

## **EMPOWERING PERSONS WITH DISABILITIES THROUGH PRODUCTIVE AND DIGITAL SKILLS TRAINING TO SUPPORT ECONOMIC INDEPENDENCE IN PERMATA BARU VILLAGE, OGAN ILIR REGENCY**

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### **Abstract**

Persons with disabilities continue to face limited access to productive skills, digital technology, and financial services, which may restrict their opportunities for economic independence. This community service program aimed to improve the productive skills and digital literacy of persons with disabilities in Permata Baru Village, Ogan Ilir Regency, through inclusive and participatory practice-based learning. The program involved 20 participants with disabilities and was implemented through socialization, instructional sessions, demonstrations, hands-on practice, and mentoring. The training focused on two main activities: producing eco-enzyme by utilizing organic waste and using the Quick Response Code Indonesian Standard (QRIS) through the DANA Bisnis application as a digital payment method. The results indicated that participants gained knowledge and practical experience in transforming organic waste into useful products and developed a better understanding of digital payment systems that can support economic activities. The program evaluation showed an average score of 4.39 out of 5, equivalent to an achievement rate of 87.6%, indicating a highly positive response from participants. The most highly rated aspects were the engaging and easy-to-follow training methods and active participant involvement. This program contributes to the field of education by demonstrating the application of inclusive, experiential, and non-formal learning approaches that strengthen life skills, digital literacy, and economic preparedness among persons with disabilities.

**Keywords:** persons with disabilities, inclusive education, eco-enzyme, digital literacy, QRIS.

### **Abstrak**

Penyandang disabilitas masih menghadapi keterbatasan akses terhadap keterampilan produktif, teknologi digital, dan layanan keuangan yang dapat menghambat kemandirian ekonomi. Kegiatan pengabdian kepada masyarakat ini bertujuan meningkatkan keterampilan produktif dan literasi digital penyandang disabilitas di Desa Permata Baru, Kabupaten Ogan Ilir, melalui pembelajaran berbasis praktik yang inklusif dan partisipatif. Kegiatan melibatkan 20 penyandang disabilitas dan dilaksanakan melalui tahapan sosialisasi, penyampaian materi, demonstrasi, praktik langsung, serta pendampingan. Pelatihan difokuskan pada pembuatan eco-enzyme dengan memanfaatkan limbah organik serta penggunaan Quick Response Code Indonesian Standard (QRIS) melalui aplikasi DANA Bisnis sebagai sarana pembayaran digital. Hasil kegiatan menunjukkan adanya peningkatan pengetahuan dan pengalaman praktis peserta dalam mengolah limbah organik menjadi produk bernilai guna serta memahami penggunaan pembayaran digital untuk mendukung aktivitas ekonomi. Evaluasi kegiatan memperoleh nilai rata-rata 4,39 dari skala 5 dengan tingkat pencapaian 87,6%, yang menunjukkan respons positif peserta terhadap pelaksanaan pelatihan. Aspek metode pelatihan yang menarik, mudah dipahami, serta keterlibatan aktif peserta memperoleh penilaian tertinggi. Kegiatan ini berkontribusi pada bidang pendidikan melalui penerapan pembelajaran nonformal berbasis pengalaman yang adaptif terhadap kebutuhan penyandang disabilitas serta mendukung pengembangan keterampilan hidup, literasi digital, dan pendidikan inklusif untuk memperkuat kemandirian ekonomi secara berkelanjutan.

*Keywords:* penyandang disabilitas, pendidikan inklusif, eco-enzyme, literasi digital, QRIS.

## INTRODUCTION

People with disabilities are members of society who possess equal rights and opportunities to participate in social and economic activities. However, their involvement in economic activities still faces various obstacles, ranging from limited employment opportunities and access to training and digital skills to a lack of access to technologies that support productive activities. In Indonesia, people with disabilities also face labor market vulnerabilities, with many still concentrated in precarious forms of employment. Caron, (2020) highlights disparities in labor force participation and income between people with and without disabilities in Indonesia. This indicates that economic empowerment initiatives for people with disabilities should focus not merely on providing assistance, but on enhancing skills and productive capacities that enable independent economic engagement.

