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Developing Local MSMEs with Indonesian Socio-Culture Service Learning for Muria's Processed Parijoto Fruit

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Abstract: The concept of entrepreneurship empowerment was explored in depth to highlight its multifaceted nature and its role in fostering economic growth and cultivating a positive community mindset, which in turn spurred the development of essential infrastructure contributing to community empowerment. Service Learning, as a strategy for community entrepreneurship empowerment in the Indonesian culture, was enacted through the collaboration of faculty and university students who were acknowledged for their capacity to deliver authentic learning experiences. It thereby facilitated the acquisition of both soft and hard skills. This initiative exemplified the coordinated efforts among universities, such as the local MSME (Micro, Small, and Medium Enterprises) Community of processed *Parijoto* fruit, and its various partners. The execution of this community service program, which was done in Muria, comprised six primary phases: surveying, conducting interviews, gathering data, preparing materials, engaging in focus group discussions, formulating action plans, and conducting evaluations and reflections. The outcomes encompassed the analysis of laboratory products, educational sessions, mentoring activities, and the creation of educational resources. While the assessment of processing *parijoto* fruit yielded positive impacts from the endeavor, it was found to need to optimize support from businesses to sustain a conducive environment for MSMEs. Such entrepreneurship training initiatives have demonstrated efficacy in empowering communities and generating further prospects for individuals residing in rural areas.

Key words: service learning, *parijoto*, and MSMEs

Abstrak: *Pemberdayaan kewirausahaan adalah konsep multifaset yang tidak hanya berkontribusi pada pertumbuhan ekonomi tetapi juga menumbuhkan pola pikir masyarakat yang lebih positif, sehingga memacu pembangunan tambahan infrastruktur penting yang mengarah pada pemberdayaan Masyarakat. Service Learning merupakan pendekatan pemberdayaan kewirausahaan Masyarakat yang melibatkan dosen dan mahasiswa yang diakui kemampuannya dalam memberikan pengalaman belajar nyata kepada siswa, sehingga mendorong pengembangan soft skill dan hard skill. Program ini mengilustrasikan implementasi dari kerja sama perguruan tinggi, Komunitas UMKM Lokal Olahan Parijoto, dan Mitra. Secara garis besar program pengabdian masyarakat ini dilaksanakan melalui 6 tahapan utama yang meliputi survey, interview, data collecting, preparation, focus group discussion, action plan, evaluation dan reflection. Luaran yang dihasilkan antara lain hasil*

analisis laboratorium produk, pengajaran, pendampingan serta pembuatan buku. Hasil evaluasi menunjukan dampak yang positif dari kegitan ini namun, dukungan tambahan dariperusahaan tetap harus dimaksimalkan untuk menjaga suasana yang mendukung bagi UMKM. Pelatihan kewirausahaan seperti ini dapat menjadi cara yang efektif untuk memberdayakan masyarakat dan membuka peluang lebih lanjut bagi masyarakat di daerah pedesaan.

Kata kunci: *service learning, parijoto, dan UMKM*

INTRODUCTION

Community empowerment is a process that aims to provide society with greater opportunities (Prasandha & Susanti, 2022). This endeavor was crucial in supporting national development and stability, particularly in catalyzing entrepreneurship in resource-rich rural areas lacking in community development (Ogujiuba et al., 2022). Entrepreneurship empowerment was a multifaceted concept that not only contributed to economic growth but also fostered a more positive community mindset, thereby driving additional development of crucial infrastructure leading to community empowerment. Rural entrepreneurship could then be defined as entrepreneurial practices in rural areas, whether undertaken by individuals or communities, or as a process of rural area industrialization. Typically, rural entrepreneurship fell into the category of Micro, Small, and Medium Enterprises (MSMEs). This is unlike urban entrepreneurship, which primarily focused on seizing opportunities and creating value from available resources, rural entrepreneurship involved consideration of more complex factors, particularly strong reliance on specific location characteristics (Tabares et al., 2022).

MSMEs in rural areas face challenges in keeping up with modern technology and contemporary business management practices (Sukoco et al., 2017). However, unfortunately, village-based entrepreneurship still needs to be developed, especially in product standardization for broader marketability. MSMEs in rural areas encounter significant challenges in adopting modern technology and contemporary business management practices due to several reasons. Firstly, it has limited access to infrastructure, such as reliable internet connectivity and electricity, which hampers their ability to leverage digital tools and online platforms effectively. Additionally, insufficient financial resources and technical expertise inhibit their capacity to invest in and implement advanced technologies and management systems. Moreover, a lack of awareness and training exacerbates the reluctance to embrace innovation, as MSMEs may perceive the adoption of new practices as risky or unnecessary. Furthermore, entrenched traditional practices and cultural norms in rural communities may also impede the acceptance of change and hinder the adoption of modern business approaches. Addressing these challenges, therefore, requires concerted efforts from various stakeholders, including government agencies, NGOs, and private sector partners, to provide tailored support, training, and resources to MSMEs in rural areas. This will enable them to overcome barriers and thrive in today's competitive business landscape.

