

ENTREPRENEURSHIP EDUCATION BASED ON URBAN FARMING PROJECTS FOR URBAN COMMUNITIES

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ABSTRACT Community service was carried out in August in RW 5, Bandulan Village, Sukun District. Entrepreneurship education in the form of making fish ponds and regenerating local plants was used as a pilot project in community empowerment. This service aims to increase community creativity and innovation in utilizing the potential of abundant water resources, to meet the needs of fish and vegetables in families by producing their own fish and vegetables. The activity method uses the community empowerment method with the CIPOO model (content, input, process, output, and outcome). This activity was successfully implemented with indicators of active community participation in each activity. In addition, community service was able to improve the entrepreneurial competence of the RW 05 community. Based on the assessment criteria for the pond project, it consists of product innovation produced, sustainability, and social impact. The detailed assessment rubric on project objectives, quality of work, time management, budget management, team communication, team cooperation, project leadership, innovation and creativity, risk evaluation, overall evaluation. The results of interviews with the community, they agreed that making fish ponds, and regenerating vegetables and spices can save household spending and even increase family income by doing urban farming entrepreneurship. For future service, it is suggested to continue with the addition of a pool for Garalva fish therapy to support health and tourism.

KEYWORDS: *Community empowerment, Education, Project-based entrepreneurship, Urban farming, Urban communities*

1. INTRODUCTION

Large cities in Indonesia face complex challenges such as limited productive land, increasing food demand, and household economic pressures. Urban farming, as a form of agriculture in urban areas, is a key focus in efforts to achieve food security and improve public welfare. This concept aligns with the global Sustainable Development Goals (SDGs) agenda, which emphasizes the

importance of sustainable food systems, public health, inclusive economic growth, and resilient urban development.

Urban farming supports SDG 2 (Zero Hunger) through local and sustainable food production. By creatively utilizing limited space, communities can produce key food sources such as fish and vegetables, thereby reducing household expenses and increasing the nutritional value of daily consumption. Furthermore, urban farming contributes to SDG 3 (Good Health and Well-being) by providing fresh, pesticide-free food, which can play a role in disease prevention and stunting management in urban areas.

Integrating urban farming with an entrepreneurial approach expands the socio-economic benefits of this activity. By applying entrepreneurial principles such as innovation, opportunity identification, and increasing added value, urban farming can develop into sustainable micro-enterprises that open up local economic opportunities. This supports SDG 8 (Decent Work and Economic Growth) by creating new business models, increasing family incomes, and strengthening community economic independence.

Furthermore, urban farming plays a role in improving environmental quality and fostering a culture of mutual cooperation in communities, as emphasized in SDG 11 (Sustainable Cities and Communities). Urban farming also supports SDG 12 (Responsible Consumption and Production) through environmentally friendly agricultural practices, organic waste recycling, and efficient resource use.

Thus, entrepreneurial-based urban farming is not only a solution to food security but also an instrument for sustainable development that impacts the economic, social, health, and environmental aspects of urban communities.

Furthermore, the abundant natural resources in RW 5, a large river with a strong current, the presence of several unused vacant plots of land, and the community's willingness to work together are strengths that need to be considered to increase urban crop production, foster community self-reliance, and enhance economic value and community entrepreneurship. (Bandulan, 2024)

The abundant water resources have the potential to support fish farming, but there have been no efforts to maximize this potential, according to the analysis of initial observations conducted by the community service team. Therefore, the community service team took the initiative to create a pilot project involving catfish cultivation and a pilot project for vegetable and herbal regeneration. The following is the result of the SWOT analysis used by the community service team.

Table 1. SWOT Analysis Results

Factors	External Factors	External Factors
Opportunities	Abundant water resources, available vacant land, and a spirit of mutual cooperation provide opportunities for catfish cultivation and replanting vegetables and herbs.	There is no incentive to initiate productive economic ventures to utilize water and land resources, potentially losing productive business opportunities.
Threat	The potential of water and empty land, if not utilized immediately, will become a threat if the sense of togetherness and mutual cooperation decreases, namely if this potential is exploited by irresponsible parties.	Concern for a healthy lifestyle is decreasing and demands to fulfill life's needs are increasing, which will have an impact on the decline in nutrition for toddlers and children.

