Farmer school: Education for the transmission of local rice wisdom culture

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Abstract - This research was conducted in The Farmer School in Nong Don Village, Napho Subdistrict, Kudrung District, Maha Sarakham, Thailand. The study identified several issues facing the community, including low rice yields due to a lack of water for farming, a shortage of quality rice seeds, and the use of harmful chemicals for pest control. To address these issues, the researchers implemented a participatory action research approach based on the SECI model of knowledge management. This included four stages: socialization, externalization, combination, and internalization. The aim of the research was to address five key problems: reducing costs, improving the environment, improving health, increasing community happiness, and reviving cultural traditions. The curriculum at The Farmer School was found to be based on local rice wisdom and knowledge, and aimed to foster a sense of local identity. The research emphasized the importance of a development model that empowers individuals to be self-sufficient, leading to true sustainability and the ability to withstand global crises and changes. It combined practical experience with academic theories and adjusts educational management approaches accordingly.

Keywords: Farmer school, community-based learning management, lifelong learning

1. The pre-change situation

Mahasarakham province is located in northeast Thailand. It is an agricultural center, with many rice paddies and fields. Agriculture, particularly rice and fish farming, is the province's main occupation. The province's symbol, a large tree called Rang Yai with rice fields, represents the province's agricultural areas, with rice and fish farming as the main occupations of the people. (Provincial Office of Mahasarakham, 2564) Due to the economic and social impacts of the COVID-19 pandemic, the Office of the Ministry of Higher Education, Science, Research and Innovation implemented a project to enhance the economy and society at the subdistrict level called "University to Tambon" (U2T). In this project, universities in the area served as system integrators for the development of the sub-districts. This project aimed to hire new graduates and members of the general public to participate in local area development, revitalizing the economy and society based on community needs and problems. (Office of the Ministry of Higher Education, Science, Research and Innovation, 2020) Mahasarakham University was an institution that responded to the government's "university to the village" policy. It aimed to create a strong foundation for the country. The researchers had been designated as the project's responsible party in Napho Sub-District, Kud Rang District, Mahasarakham Province. In collaboration with the local administration organization of Nakhonphit Village, the researchers planned and implemented activities based on community needs. The data and needs at Ban Nong Don, Village No. 2, Napho Sub-District, Kud Rang District, Mahasarakham Province were studied. There was a public area of 125 rai, approximately 2 kilometers from Highway 23 (Borabue-Ban Phai). There were forests, streams, and temples and historical sites in the area. Based on the survey of problems and needs, the following information was found: (1) due to the low-lying terrain of Napho Sub-District, there was a lack of water for farming, resulting in low rice production for farmers. (2) There was a lack of high-quality rice seeds. (3) The use of chemicals to control pests posed a risk to the health of farmers and consumers of agricultural products. (4) There was a need to create learning opportunities for the community to pass on local rice wisdom and knowledge of traditional home remedies, and to preserve local identity.

Due to the community's problems and needs, the rice farmer school was established with the goal of teaching and improving rice farming techniques. The school will produce high-quality seed for community use and will eventually serve as a hub for education, the preservation and promotion of local agriculture, and for tourism in the future. Additionally, it will contribute to the enhancement of agricultural output and a rise in local income. This aligns with the self-sufficiency policy of His Majesty the King and will be the foundation for the production of high-quality rice by farmers in the area in the future. It will be a key building block for the production of high-quality rice by local farmers (Tantiwechakul, 2016).

Figure 1. empty public area

Figure 2. Wat Pa Thep Song Tham Temple (Tham Cok Nong Chik Forest Park) before the project began

2. Participation and acceptance of the target community

Through participatory action research (PAR), researchers collaborated with the Napho sub-district administrative organization and local farmers to hold meetings, plan collaborative work, and develop curricula for the rice farmer school. Collaboration between researchers and the target community was a key component of participatory action research. It consisted of three processes that were interconnected: joint problem definition and identification, joint data analysis, and joint action. In the process of studying the baseline data, it included: 1) shared use of the area, 2) planned projects, 3) relevant information, in the process of studying the baseline data, 4) cultural research, 5) highlights, significant locations, etc., 6) organizing forums and discussions, and 7) organizational collaboration.