Service Learning (SL) is an intricate educational approach that combined theoretical knowledge in the classroom with practical community experiences, research, and reflective learning, particularly in higher education contexts (Salam, 2019). SL was recognized for its ability to provide real learning experiences to students, thereby fostering the development of soft and hard skills (Stefaniak, 2015). SL involved students and faculty engaged in community service

activities that applied course concepts to meet community needs. Its primary aim was to integrate academic learning with community service, instilling a sense of social responsibility in students (Hasan et al., 2021). SL facilitated the integration of community service with campus learning experiences.

Figure 1.
***Parijoto* Fruit and Colo Village, Muria Community**
(Source: Personal Documentation)

As showcased in Figure 1. the cultural and culinary richness of Indonesia highlights three significant elements: a *Mitoni* ceremony, a close-up of the *Parijoto* fruit, and a plate of *Rujak Parijoto* dish. The *Parijoto* fruit is depicted in the middle picture of Figure 1. It has a vibrant purplish-red color and a unique flower shape. It is a tropical fruit native to Indonesia, known for its sweet and tangy flavor profile. The fruit is depicted in its natural state, showcasing its round shape, smooth texture, and distinctive yellow-orange hue. Its surface glistens under the sunlight, inviting exploration and culinary experimentation.

The picture at the right of Figure 1 showcased a plate of *Rujak Parijoto*. It is a traditional Indonesian fruit salad that prominently features the *Parijoto* fruit as its main ingredient. The dish is presented artistically, with slices of *Parijoto* fruit arranged alongside other tropical fruits such as mango, pineapple, and papaya. The salad is drizzled with a savory-sweet sauce made from tamarind, palm sugar, and chili, enhancing its flavors, and adding a hint of spiciness. In the left corner is a depiction of the *Mitoni* ceremony. It is a cultural ritual of childbirth in the Indonesian Javanese culture. The scene captures the expectant mothers adorned in traditional Javanese attire, surrounded by family members and elders. Ritual offerings, such as the *parijoto* salad and family blessings are being bestowed upon the mother-to-be, symbolizing the community's support and great wishes for a healthy pregnancy and future childbirth.

Colo Village is one of the Javanese people's villages located at the peak of Mount Muria. It is the final resting place of Sunan Muria, one of the prominent figures of Walisongo, thus, making it a pilgrimage tourism area. The name "Colo" is believed to have been given directly to me by Sunan Muria himself, which later became the name used to refer to this tourist area. The unique fruit called *parijoto* (*Medinilla Javanesis*) is one of the cultivated plants found in the Muria Mountains of Kudus Regency. *Parijoto* thrives and spreads across the mountains, growing vigorously on slopes, and hills, within the forests of Mount Muria, and the lowlands of Kudus, Central Java.

Parijoto grows at altitudes of 700-2300 meters (Siqhny et al., 2020). The people of Kudus generally consume *parijoto* fruit due to the circulating myth that if a pregnant woman consumes it, the child born will have a beautiful or handsome appearance (Wibowo et al., 2012). *Parijoto*

is known for its sour taste and hard texture, along with its phytochemical components. Some phytochemical compounds contained in *parijoto* include flavonoids, saponins, tannins, alkaloids, cardenolides, and glycosides (Balamurugan, 2014; Depkes RI, 2009). *Parijoto* is utilized as an antioxidant that plays a role in neutralizing free radicals. However, *parijoto* fruit is still rarely consumed by the wider community, thus requiring further study regarding its processing, benefits, and cultivation (Widjanarko & Wismar'ein, 2011).

Parijoto has a relatively short shelf life at room temperature; therefore, further processing is needed (Hasbullah et al., 2021). Generally, *parijoto* fruit in Colo Village is processed into various products such as syrup, tea, and crackers. However, these fruit products have drawbacks such as hard texture, a bitter taste, and a lack of sweetness. The surrounding community hopes that the development of the products can help improve the economy. Thus, a community service activity for the *Parijoto* MSME Community by use of the Service-Learning approach is to achieve several beneficial outcomes for the MSME community and also for the involved students. The outcomes consist of enhancing the capacity of MSMEs, encouraging product innovation, providing knowledge and skills that can be used in various aspects of MSMEs, enhancing students' problem-solving skills in real situations, providing practical experience in real-life contexts, and building good partnership relationships between the community and the university that gives its services.

METHOD

A. Schedule and Program Design of Community Empowerment

The *parijoto* program implementation occurred in two different locations: Colo Village of Muria District in Kudus, and in Soegijapranata Catholic University of Semarang. The community service program was conducted in a hybrid manner, including both in-person meetings and online platforms. The schedule for program implementation can be observed in Table 1.