Source: Observation and Interview Results of the Community Service Team

Armed with an initial analysis of weaknesses, strengths, opportunities, and the utilization of existing water resources, the RW 5 area and the community empowerment team are in the initial stages of planning an urban farming entrepreneurship education program in the form of a pilot project for catfish cultivation. In addition to abundant water, there is still vacant land around the RW 5 office that can be utilized to replant local crops such as ginger, turmeric, and other vegetables, supporting the community's need to increase the production of nutritious, economically valuable food and increasing family income.

This pilot project, which involves constructing catfish ponds and replanting local vegetables and herbs, serves as a model for community entrepreneurship in the fisheries and agriculture sectors. The construction of these catfish ponds involves the local community, and during their direct involvement in the program, the community service team motivates and fosters creative and innovative mindsets to increase family income.

Growing healthy local crops will support and meet nutritional needs. By integrating the catfish cultivation program, urban agriculture, and health literacy, the RW 5 area can create a holistic solution to improve food security and community health. These programs not only utilize existing resources but also address deficiencies, create new opportunities for community well-being, and improve the quality of life in urban environments. (Atamou et al., 2023)

Based on the abundant potential of water resources, the desire of the RW 5 community to improve their own food procurement capabilities, and the spirit of mutual cooperation within the RW 5 community in improving environmental quality, this community empowerment program focuses on "how to utilize limited land through a pilot urban farming project in the form of fish cultivation,

increasing the variety of vegetables and spices, and maximizing the potential of nutritious local foods."

The objectives of this community service are: (1) Improving the community's ability to understand the problems they face through a creative and innovative mindset; (2) Increasing motivation to improve family economic capacity through independent businesses with pilot catfish cultivation projects and pilot local plant projects; (3) Increasing community motivation by providing pilot projects in the form of fish ponds and local plants with business potential; (4) Improving community entrepreneurial skills in the fisheries and agriculture sectors.

2. METHOD

The empowerment program, which involves urban farming entrepreneurship, uses the CIPOO (content, input, process, output, and outcome) model to empower communities. This model is used because this empowerment involves community participation. Community empowerment will be effective with community participation and awareness in utilizing local resources, as also demonstrated by research results (Rahmanto et al., 2018).. The detailed stages of this community service are as follows:

a. Community Service Preparation Stage

Preparations began in early July, with briefings from the Community Empowerment Institute (LPPM), direct meetings with the village head (Lurah), and community outreach (PPM) officers in the village. In early August, from August 1-7, 2024, the community service team conducted initial observations and interviews with neighborhood unit (RW) and neighborhood unit (RT) heads, local residents, PKK (Family Welfare Movement) activists, and integrated health service posts (Posyandu) for the implementation of the community service program. This preparation included planning for possible collaboration with relevant agencies to provide local food entrepreneurship education to improve family welfare.

b. Community Service Implementation Stage

The community service program was implemented after the work program plan was agreed upon with the neighborhood unit (RW) and neighborhood unit (RT) heads, the Family Welfare Movement (PKK) team, the integrated health service post (Posyandu) and several community members. Entrepreneurship education was then implemented after the fish pond construction and local plant entrepreneurship education with potential business opportunities. This program was implemented throughout August, following the planning stage. All activities were carried out according to the established schedule and strategy.

c. Community Service Evaluation Stage

The evaluation was conducted by the LPPM (Research Institute for Community Service) and the rectorate on August 15, 2024, during monitoring and evaluation activities. The results of the monitoring and evaluation showed that the activities carried out did not deviate from the planned activities, and the evaluation focused on the preparation of outputs from the community service results. This monitoring and evaluation served to remind the community of what was on track and what was not, given the highly volatile community dynamics, especially in August. This evaluation stage also examined the impact of the community service activities on the community.

3. RESULT AND DISCUSSION

Empowerment is carried out in every activity, from planning and implementation to evaluation of community service activities. During the planning stage, community participation takes the form of opinions expressed regarding the desires, hopes, obstacles, and potential of the RW 5 community. This preparation stage provides initial data for the implementation of entrepreneurship education. This stage essentially serves as an awareness-raising stage in community empowerment. It raises awareness of the issues faced that have not yet been fully resolved. At this stage, the input, process, and output of community service activities are planned.