In collaboration with Napho Subdistrict Administrative Organization and, government sectors in Kudrung, Mahasarakham Province, a warship was held at the Farmer School in Napho. The project also involved adjusting the landscape to divide the area into plots, and conducting experiments on the farm during the period from June to December 2022. The popular RD 6 rice seed from the Kalasin Rice Center was used in the experiment in a rice field. In the nursery, the rice was planted in June, and after a month, the seedlings were moved to the field. The width of the area was 2.5 meters and the length was 4 meters. It was planted using a 25 x 25 centimeter spacing and 1 plant per hole. On July 2nd, 2022, the group carried out a joint rice planting operation. Before planting, the group prepared the field by applying a fertilizer mix to the soil to adjust the nutrient levels and mixed in fresh water fern to help enrich the soil and replaced the need for chemical fertilizers at a rate of 22 kilograms per rai. After 20 days, added 5 kilograms of dried water fern mixed with manure per rai. In order to prevent and control of diseases and rice pest insects, the necessary measures were taken using wood vinegar mixed with water, spraying, and releasing predatory insects. The ratio was one spoonful wood vinegar per one liter of water. The rice plant was around 100 days old when the panicles were formed and about 130 days old when it was harvested. There was a rice harvesting activity with the community. When the rice was harvested and dried in the

grass field, the local agriculture officials collected the seed for distribution to the farmers. In addition, there was an exhibition of good products from Napho Sub-district called "Agriculture Day and Napho Good Product".

3. Process for the better changes

This is a participatory action research (PAR) study that uses tools to manage knowledge and problem-solving for the community to collaborate between homes, temples, schools, and the Napho Subdistrict Administrative Organization, using the SECI knowledge management model, which consists of four steps: 1) Socialization, 2) Externalization, 3) Combination, and 4) Internalization. The following actions were taken in this study.

3.1 Socialization referred to activities to drive the development of agricultural-based tourism under the School Farmers' Tourism Development Project and elevate OTOP products to the global market, based on the community's values, future vision, and planning and activities based on the community's needs in order to revitalize and develop the area. There were meetings and consultations with the community to find a way to jointly improve the economy and society, coordinating with the Napho Subdistrict Administrative Organization, developing the School Farmers project as a learning and conserving mixed-use tourism and agricultural area.

Figure 3. Community meetings and consultations, and surveying public empty spaces near the Pa Thep Song Tham Temple

3.2 Externalization referred to the extraction of local knowledge about rice farming, specifically the agricultural expertise of local teachers, which includes the ability to integrate traditional knowledge, skills, and techniques with modern technology and agriculture based on traditional values. People were able to guide themselves in various situations, such as combining agriculture with problem-solving in marketing and production, and adapting appropriate technology to agriculture. Local wisdom teachers who specialize in philosophy, religion, and tradition were also those who have the ability to apply and adapt religious teachings. The belief and tradition that was

appropriate to the economic, social context, such as the transmission of literature, teachings, and the adaptation of blessings, rice traditions, which the school were public areas near the religious site, Pa Thep Song Tham temple (Cok Nong Chik Forest Park), according to the belief that this stream was a sacred object, protected by the Naga.

Pictures 4. Applied knowledge that incorporates academic theory

3.3 Combination including the use of developed knowledge as a management tool in the form of manuals, courses, and demonstrators for the following courses: agroforestry system in rice fields, farming plantain, vegetable gardens, herbal plants, soil improvement, water management, and production of organic fertilizers and fresh plant fertilizers as an alternative to chemical fertilizers. Each course had its own set of components, such as course objectives, content, activities, and assessment and evaluation.

Figure 5. The implementation of the combination of the integrated farming system curriculum in rice paddies

3.4 Internalization, which was the process of integrating and applying the knowledge gained through learning. This involved reviewing and analyzing the results of the knowledge transfer and applying them in practice.


Figure 6. The learning management on agricultural land

Learning that was connected by the education mechanism included learning inside the educational system, learning outside the educational system, and learning in accordance with personal beliefs. Lifelong learning was especially accessible without regard to time, place, or location in urban and rural areas, in schools and outside of schools, in businesses, religious institutions, community learning centers, social institutions, at home, and at work. Thus, learning could happen anywhere, at any time. The "farmer school" was an education based on personal beliefs that takes into account the environment and resources, as well as a learning ecosystem that shifted from a "classroom" to a "real learning center and space". This was achieved through community-based learning and farm-based learning, with the core of learning being interactive learning through action, which was a concept of lifelong learning that connects self-development and integration of learning with real-life context and experiences (lifelong learning & life-wide learning).

Figure 7. Harvest with Community

4. The use of expert knowledge to bring changes

The development of a training curriculum used Community Based Learning and Farm-Based Learning methods, including experiential learning. The curriculum consisted of five courses: Ecosystem in Rice Farming, Planting and Gardening, Soil Improvement, Water Management, and Organic Fertilizer Production. Each course had objectives, content, activities, and assessment and evaluation.

Experiential learning is learning that occurs alongside the learner. To create meaning, the learner could bring previous knowledge and connected it to new knowledge. It assisted the learner in understanding future experiences by collecting and organizing various experiences in a cohesive format. According to Kolb (1984), experiential learning was a strategy for connecting experiences in and out of the classroom to create a deep understanding.