Table 1:
Schedule and Locations of Program Implementation

No.	Activities	Time	Place
1.	Survey, Interview, Problem Identification, and Observations on Culture and Gastronomy	April 2023	Colo Village, Muria, Kudus Central Java
2.	University Preparation and Collaborative Partner Preparation	April 2023	Soegijapranata Catholic University, Semarang
3.	Focus Group Disscusion	May 2023	Soegijapranata Catholic University, Semarang
4.	Action Plan	June 2023	Colo, Muria, Kudus Central Java
5.	Evaluation and Reflection	July - September 2023	Colo, Muria, Kudus Central Java

The community service program was implemented through six main programs. This service was conducted in collaboration with partners from CSR PT. Norojono International Tobacco that help develop the Local Food MSME Community of *Parijoto*. The focus of this service was on the issues related to processed products of the *Parijoto* MSME Community.

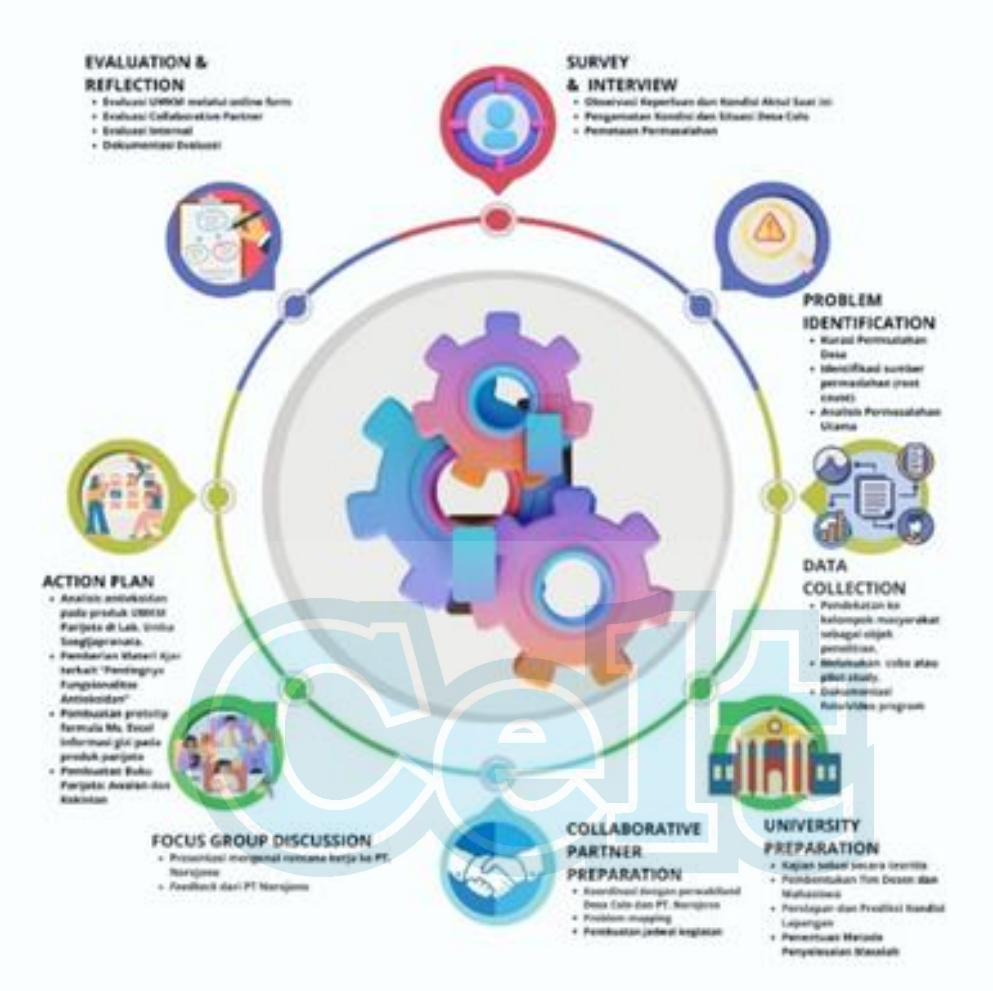

Figure 2:
Flowchart of Program Implementation

The flowchart of the program implementation can be seen in Figure 2. This flowchart shows the structured process of implementing a service-learning program in the Muria region aimed at developing the local Micro, Small, and Medium Enterprises (MSMEs) community to produce processed *Parijoto* fruit products. The flowchart showed the steps the team did in the area: 1) doing a survey and interview, 2) identifying the problem, 3) making a data collection, 4) preparing the university, 5) preparing a collaboration with the partner, 6) making an FGD, 7) making an action plan, and 8) making an evaluation and reflection. The figure illustrates a comprehensive framework for implementing a service-learning program focused on developing the local MSMEs community in Muria for processed *Parijoto* fruit production. Through collaborative efforts and capacity-building activities, the program aims to empower entrepreneurs, enhance livelihoods, and contribute to the sustainable development of the region.