Figure 1. Community Service Implementation

The community service program was implemented after the work program plan was agreed upon with the neighborhood unit (RW) and neighborhood unit (RT) heads, the Family Welfare Movement (PKK) team, the integrated health post (Posyandu) and several community members. Entrepreneurship education was conducted after the fish pond construction and entrepreneurship education on local plants with business potential. This program was implemented throughout August, following the planning stage. All activities were carried out according to the established schedule and strategy.

1. Entrepreneurship Education in the Form of a Pilot Project for Catfish Pond Construction.

Entrepreneurship education within the fish pond construction program was conducted to provide examples of fish pond construction. This example was intended to rekindle entrepreneurial motivation that had been dormant due to hesitation or the lack of community involvement in utilizing the potential of the surrounding environment.

The education program was conducted through direct interaction and communication while the community participated in the pond construction. Through relaxed conversations, after the pond construction, the community service team discussed the results of their collaborative work with the community. On this occasion, the community service team provided education on creative thinking and innovation, and how to make dreams come true.

The students' involvement in this community service program significantly influenced the community's recovery and realization of their long-standing plans. The entire student team participated in the catfish pond construction, and community members participated daily by observing, assisting, and lending equipment to the community service team.

Potential businesses that emerged from the pond construction include fish breeding, selling pond materials, selling fish food, and selling fish moss. Another potential business opportunity is the potential for selling fish in the future, once fish production becomes abundant.

The educational method used was "learning by doing," which is a method of learning while doing or practicing, utilizing the principles of adult learning (andragogy). This method prioritizes participant participation. Material is presented as reinforcement, with a larger portion given through discussions and practical exercises. The delivery method was as follows: 5% lecture, 15% discussion and simulation, and 80% practical exercises.



Figure 2. Discussion with the community after making ponds and regenerating plants

2. Local Plant Entrepreneurship Education

Entrepreneurship education on the business potential of local plants was conducted in conjunction with Posyandu activities in RW 5. This was conducted using a participatory and interactive approach, involving mothers participating in the Posyandu and the Family Welfare

Movement (PKK) as the primary target group. The material presented was: Building an Entrepreneurial Spirit, Small Business Management, and Business Planning.

The expected competencies for the target community as education participants are: (1) Possessing a positive spirit and attitude toward entrepreneurship as a career choice; (2) Understanding the basic concepts of entrepreneurship; (3) Identifying the components of small business management, including production, marketing, capital and finance, as well as human resources and networks for entrepreneurial practice; (4) Being able to select appropriate business entity forms for the type of business to be developed and the legal process in accordance with applicable regulations; (5) Having the skills to develop a business plan in accordance with the chosen type of business to be developed; (6) Identifying the steps in opening, running, and evaluating a business, along with the associated risks.

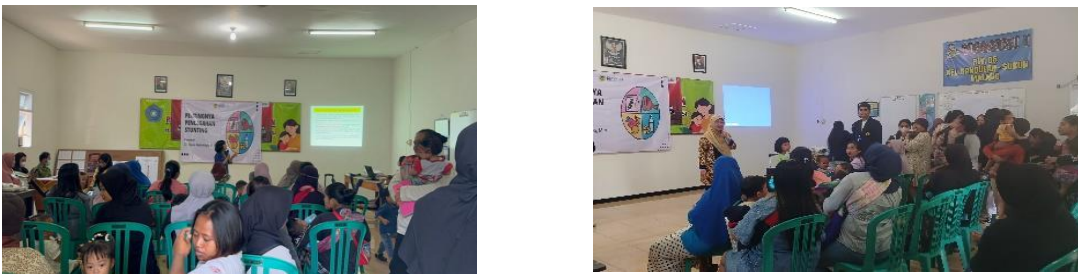


Figure 3. Entrepreneurship Education for Local Plant Business Opportunities

During the implementation phase, community contributions and participation were crucial to the implementation of this community service. They volunteered to lend carpentry tools and provide water pipes to channel water to the pond. Some members of the community observed the work in the afternoon and offered suggestions and opinions on the catfish pond.