The goal of experiential learning was to enable students to reflect on real-life situations and connect their existing knowledge with new knowledge, in order to deepen their understanding of future experiences. Kolb (1984) defined experiential learning as a strategy that connected classroom learning and external learning experiences in order to foster deeper understanding. The method of teaching that connected learning skills to real-world situations was called "learning by doing". This method focused on the student's experience and had five main characteristics: 1) learning through the student's own experiences, 2) continuous and active learning, 3) interaction among students and between students and the teacher, 4) expansion of the knowledge network, and 5) use of all forms of communication, such as speaking, writing, drawing, and role-playing. One form of experiential learning that was often implemented was Experiential Instruction, which was a form of teaching that allowed students to have direct or simulated experiences in the subject they were learning in order to understand, apply, and create new things. This included both classroom training and real-life experiences.

The approach to learning management, the experiential learning cycle, was as follows (Kolb, 1984, p. 1) creating experience (experiencing) "doing" by the task might be individual or group work ; 2) reflection on what has been done, the skills needed include determination, analysis of differences and ability to communicate with others in terms of values, attitudes and beliefs ; 3) creating a framework for thinking (conceptualization), including events that can be observed and understood in terms of their relationship to one another, the resulting ideas help to define and explain the events that have occurred ; 4) planning, including determining goals and ways to achieve them, and implementing and reviewing the plan. According to Kolb (1984) learning cycle of experiential learning, it is divided into 5 steps:

Step 1: Doing, the students created an experience by engaging in activities that generated interest for the student, stimulating the student to learn from doing rather than from listening or watching. The teacher's role was to facilitate and provide guidance, to prepare information, and to assist students with any questions they might have during the activity.

Step 2: Sharing, the students exchanged experiences with each other, for example, the student telling or explaining to their classmates what happened during the activity.

Step 3: Creating a Process (Process) by the student reflecting and analyzing the experience in order to distill the experience into principles, guidelines, or approaches that could be applied in real-world situations.

Step 4: Generalizing (Generalize) by the students together summarizing the knowledge gained and applying it to real-world situations.

Step 5: The student applied (applies) what he or she had learned in other situations.

Figure 8. Learning that shifts from "classroom" to "real-life learning"

Figure 9. Community Based Learning

The assessment and evaluation were based on the actual situation. As a result of the farmer school's preparation of students to exist and sustain themselves well, with better manners and traditions, and ready to carry on the farming legacy, learning, farming, and the capacity to adapt and link knowledge and intelligence were created. Therefore, it is possible to evaluate the development of a sense of love for the local community, valuing and upholding admirable traditions, as well as practical, applicable, and transferable indigenous knowledge. The farmer school is an education that conveys practical knowledge through a blend of theoretical and practical thinking, and through experiential learning, students learn to live and adapt to their environment, as well as preserve and pass on their knowledge and skills to future generations.

5. Prediction of what will follow after the changes have occurred

The development of tourism economy, by developing the agricultural tourism of the farmer school and upgrading OTOP products to international standards, through the farmer school located in a public area near Wat Pa Thep Songtham Temple, Nong Don, Napho Subdistrict, Kudrung District, Mahasarakham Province, which was a learning center that combined conservation and agricultural tourism, as well as upgrading OTOP products and promoting income for the community. The team from Mahasarakham University supported and collaborated in the academic and occupational development of the community, transferring appropriate technology to the context and needs of the area and community, and promoting the participation and empowerment of the community in the development process.

Figure 10. Soil improvement and water management course

6. Evaluation results of the changes

The planting of high-quality plant breeds in the farmer school in rural communities had measurable social impact and delivers value to the community. The business management of the farmer school is a cost-effective way to provide a land mark and gathering point for

trade and tourism in the village. Every year, there are organized activities, a community business group, to come together, exchange, and sell products. There are online sales channels and connections with both domestic and international markets for the team, which includes graduates and community members, as well as students who support the community in order to create income and employment opportunities and to improve the quality of life in the community.

7. Strategies for monitoring and sustaining the development that has occurred to ensure its continuity

The Sustainable Development Goals (SDGs) are development goals that are balanced across the three pillars of sustainability, which are social, economic, and environmental. For example, the development of tourism must consider the environment and the livelihoods of the people in the area. There are 17 SDGs in total, which are divided into five dimensions by the United Nations: People, Prosperity, Planet, Peace, and Partnership. The five dimensions of the SDGs are important goals that everyone in the world should learn about, be interested in, and work towards together. This time, let's focus on the People dimension, which corresponds to the Lifelong Learning policy proposal. This proposal aims to increase the lifelong learning opportunities for older adults and out-of-school youth, as well as to improve the education and learning outcomes of these groups through the use of science, research, and innovation. The BCG Economy Model is also included in this proposal. The sustainable development goal (SDG) of quality education (SDG 4) aims to create a foundation for ensuring that everyone has access to quality education and lifelong learning opportunities. This goal covers a wide range of issues, such as access to quality education at all levels, as education is one of the most effective drivers of sustainable development. Mahasarakham University is a multidisciplinary team working to connect with various networks, both in the public and private sectors, to work with the community and create academic and practical work.

Figure 11. Experiential learning

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9. References

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