RESULTS AND DISCUSSIONS

A. Observations on Culture and Gastronomy

Parijoto fruit was extensively cultivated on the slopes of Mount Muria. This fruit is believed to be a legacy of Sunan Muria, known for his significant contributions to spreading Islam on the island of Java and leaving behind religious traditions and cultural practices still upheld and respected to this day. The local community holds a belief that Sunan Muria advocated the consumption of *parijoto* fruit due to its health benefits, including enhancing fertility, facilitating childbirth, and promoting infant health. Hence, the inhabitants of the Mount Muria region preserved the cultural practice of consuming fruit salad (*rujak*) during the fourth and seventh months of pregnancy. It is believed that children born after such consumption would have attractive features, fair skin, and noble characteristics. While the truth of these beliefs must be scientifically validated, they are primarily upheld as prayers of hope.

Parijoto is a spiritually revered plant passed down through generations, particularly valued for its auspicious role in childbirth. Resembling small clusters of vivid purplish-red grapes, *parijoto* fruit is considered a living artifact, symbolizing something "still alive and vibrant," particularly in the form of the gastronomic delicacy "*rujak parijoto*." For the people of Kudus and its vicinity, it holds mystical significance, particularly when prepared as fruit salad, exclusively served to noble women, particularly expectant mothers.

Parijoto, as a spiritually endowed plant, holds the power of nourishment for expectant mothers, manifested in culinary form as fruit salad. *Rujak*, the oldest Javanese dish historically documented in the ancient Javanese Taji Inscription (901 AD), is identified as an ancient Javanese culinary art. *Rujak Parijoto*, is specifically prepared for the fourth and seventh-month pregnancy ceremonies, and is served to expectant mothers and their guests, especially for the female companions. The recipe for this *rujak* resembles that of other Indonesian fruit salads, differing mainly in the coarse grating of the fruits instead of thin slicing. Specifically, for *rujak parijoto*, other fruits such as Pomelo and red or black Pomegranate are added due to its distinctiveness to the city of Kudus and is flourishing on the slopes of Mount Muria.

Culturally, the presence of *parijoto* fruit anthropologically signifies the potential to elevate the social and cultural values of the communities around Mount Muria, and more broadly, of society at large. However, from an anthropological perspective, the noble values embodied in *parijoto* fruit may only be symbolically interpreted by the wider populace. Unlike the communities of Kudus and Murian, regardless of religion or ethnicity, who culturally comprehend the noble values instilled by Sunan Muria, those outside this region may perceive it merely as a local historical artifact.

Therefore, the development of *parijoto* fruit and its derivatives should harness its cultural potential for broader recognition among the general populace, who may more easily understand its socio-anthropological significance and, especially, its benefits through empirical and scientific evidence. With such evidence, the wider community can understand its true benefits based on its active compounds, their scientific mechanisms, and proper preparation methods to ensure its efficacy.

B. Problem Identification and Data Collection

After conducting surveys and in-depth interviews with MMSME owners and village residents to gather data covering economic, social, and environmental aspects, the learning service team carefully analyzed this data to identify patterns, trends, and emerging issues. Subsequently, the team collaborated with the local community to validate findings and identify top priorities. Through a participatory approach, the most pressing and relevant issues for the village MMSMEs and their community were then determined. Table 2 shows the kinds of problems and solutions offered.

Table 2:
MSMEs's Problem Identification

Nr.	Problem	Solution Offered
1.	Some MSMEs have not yet known and understood the health benefits of *parijoto* scientifically.	Procurement of workshops and training on 'Health Benefits and Bioactive Benefits of Fruit *Parijoto* (*Medinilla speciosa*)'.
2.	The packaging and labels of products processed by the MSMEs have not yet had nutritional information, as required by the Indonesian Standard Agency	Conducting a workshop about the calculation of nutritional product information and prototype formula
3.	The emergence of functional antioxidant-rich food claims is inadequate due to the lack of laboratory analysis.	Antioxidant content analysis with DPPH method at the Food Technology Department Laboratory, Soegijapranata Catholic University
4.	Lack of literacy and knowledge about the profile of *parijoto* fruit in the society	Production of the book "*Parijoto*" the Story of the Idol Fruit of Mount Muria" on the various aspects of the Fruit *Parijoto*.

Micro, Small, and Medium Enterprises (MSMEs) form the backbone of many economies worldwide, and contribute significantly to employment generation, economic growth, and innovation. However, despite their crucial role, MSMEs often encounter various challenges that hinder their growth and sustainability. Identifying these problems is essential for policymakers, business support organizations, and MSME owners themselves to develop effective strategies and interventions. One significant issue is the deficiency in understanding the intricacies of *Parijoto* fruit, including its cultivation, processing, and nutritional properties. Without adequate knowledge about *Parijoto* fruit, MSMEs may struggle to optimize production processes, resulting in subpar products and missed market opportunities. Additionally, the absence of proper packaging labels poses a barrier to consumer engagement and trust, as it hinders the communication of product information and quality assurance. Moreover, the limited awareness and appreciation of *Parijoto* fruit's antioxidant properties among MSMEs further compound these challenges, as it impedes the development of value-added products catering to health-conscious consumers. In addition, the lack of literacy and knowledge about the profile of *Parijoto*

fruit in society exacerbates these issues, hindering market penetration and consumer acceptance. Addressing these challenges requires targeted interventions, including capacity-building initiatives, education campaigns, and regulatory support, aimed at enhancing MSMEs' understanding of *Parijoto* fruit and equipping them with the necessary tools to thrive in the marketplace.