Community Service Evaluation

This monitoring and evaluation reminds community service providers not to get caught up in activities requested by the community that are not included in the plan and budget. Evaluation is conducted through data collection, direct observation, and feedback from the community and relevant stakeholders. The results of monitoring and evaluation are used to assess the achievement of objectives, identify potential problems or obstacles, and determine necessary corrective measures.

The project-based entrepreneurship evaluation was conducted using the following steps:

1. The assessment criteria for the pool project consisted of product innovation, sustainability, and social impact.
2. A detailed assessment rubric covered project objectives, work quality, time management, budget management, team communication, team collaboration, project leadership, innovation and creativity, risk assessment, and an overall evaluation. The following are the project assessment results.

4. Observation and Documentation. The assessment involved direct observation throughout the project process and documentation of each stage. Photos, videos, and field notes were used to assess the pool project.
5. Project presentations were conducted during planning and completion. These presentations were also used to assess the communication skills of the field project leaders.
6. Feedback from the LPPM (Institute for Research and Development) was provided during the monitoring and evaluation (M&E) period, providing suggestions, critical evaluation, and providing different perspectives.
7. Self-reflection was conducted by soliciting opinions from all teams on what they learned, challenges faced, and how they overcame them.
8. The final assessment was conducted by combining all collected data to provide a comprehensive final assessment.

The following are the results of the pond construction project assessment.

Table 2. Project Assessment Results

NO	Assessment Rubric	Assessment Results
1	Project Objectives	In accordance with the initial objective, namely to create a pilot project for vegetable and herbal regeneration ponds.
2	Quality of Work	The pool construction results are tailored to the budget. This means that, based on the ideal pool material quality, the work is rated 95% successful within the allocated budget.
3	Time Management	The time taken to complete the pool was considered very good because the pool was completed in less than 1 week.
4	Budget Management	The budget for pool construction is Rp. 3,074,000. The use of funds is in accordance with the established plan.
5	Team Communication	Communication during planning and implementation went well. However, when issues arose, such as a change in the neighborhood association (RW) head's request for a pool, communication became difficult during decision-making.
6	Project Leadership	The leadership used in this project is collegial. During planning, leadership is carried out by the service team leader and the engineering team. During project implementation, leadership is directly led by the engineering team. During entrepreneurship education, leadership is carried out by the service team leader assisted by the support team.
7	Innovation and Creativity	The innovation in the fish pond involved constructing PVC pipes filled with cement to support the weight of the tarpaulin. Furthermore, creativity

		was demonstrated by using certain leaves to reduce the heat of the pond water.
8	Risk Evaluation	The risk in this fish pond project is the risk of fish death due to the use of PDAM water containing chemicals.
9	Overall Evaluation	Overall, this project was considered successful, even though there was a risk of fish deaths.
10	Project Sustainability	Interviews with neighborhood unit (RW) and neighborhood unit (RT) heads, and several community members revealed their enthusiasm for maintaining and cultivating the catfish in the pond. Therefore, the project's sustainability is considered very promising.
11	Social Impact	This project has motivated the community to develop an entrepreneurial spirit and rekindle their desire to realize business plans that had previously remained mere dreams. Another social impact is the increase in social capital within the community, in the form of fish ponds and local plants that can be developed in the future.

Conditions Before and After Community Service

The following are the conditions of the community before and after the community service activities were carried out.

Table 3. Before and after Activity

NO	Before Activity	After Activity
1	In RW 05 there is no catfish pond in the RW 05 garden, there is only an honesty garden belonging to the residents of RW 05	There is a catfish pond and a garden for medicinal plants containing vegetable plants such as mustard greens, water spinach, long beans, eggplant and herbal plants.
2	Only a small number, namely the RW head and one or two residents, often use the honesty garden for their daily vegetable needs.	More and more people are participating, both in building ponds and caring for newly planted vegetable crops. Every day, people come to communicate with the community service team about opportunities for fisheries and agricultural entrepreneurship.
3	People's knowledge is still limited to mere dreams of becoming entrepreneurs in the agriculture and fisheries sectors.	There is courage to try new businesses, for example fish feed business, pond moss business and vegetable seed business.