The economic shift toward an increasingly digitized system presents both opportunities and challenges for people with disabilities. Technology can open up market access, expand payment methods, reduce mobility barriers, and enable economic activities to be conducted from home. On the other hand, limitations in skills and digital access can create new disparities. Jetha et al., (2023) states that the digital divide faced by people with disabilities is linked to access to technology, personal resources, and the skills required in the workforce. Therefore, interventions in the form of inclusive digital training serve as a crucial instrument for enhancing the

economic participation of people with disabilities. These findings are increasingly relevant in the Indonesian context. Sari et al., (2025) demonstrate that digital access, internet usage, and technology-integrated training are positively associated with the income and productivity of people with disabilities, particularly among those engaged in entrepreneurial activities. Thus, digital skills training serves not only to enhance proficiency in using technological devices but also acts as an economic asset that helps people with disabilities develop their businesses and expand their access to consumers.

Economic empowerment can also be fostered by utilizing resources available in the local environment. One relatively simple activity that can be carried out at the household level is the processing of organic waste into eco-enzyme. Eco-enzyme is a liquid produced through the fermentation of organic materials, such as fruit and vegetable scraps—using water and a carbon source, such as molasses or sugar. Research indicates that fermenting fruit and vegetable waste yields a solution containing various components and enzymes with potential environmental applications. Transforming waste into useful products also supports efforts to reduce the burden of organic waste and promotes circular economy practices within the community (Arun & Sivashanmugam, 2015; Pasalari et al., 2024).

Beyond production skills, a crucial aspect of business development is the ability to accept and manage payments. The digitalization of

payments through the Quick Response Code Indonesian Standard (QRIS) enables micro-enterprises to accept cashless payments from various payment applications using a single QR code. Bank Indonesia positions QRIS as a gateway for MSMEs to enter the digital economic and financial ecosystem (Bank Indonesia, 2019).

Digital financial inclusion is also linked to the development of entrepreneurial activities. Wei et al., (2025) found that digital financial inclusion can foster entrepreneurship, exerting a stronger impact on regions outside major economic hubs. Khan, (2025) further demonstrated that the use of mobile financial services can enhance financial inclusion for informal sector businesses and support their profitability. These findings suggest that mastering digital payment systems can serve as a key component in the economic empowerment of communities that have historically faced limited access to formal financial systems.

Addressing these issues, the community service initiative in Permata Baru Village integrates two types of skills: processing organic waste into eco-enzymes (a productive skill) and using QRIS via DANA Business (a digital skill). This approach aligns with the principles of the Sustainable Development Goals (SDGs)—specifically SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities), and SDG 12 (Responsible Consumption and Production). The initiative aims to enhance the knowledge, productive skills, and digital literacy of people with disabilities, while also preparing them to develop more independent economic activities.

## **METHOD**

This community service initiative employed an interactive and participatory hands-on training approach, involving 20 individuals with disabilities in Permata Baru Village, North Indralaya District, Ogan Ilir Regency. The program was designed to enhance participants' productive skills and digital literacy through two primary activities: training on producing eco-enzymes from organic waste and instruction on using the QRIS payment system via the DANA Bisnis application. A participatory approach was adopted to ensure that participants did not merely receive information but also actively engaged in practical exercises and received guidance tailored to their individual capabilities.