C. Focus Group Discussion and Action Plan

A Focus Group Discussion (FGD) is a highly useful method in the context of community service. In this community service program, a FGD was conducted in a hybrid manner with CSR PT. Norojono. The FGD (see Figure 2) allows participants to share their experiences, views, and opinions on the issues faced by MSMEs or specific problems, acting as a check during the implementation of action plans in the MSME community. The information obtained from FGD serves as a strong foundation to justify more relevant and impactful action plan programs at the MSME and village levels.

The action plan is designed to address the identified challenges faced by MSMEs regarding *Parijoto* fruit production and marketing. It involves a series of strategic initiatives aimed at empowering MSMEs with the knowledge, resources, and support necessary to thrive in the marketplace. The Action Plan is a focused approach to developing concrete action plans in the form of service learning to address issues and achieve predetermined goals. The team collaborated with MSME owners and the village community to identify their main issues and priorities. Subsequently, based on these findings, an Action Plan was designed with clear steps, measurable targets, and specific implementation schedules. A comprehensive Action Plan was devised to empower MSMEs in effectively navigating the complexities of *Parijoto* fruit production and marketing. This entails implementing a multifaceted approach encompassing training programs, collaborative partnerships, and regulatory support.

Figure 2:
Focus Group Discussion with CSR PT Nojorono Tobacco International

As can be seen from the documentation in Figure 2, the team first organized online educational workshops and hands-on training sessions to equip MSMEs with in-depth knowledge of *Parijoto* fruit cultivation, processing techniques, and the benefits of its antioxidant properties. These initiatives were complemented by the establishment of support networks and partnerships with agricultural experts, nutritionists, and packaging specialists who provide ongoing mentorship and guidance. Regulatory agencies were also engaged by discussing them onsite to develop standards for packaging labels, ensuring compliance with quality assurance protocols, and enhancing consumer trust. Additionally, targeted marketing campaigns were launched to raise awareness and appreciation of *Parijoto* fruit among consumers, emphasizing its unique qualities and health benefits. By implementing this Action Plan, MSMEs were empowered to overcome barriers and capitalize on the untapped potential of the *Parijoto* fruit

market, thus driving sustainable growth and economic development in the community. The empowerment itself was done through a Zoom meeting.

In the activities planned, students mastered new soft skills and hard skills. The soft skills referred to interpersonal, communication, and leadership abilities, while hard skills encompassed technical proficiencies and expertise in specific domains. In self-learning, soft skills involved self-motivation, time management, and adaptability, which were crucial for navigating independent study environments effectively. On the other hand, hard skills include research methodologies, critical thinking, and data analysis, essential for acquiring and synthesizing knowledge autonomously. Both skill sets were vital for successful self-learning, as they enabled individuals to acquire, process, and apply information autonomously, fostering lifelong learning and professional development.

D. Workshop and Training on the Health Benefits and Bioactive Properties of *Parijoto (Medinilla Speciosa)*

Workshops were conducted at the meeting hall of Colo Village MMSME Community. These workshops and training sessions were specifically designed to provide a deep understanding to the MSME community about the health benefits and bioactive properties contained in *Parijoto* fruit. The program aimed to expand the knowledge and skills of MSME members regarding the potential of *Parijoto* fruit as a value-added raw material for healthy and bioactive products. The speakers at the workshop were faculty members and students from the Faculty of Agricultural Technology, Soegijapranata University. During this activity, students and faculty members directly applied the Service-Learning Method implementation for the Colo Village MSME community.

Figure 3:
Workshop and Training in MSME's Community Lounge

As seen in Figure 3, a workshop and training session taking place in the lounge area of a Micro, Small, and Medium Enterprises (MSMEs) community was done. Participants were seated around tables, and engaged in discussions, while a presenter stood at the front, facilitating the session. Charts, whiteboards, or presentation slides were visible, indicating the sharing of knowledge and information. The atmosphere was a collaborative and interactive one, with participants actively learning and exchanging ideas. The lounge setting suggested a relaxed and informal environment conducive to open dialogue and networking among MSMEs.

In this setting, the workshop and training session served as a vital platform for empowering MSMEs with the skills, knowledge, and resources necessary for success in their endeavors. By bringing together industry experts, educators, and entrepreneurs, these sessions facilitated peer learning and mentorship, enabling participants to gain valuable insights and practical guidance relevant to their businesses. The informal lounge setting fostered a sense of camaraderie and

community spirit, encouraging collaboration and collective problem-solving. Moreover, the workshops provided opportunities for MSMEs to stay abreast of industry trends, regulatory updates, and best practices, thereby enhancing their competitiveness and resilience in the marketplace. Overall, Figure 3 illustrates the significance of workshops and training sessions in nurturing the growth and sustainability of MSMEs, driving economic development and empowerment within the community. The benefits derived from the workshops and training sessions included the enhancement of knowledge and skills among MSME members in processing and utilizing the *Parijoto* fruit for healthy and value-added products. Consequently, it was anticipated that they would have been able to advance their businesses, innovate diverse products, and expand their market reach, while simultaneously contributing to public health through the provision of nutritious and wholesome products.