3.2 Discussion

1. Entrepreneurship Education in the Form of a Catfish Pond Construction Pilot Project

This community service was deemed successful based on the community's satisfaction and perceived benefits from the entrepreneurship education activities. The success of this service can be seen from community participation in every activity, from the planning stage to implementation. This aligns with the concept of community empowerment, which states that one of the keys to successful community empowerment is community enthusiasm through active participation in all activities.

This community empowerment involved local stakeholders, sub-districts, neighborhood associations (RUKWs), and household associations (RUKHs). The success of this empowerment will serve as a foundation for institutional, economic, and cultural development. This service is part of community-based natural resource management. The process of economic empowerment provides communities with access to control over natural resources and creates new livelihoods within their neighborhoods. This service also involves a process of social and psychological empowerment that provides a space for realizing the potential of traditional knowledge, cultural practices, and social capital, emphasizing sharing and kinship in resource management. Petriello et al., 2021

Empowerment is positively correlated with community population size, democratic decision-making, local participation in activities, and community willingness to accept input from government and non-governmental organizations. A study analyzing several examples of local community entrepreneurship found that decentralization of natural resource management authority contributed to political, women's, and youth empowerment. (Khalid et al., 2019)

Empowerment tends to vary according to: (1) the locus of power, (2) the target social group, (3) the direction of empowerment, and (4) empowerment as a process or outcome. The locus of power ranges from government entities and local livelihoods in some cases to community-based natural resource management programs. The target social group ranges from individuals, groups, communities, or institutions, although the target may be nonexistent. The direction of empowerment refers to the flow of power, whether top-down, top-down, or vice versa, or a combination of both. Empowerment is also used as a process and/or outcome, with significant implications for the potential for sustained support for the group being empowered. Some argue that empowerment occurs as a process of decentralizing rights and responsibilities, while others argue that it results from increased decision-making capacity and control. Although these elements are similar, there are differences in the concept of empowerment among academics and practitioners. (Babatunde et al., 2022)

The concept of entrepreneurship is identified as a competency of skills, comprising many different behaviors, attributes, and skills, including empathy, creativity, financial literacy, taking initiative, and identifying opportunities. Entrepreneurship encompasses all aspects of society, not just

business. Entrepreneurship is defined as "creating value, whether financial, cultural, or social." The importance of entrepreneurship as a central aspect of life has redefined how it should be taught, leading to collaborative pedagogical models that facilitate the exchange, flow, and co-creation of knowledge between entrepreneurship education, business, and society. Collaborative pedagogical models are needed to develop entrepreneurial skills. Design thinking and problem-based learning can meet the needs of entrepreneurship education in contemporary society. (O'Brien & Hamburg, 2019)

The concept of project-based entrepreneurship refers to the concept of project-based learning. Project-based learning (PjBL) is a learning model that places students as the subject or center of learning, emphasizing the learning process with a final product outcome. This means that students are given the freedom to determine their own learning activities and work collaboratively on learning projects until a product is achieved. (Nakada et al., 2018). Project-Based Learning is a learning approach that is built on learning activities and real-life tasks that provide challenges to students related to daily needs to be solved in groups. (Cincera et al., 2018).

This empowerment program, which involves urban farming entrepreneurship and catfish cultivation, is an initial step for communities to improve food security in urban areas. As stated by (Surya et al., 2020),, urban agriculture, community capacity building, and business capital support have a positive impact on improving community welfare and independence. Sustainability in urban settlements encompasses infrastructure, economic development, and community participation.

Urban farming has a sustainable economic impact by meeting self-food needs and profiting from harvests. From a socio-cultural perspective, it fosters a culture of mutual cooperation and mutual assistance for food security, and from an ecological perspective, it creates green open spaces in urban areas. (M. Rahmanto, M.Amin Widigdo, 2023)

As (Nurjasmi, 2021) argues, urban agriculture is an industry that produces, processes, and sells food to meet the daily demands of consumers in cities and suburbs through the application of intensive production methods, utilizing natural resources and urban waste to produce a variety of crops and livestock. The paradigm of urban agriculture's role has shifted to a more strategic role, namely supporting food security and food safety in cities and surrounding areas. Urban agriculture also has positive impacts on physical and mental health, including reducing stress levels, increasing serotonin, improving heart health and reducing the risk of stroke, improving brain health, increasing mobility, and improving nutritional needs. (Budi Kusumo et al., 2020)