The activity was conducted in five stages. The first stage involved disseminating information about the program and introducing the benefits of eco-enzymes, digital skills, and their connection to the Sustainable Development Goals (SDGs). The second stage consisted of presenting material on eco-enzyme production using a 1:3:10 ratio—comprising 1 kg of molasses or sugar waste, 3 kg of fruit waste or peels (from at least four different types of fruit), and 10 liters of water—followed by a six-month fermentation period. The third stage involved hands-on practice in making eco-enzymes and training on using QRIS via DANA Bisnis. The fourth stage encompassed mentoring and evaluation to assess participants' understanding and their initial ability to apply the skills they had acquired. The fifth stage focused on ensuring program sustainability by providing videos and simple modules covering the eco-enzyme production process and QRIS

usage, which participants could use for independent learning.

The activity was evaluated using a questionnaire administered to participants following the training. The evaluation instrument employed a 1–5 Likert scale and covered aspects such as material suitability, ease of delivery and practical application, facilitator competence, activity benefits, accessibility, support provided, and participant engagement. Questionnaire data were analyzed descriptively using mean scores and achievement percentages to illustrate the level of participant acceptance of the program. While the evaluation results served as preliminary indicators of the training's acceptance, relevance, and benefits, the sustained application of productive skills, adoption of QRIS, and development of economic independence require further monitoring beyond the conclusion of the activity.

## RESULTS AND DISCUSSION

This community service program was implemented to enhance the capabilities of people with disabilities in Permata Baru Village, North Indralaya District, Ogan Ilir Regency, by strengthening their productive and digital skills. The activities focused on training in eco-enzyme production from organic waste and the use of QRIS via DANA Bisnis. These two skills were selected because they are relatively easy to implement at the household level and have the potential to support the participants' economic activities more independently.



Figure 1. Group photo with participants.

The activity began with a presentation on the utilization of organic waste, opportunities for developing productive activities, and the importance of digital literacy in supporting economic endeavors. Participants were introduced to the concept of eco-enzyme—a product derived from the fermentation of fruit waste or peels—as an alternative method for utilizing organic waste. Utilizing such waste not only reduces household waste but also introduces principles of more responsible production. Sharma et al., (2024) explain that processing organic waste through fermentation can yield valuable products and serve as a more sustainable waste management alternative.

The subsequent session introduces QRIS as a cashless transaction tool that can be utilized to support business activities. Participants receive an explanation regarding the functions of digital payments, the benefits of transaction record-keeping, and the use of QRIS via DANA Bisnis. Introducing this technology is crucial, as the ability to use digital services is increasingly essential in economic activities. (Redko, 2024) demonstrates that digital access and skills can enhance economic opportunities and productivity for people with disabilities, particularly when combined with entrepreneurial activities.



Figure 2. Presentation of activity materials.

The eco-enzyme training began with an introduction to the ingredients, composition, mixing techniques, storage, and fermentation process. The formula used consisted of 1 kg of molasses or sugarcane waste, 3 kg of fruit waste or peels, and 10 liters of water, maintaining a 1:3:10 ratio. This composition aligns with the formulation used by Sambaraju & Lakshmi, (2020) for processing organic waste via fermentation.

After receiving an explanation, participants engaged in a hands-on session to produce eco-enzyme. Fruit scraps or peels were first sorted and cut into smaller pieces. Molasses was then dissolved in water before all ingredients were placed into a fermentation container. The container was sealed, labeled with the production date, and stored away from direct sunlight to undergo a six-month fermentation process. During the first ten days, the lid was loosened for two to three hours to release gas and then retightened—a procedure repeated daily throughout this initial period. Afterward, the lid was kept tight, and the mixture was left to ferment for six months. This practical

activity allowed participants to understand that precise ingredient ratios, container cleanliness, and proper storage are crucial factors in successfully producing eco-enzyme.



Figure 3. Eco-enzyme production practice.