E. Assistance in Calculating Nutritional Information of Products and Prototype Formulas

Assistance in calculating the nutritional value of products is a service offered to help food producers or entrepreneurs identify, measure, and communicate information related to the nutritional value of their products. This assistance is designed to ensure that food products produced meet established nutritional standards, allowing producers to provide accurate nutritional information to consumers, and assisting in the development of healthier products that are more suitable for the market. To simplify the calculation of nutritional values, students created a simple prototype using an Excel formula to facilitate understanding by the community. The formula for calculating the nutritional information of products involved analyzing the composition of various ingredients used in the recipe and quantifying their respective nutritional values. This typically included determining the amounts of macronutrients (such as carbohydrates, proteins, and fats), micronutrients (such as vitamins and minerals), and other relevant components (such as fiber and calories) present in the product. The formula accounted for any additives or fortifications that contribute to the nutritional profile. This information was used to generate a comprehensive nutrition label, which provided consumers with essential details about the product's nutritional content per serving size. The purpose of calculating nutritional information was to help consumers make informed dietary choices by providing transparent and accurate information about the nutritional composition of food products. Additionally, it aided in regulatory compliance by ensuring that products meet labeling requirements set forth by governing bodies, thereby promoting public health and well-being.

Figure 4:
Assisting in the creation of a prototype for determining the nutritional content of products

Figure 4 shows a group of individuals collaborating on the creation of a prototype for determining the nutritional content of products. The team consisted of scientists, researchers,

and possible engineers or technicians, as evidenced by their attire and the laboratory setting. The individuals were gathered around a table, where they examined various components, such as ingredients, measuring instruments, and technical drawings or schematics. Several activities were inferred from the image. Firstly, the team was seen engaged in discussions and brainstorming sessions, as indicated by their focused expressions and gestures. They exchanged ideas, sharing insights, or problem-solving to optimize the prototype's design and functionality. Additionally, some members of the team were conducting experiments or tests to validate the accuracy and reliability of the prototype in determining the nutritional content of different products. This involved using analytical techniques, laboratory equipment, and software tools to analyze samples and generate data.

The purpose of this collaborative effort was to develop a robust and efficient prototype that accurately measured and analyzed the nutritional content of various products. By leveraging scientific expertise and technological innovation, the team aimed to create a tool that facilitated the accurate labeling of food products, thereby empowering consumers to make informed dietary choices. the development of such a prototype benefited food manufacturers and regulatory authorities by ensuring compliance with labeling regulations and promoting transparency in the food industry. Overall, Figure 4 illustrates the interdisciplinary nature of nutritional research and innovation, that highlighted the collaborative efforts of scientists, researchers, and engineers in addressing complex challenges related to food quality and nutrition.

F. Analysis of Antioxidant Content of MMSME Products

The DPPH (2,2-Diphenyl-1-picrylhydrazyl) assay is one of the methods used in analyzing the antioxidant content of MMSME products. This method aimed to measure the level of antioxidant activity in products produced by MMSMEs. The DPPH test process involved the reaction between DPPH free radical compounds and antioxidant compounds in the product being tested. This antioxidant analysis was carried out by students (see Figure 5) from the Faculty of Agricultural Technology, Soegijapranata University. Here, the students were shown to be conducting a DPPH assay in *Parijoto* products. DPPH (2,2-diphenyl-1-picrylhydrazyl) assay is a commonly used method to measure the antioxidant activity of food products. The students are likely following a standardized protocol, which involves several steps.

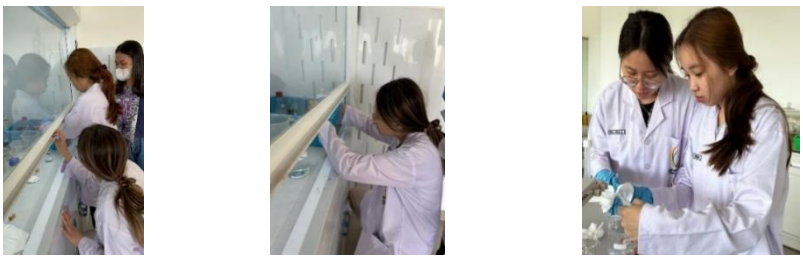

Figure 5:
Laboratory Analysis of Antioxidant Activity

Firstly, students had to prepare a DPPH solution by dissolving DPPH powder in a solvent such as ethanol. This solution appeared purple in color due to the presence of unreacted DPPH radicals. Then, they diluted the *Parijoto* product samples and added them to the DPPH solution. The antioxidant compounds present in the *Parijoto* products reacted with the DPPH radicals,

