should focus on product standardization, food safety licensing, collective procurement of packaging materials, continuous digital marketing assistance, and stronger linkage with local government programs, especially the development agenda of Kampung Nelayan Merah Putih in Sedati. Further assistance should also prioritize participants with stronger readiness to continue product development, so that the initial outputs of this program can be gradually strengthened into more sustainable community-based micro-enterprise practices.

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