The materials and equipment used include a lidded container, a scale, a measuring cup, a stirring tool, a knife, 1 kg of molasses or sugar waste, 3 kg of fruit waste or peels (comprising at least four types of fruit), and 10 liters of water. Preparation involves mixing all ingredients according to the specified proportions and then storing the mixture for the fermentation process. After six months, the fermented liquid can be filtered to separate it from the solid residue. Mengqi et al., (2023) explain

that the fermentation of organic waste results in changes to organic components during the maturation process. Therefore, participants are also provided with knowledge regarding storage and monitoring procedures throughout the fermentation process.



**Figure 4. Eco-Enzyme Mixing Ingredients**

Following the eco-enzyme session, the activity continued with training on using QRIS via DANA Bisnis. Participants were guided through the business features of the DANA app, including completing business details, understanding the QRIS application process, and learning how to accept and verify transactions. A hands-on approach was employed to ensure participants not only understood the functions of digital payments but also gained practical experience in operating the app independently.



**Figure 5. Practice of using QRIS via DANA Bisnis.**

The use of QRIS equips participants with additional skills that support their business activities. Digital transactions enable more convenient payment processing and reduce reliance on cash transactions. Furthermore, participants are introduced to the importance of checking payment statuses via the application, allowing for more secure transaction management. Mengqi et al. (2023) demonstrate that expanding digital financial inclusion can support entrepreneurial activities by improving business owners' access to financial services.

Training on eco-enzymes and QRIS is also linked to the Sustainable Development Goals (SDGs). Enhancing knowledge and skills supports the achievement of SDG 4 (Quality Education), while developing productive and digital skills aligns with SDG 8 (Decent Work and Economic Growth). Involving people with disabilities in productive activities relates to SDG 10 (Reduced Inequalities), whereas utilizing organic waste to produce eco-enzymes supports SDG 12 (Responsible Consumption and Production). This integration demonstrates that empowerment can be achieved by combining social, economic, digital, and environmental dimensions.

The evaluation of the activity's implementation was conducted using a

participant satisfaction questionnaire. The evaluation covered the relevance of the material, delivery method, ease of practical application, benefits of the activity, facilitator competence, accessibility, support provided, and participant engagement. The results are used to gauge participant reception of the program and to identify areas requiring further improvement.

Based on Table 1, the implementation of the activity achieved an average score of 4.39 out of 5, representing an average achievement rate of 87.6%. These results indicate a relatively high level of participant acceptance regarding the program's implementation. The highest achievement scores—each at 92%—were recorded for the indicators concerning engaging and easy-to-follow training methods and practical exercises, as well as participant comfort during the activity. These findings demonstrate that practice-based learning methods and direct engagement are suitable for training individuals with disabilities, as participants have the opportunity to observe, experiment, ask questions, and perform activities firsthand.

Aspects of communication and inclusivity also received high ratings. The delivery of material using easily understandable language achieved a score of 91%, while the indicator regarding the provision of equal opportunities for all participants also reached 91%. These results demonstrate that the training approach successfully fostered a sufficiently inclusive learning environment and encouraged participant engagement. This aligns with the findings of Jetha et al. (2023), who emphasize that skills development for individuals with disabilities requires a learning process that is accessible and

capable of reducing barriers to technology adoption.

Assessments regarding the benefits of the material also yielded positive results. The ease of applying the material in daily life was rated at 87%, while its utility for business activities or employment reached 89%. This indicates that the combination of eco-enzyme and QRIS training is considered highly relevant to the participants' needs. Eco-enzyme training provides productive skills that can be initiated using simple household materials, whereas QRIS equips participants with knowledge of digital transactions that can be leveraged when developing business activities.

Although most indicators yielded high results, two aspects require further attention. Accessibility of the venue achieved a score of 81%, while the alignment of support with participants' needs recorded the lowest score at 80%. These findings indicate that future programs need to place greater emphasis on the physical accessibility of event locations and the intensity of individual support. As the needs of individuals with disabilities vary from person to person, support methods should be made more flexible to accommodate specific capabilities and the types of support required.