leading to a decrease in the purple color intensity. The students carefully monitored the color change in the solution over time, using spectrophotometry or visual inspection. A more significant decrease in color intensity indicates higher antioxidant activity in the *Parijoto* product sample. By comparing the absorbance or color change of the samples with that of a control solution, the students then quantified the antioxidant activity of the *Parijoto* products. Throughout the process, the students adhered to laboratory safety protocols by wearing appropriate protective gear and handling chemicals with caution. They recorded their observations and data meticulously, ensuring the accuracy and reproducibility of their results. This activity allowed the students to gain practical experience in conducting biochemical assays and understanding the antioxidant properties of *Parijoto* products. It also provided valuable insights into the scientific principles underlying food analysis and quality assessment. Overall, by engaging in the DPPH assay, the students were actively contributing to the evaluation and improvement of *Parijoto* product formulations, which can have significant implications for their nutritional value and marketability. The analysis results can be seen in Table 2.

Tabel 2:
Antioxdiant Activity of MSMEs's Products

No.	Products		Antioxidant Activity (%)
1.	Parijotho Syrup		88.89%
2.	Dried Parijotho Drink		82,66%
3.	Parijotho Chips		46,47%
4.	Parijotho Jelly Candy		4,05%

Table 2 presents the results of the DPPH (2,2-diphenyl-1-picrylhydrazyl) assay conducted on four variants of processed *Parijoto* products: syrup, drink, chips, and candy. The percentages shown in the table represent the antioxidant activity of each variant, calculated based on the percentage inhibition of DPPH radicals. To calculate these percentages, the following formula was used:

Antioxidant Activity = (1 - Absorbance of Sample/ Absorbance of Control) x 100%

In this formula, the absorbance of the sample is compared to the absorbance of a control solution containing only the DPPH reagent. The greater the inhibition of DPPH radicals by the sample, the higher the percentage of inhibition, indicating greater antioxidant activity. The significance of these percentages lies in their ability to quantify the antioxidant capacity of the processed *Parijoto* products. Antioxidants play a crucial role in neutralizing harmful free radicals in the body, thereby reducing oxidative stress and lowering the risk of various chronic diseases. Therefore, higher percentages of inhibition in the DPPH assay suggested greater potential health benefits associated with the consumption of these products. The decision to process *Parijoto* into these four variants was based on various factors. Firstly, it was driven by consumer preferences and market demand for diverse product offerings. Secondly, each variant were formulated to cater to different target demographics or dietary preferences, such as snacks, beverages, condiments, or supplements. Furthermore, the choice of variants considered the availability of processing technologies and expertise, as well as the feasibility of sourcing and incorporating additional ingredients to enhance flavor, texture, and nutritional profile. The results presented in Table 2 provided valuable insights into the antioxidant potential of processed *Parijoto* products, contributing to the understanding of their health-promoting properties and market competitiveness.

G. Evaluation and Program Reflection

After the community service program or project was implemented, an evaluation was conducted to assess its impact, success, and effectiveness. This involved measuring indicators established beforehand, such as increased MSME income, improved community skills, or other positive changes. The evaluation data was used to assess the extent to which the program has achieved its objectives. Results of the evaluation questionnaires are seen in Table 3and the evaluation score is shown in Figure 10.

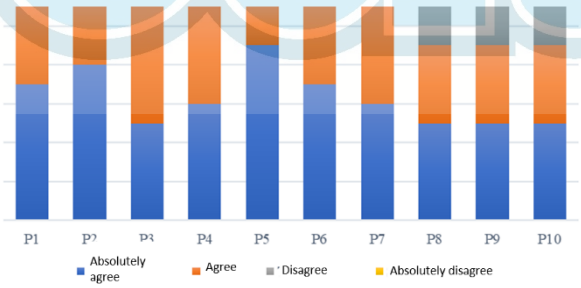

Figure 10:
Program Evaluation Score

Figure 10 presents the Program Evaluation Score, which is a quantitative measure used to assess the effectiveness and impact of a program. This score is derived from various evaluation metrics and indicators, such as participant feedback, performance outcomes, and stakeholder engagement. The figure provides a visual representation of the overall performance of the program, indicating its strengths, weaknesses, and areas for improvement. The Program Evaluation Score serves as a valuable tool for program managers, stakeholders, and funders to gauge the program's success in achieving its objectives and delivering desired outcomes. By analyzing trends and patterns in the score over time, decision-makers can make informed decisions regarding program continuation, modification, or termination. Additionally, the score helps identify areas of success that can be replicated or scaled up in future initiatives, as well as

areas that require targeted interventions or resource allocation. Figure 10 offers a snapshot of the program's performance and serves as a basis for evidence-based decision-making and continuous improvement efforts.