Efforts to provide education through various methods and using various educational media can improve knowledge, attitudes, and behaviors about creating business opportunities using existing potential. Entrepreneurship education through community service projects, such as the construction of fish ponds and local plant cultivation, can be implemented. (Hairunisya, 2023)

In accordance with management principles, all activities within an organization must be well-managed to ensure that they align with the desired objectives. In addition to achieving these objectives, the process of preventing stunting will also run smoothly if managed properly and correctly. (Hoye et al., 2022)

2. Entrepreneurship Education: Potential Local Plant Businesses.

The purpose of this activity is to improve participants' entrepreneurial competencies. Entrepreneurial competency refers to a person's capacity to carry out and follow through on plans. This includes the ability to generate ideas and implement knowledge and skills, recognize problems, find solutions, set achievable goals, take initiative, be accountable for results, be flexible to change, and take reasonable risks.

This education is designed according to sound training principles, including time allocation, material delivery, training methods, and the diverse educational backgrounds of participants. The principles used are those of adult education (andragogy). Andragogy is a form of adult learning that involves planning, directing, and evaluating adult learning. Adults have the following characteristics: (1) Their self-concept shifts from being dependent to being self-directed; (2) They accumulate a growing body of experience, which becomes an increasingly rich source of learning; (3) Their readiness to learn becomes increasingly oriented toward the developmental tasks of their social roles. and (4) Their time perspective changes from delayed application of knowledge to immediate application, and, therefore, their orientation towards learning shifts from subject-centered to performance-centered.[21]. Entrepreneurial competence is proven to mediate the influence of social capital on community/SME performance. Social capital must be maintained and enhanced through the ability of SME owners and managers to establish relationships with partners, customers and policy makers. Good social capital will encourage the entrepreneurial competence of owners and businesses to become more established because they obtain information, experience and assistance from various parties.

9. CONCLUSION

The community service program in RW 5, Bandulan Village, Sukun District, held in August 2024 successfully completed an urban farming project-based entrepreneurship education program for the urban community. The first educational program was conducted during the construction of a catfish pond using project-based learning and learning-by-doing methods. This first educational activity motivated the community by providing examples of previous activities. The second educational program was conducted with women from the Family Welfare Movement (PKK) and

Integrated Health Service Posts (Posyandu) by providing examples of successful local plant businesses. This education program was designed to motivate the community to explore new business opportunities in urban farming, fisheries, agriculture, or plantations.

Indicators of the success of these two work programs were marked by active community participation in each activity, including providing opinions and suggestions during the project planning stage and participating in the construction of the catfish pond. Furthermore, the number of participants exceeded the invitation for the local plant entrepreneurship education program.

Using this empowerment method, this entrepreneurship education program should be continued in the next period by adding business opportunities such as fish feed production, moss cultivation for fish, and the provision of equipment and materials for production. In addition, there is an opportunity to create a pond containing fish that bite the feet for health therapy and to create free recreational facilities for the people of RW 5. Based on the results of the activities that have been carried out, it can be concluded that this activity has succeeded in increasing knowledge, entrepreneurial skills and it is hoped that entrepreneurial behavior will become daily behavior or become a habit or culture.

Recommendations

In light of the results of this entrepreneurship education, the community service team recommends that this be considered in efforts to improve community welfare and make a positive contribution to the Bandulan Village community, especially residents of Neighborhood Association (RW) 05. For sustainable entrepreneurship education, the following are necessary:

1. Support from stakeholders, such as neighborhood association (RT) heads, from maintenance to harvest, to mobilize the surrounding community in turn.
2. Establishing a catfish farming group in RW 05 to increase productivity and harvest quality, contributing to urban food security and boosting entrepreneurship and the community's economy.
3. Increasing community participation in urban farming empowerment activities to further enhance food self-sufficiency within the city, based on entrepreneurial principles, to improve community welfare and the economy.

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CONFLICT OF INTERESTS

There is no conflict of interest in this article.

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