Evaluation results also indicate that the program's success cannot be measured solely by participants' understanding at the time of training. Producing eco-enzyme requires a six-month fermentation period; therefore, ongoing monitoring is necessary to ensure participants can properly manage the fermentation process and evaluate the resulting product. Similarly, proficiency in using QRIS needs to be reinforced through repeated practice so that participants become increasingly

comfortable managing digital transactions independently.

**Tabel 1. Hasil Kuesioner Evaluasi Peserta**

| No | Statement                                                                                               | Mean Score (Scale 1–5) | Achievement Percentage |
|----|---------------------------------------------------------------------------------------------------------|------------------------|------------------------|
| 1  | The training materials were relevant to my needs.                                                       | 4.2                    | 84%                    |
| 2  | The training materials were delivered using language that was easy to understand.                       | 4.5                    | 91%                    |
| 3  | The training materials were easy to apply in daily life.                                                | 4.3                    | 87%                    |
| 4  | The materials provided were useful in supporting my business or work activities.                        | 4.5                    | 89%                    |
| 5  | The training materials were appropriate to the abilities and needs of participants with disabilities.   | 4.3                    | 87%                    |
| 6  | The facilitator explained the materials clearly and in an easy-to-understand manner.                    | 4.5                    | 89%                    |
| 7  | The facilitator provided opportunities for participants to ask questions and engage in discussions.     | 4.5                    | 89%                    |
| 8  | The facilitator assisted participants when they encountered difficulties during the practical sessions. | 4.3                    | 85%                    |

| No | Statement                                                                 | Mean Score (Scale 1–5) | Achievement Percentage |
|----|---------------------------------------------------------------------------|------------------------|------------------------|
| 9  | The training and practical methods used were engaging and easy to follow. | 4.6                    | 92%                    |
| 10 | The duration of the training was adequate.                                | 4.5                    | 89%                    |
| 11 | The venue was easily accessible to me.                                    | 4.1                    | 81%                    |
| 12 | The training media and materials were easy to use and understand.         | 4.4                    | 88%                    |
| 13 | The assistance provided was appropriate to my needs.                      | 4.0                    | 80%                    |
| 14 | I felt comfortable and was actively involved throughout the activities.   | 4.6                    | 92%                    |
| 15 | The activities provided equal opportunities for all participants.         | 4.5                    | 91%                    |

The results indicate that the approach—combining direct training, hands-on practice, discussion, and mentoring—provided a positive learning experience for the participants. Integrating organic waste processing skills with digital financial literacy broadened the scope of empowerment, shifting the focus from mere knowledge acquisition to the development of productive capabilities and entrepreneurial readiness. Follow-up programs should prioritize enhanced mentoring, improved activity accessibility, product packaging, digital marketing, and basic financial record-keeping to ensure that the acquired skills evolve into more sustainable economic activities. Thus, this

empowerment program can serve as a foundational step toward strengthening the economic self-reliance of people with disabilities in Permata Baru Village, while simultaneously supporting the implementation of inclusive and sustainable development principles.

## CONCLUSION

A community service initiative in Permata Baru Village, North Indralaya District, Ogan Ilir Regency, demonstrated that training on eco-enzyme production and the use of QRIS via DANA Bisnis serves as a relevant approach to enhancing the productive skills and digital literacy of people with disabilities. The eco-enzyme training provided knowledge and hands-on experience in transforming organic waste into valuable products, while the QRIS training introduced participants to digital payment systems that can support business activities. Evaluation results indicated a high level of participant acceptance, with an average score of 4.39 out of 5 and an achievement rate of 87.6%. The highest ratings were recorded for the engaging and accessible training methods and the participants' active involvement throughout the activities. These results demonstrate that an approach combining hands-on practice, discussion, and mentoring fosters an inclusive learning process tailored to the participants' needs. The initiative also supports the achievement of SDGs 4, 8, 10, and 12 by enhancing skills, strengthening economic independence, reducing inequality, and promoting responsible waste utilization.

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