Table 3:
Evaluation Questionnaires

No.	Code	Questions
1.	P1	This program improves our MSMEs
2.	P2	This program can enhance the potency of *parijoto* and the resources of the community
3.	P3	The program is fully aligned with the needs of Colo Village, Muria
4.	P4	Participants can continue the program without the help of a trainer
5.	P5	There is collaboration with partners or other stakeholders the more effective
6.	P6	The program provides appropriate literacy to the participants
7.	P7	The program allows participants to apply knowledge to innovate
8.	P8	Participants are actively involved in the implementation efforts of the program in everyday life
9.	P9	The program upholds customs and traditions as well as the values of the community
10.	P10	The team behaves according to the values of honesty, justice, and responsibility

The evaluation results show positive outcomes where, based on questions P1–P7, all participants agreed or strongly agreed that the training program improved their understanding from before (Table. 3). The majority of participants felt they gained insights from the workshops and training sessions and were able to absorb the knowledge and skills shared. Participants agreed or strongly agreed that they gained increased knowledge and could continue the program and innovate without the help of volunteer teams. However, regarding questions P8-10, three participants disagreed with the claim that the program upholds community values because some participants felt that the teaching materials such as Microsoft Office would be difficult for older people to access. The questionnaire results indicated that intervention programs such as workshops and training can change for participants in the future, enabling them to absorb knowledge, practice it, and maintain motivation to develop their businesses. In addition to evaluation, reflection was also crucial. The service team and local stakeholders collectively reflected on the process, challenges faced, and lessons learned during program implementation. This helped me understand what succeeded and what needed improvement in the future. Updates to action plans or programs can be recommended based on this reflection.

H. Collaborative Partners

Corporate Social Responsibility (CSR) is currently prevalent in companies in Indonesia, including tobacco companies like PT Nojorono Tobacco International. CSR PT Nojorono Tobacco International was established due to the company's new vision and mission released alongside PT Nojorono Tobacco International's 85th anniversary, which is to "Become one of the 'best managed' companies in the industry, which has social responsibility and environmental

awareness.". Norojono CSR has become increasingly prevalent in companies across various industries in Indonesia, reflecting a growing recognition of the importance of social and environmental stewardship alongside business operations. This trend extends to diverse sectors, including tobacco companies like PT Nojorono Tobacco International, which have recognized the significance of contributing to the well-being of the communities in which they operate. In collaboration with local stakeholders, including governmental bodies, NGOs, and community leaders, PT Nojorono Tobacco International has embarked on initiatives to support the development of MSMEs in areas such as Colo Village. One such initiative involved the cultivation and processing of *Parijoto* fruit, a local agricultural product, to empower MSMEs and enhance economic opportunities in the region. Through CSR partnerships, PT Nojorono Tobacco International provided resources, expertise, and market access to MSMEs, facilitating skill development, capacity building, and sustainable business practices. These collaborative efforts not only contributed to the socio-economic development of communities like Colo Village but also demonstrated the company's commitment to responsible business practices and stakeholder engagement. Additionally, PT Nojorono Tobacco International's involvement in CSR initiatives underscored the importance of industry collaboration and shared value creation in addressing societal challenges and fostering inclusive growth in Indonesia.

Currently, there are 11 MSMEs under the auspices of the Nojorono Charity Work Foundation (YKB Nojorono) focusing on processed *Parijoto* products. Through training and mentoring provided by the foundation, it is hoped that they can develop the MSMEs that have been initiated to further introduce *Parijoto* to the wider community, in addition, to improving the welfare of MSME actors, increasing innovation and creativity of MSME actors, and become a new job opportunity for the community.

The company's commitment to developing *Parijoto* and introducing the fruit to the wider community is further realized with one of the activities conducted in 2022. PT Nojorono Tobacco International collaborated with the Kudus Regency Government to hold the "B2SA-Based Local Food Creation Contest 2022" with the mandatory use of *Parijoto* fruit as the main ingredient in cooking. From the results of this activity, various food innovations were successfully created by participants consisting of representatives from districts in Kudus, such as *Parijoto* catfish steak, *Parijoto* shrimp paste, and others.

CONCLUSION

The program described exemplifies a robust collaboration and partnership model between academic institutions and corporate entities, showcasing the facilitative role played by the partner in driving positive social impact. In this case, the mentorship and support provided by CSR PT Nojorono Tobacco International were instrumental in empowering MSMEs and fostering community development. The active involvement of students from the Faculty of Agricultural Technology, Soegijapranata Catholic University, in program implementation and data collection, underscored the interdisciplinary nature of the initiative, with academic knowledge complementing real-world application.

Throughout the program, a range of activities were conducted, including workshops, training sessions, and analyses related to health benefits, bioactive properties, nutritional information, and antioxidant content of products. These activities were designed not only to

enhance the capacity of MSMEs but also to foster innovation, impart practical knowledge and skills, and promote problem-solving abilities among students. The success of the program can be attributed to the collaborative efforts of all stakeholders involved, highlighting the effectiveness of partnership models in achieving sustainable community development objectives.

This initiative served as a noteworthy example of how academia, industry, and community partners can collaborate synergistically to address societal challenges and create shared value. By leveraging their respective expertise and resources, these stakeholders have demonstrated a commitment to responsible business practices and social responsibility, while simultaneously enriching the learning experience for students and contributing to the empowerment of MSMEs. As such, this program not only signified a successful community service endeavor but also served as a model for future collaborative initiatives aimed at driving positive change and fostering inclusive growth.

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