PROMOTING THE PARTICIPATION OF GROWING ORGANIC RICE TO REDUCE THE RISK OF DISEASE IN THAILAND BASED ON PROBLEM-BASED LEARNING

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ABSTRACT

The aim of this work was to explore ways to increase the participation of farmers in the central region in organic rice production at all levels. In addition to creating some form of farmer participation in organic rice cultivation in four provinces of the central region, Thailand. The results showed that the majority of farmers are middle-aged (41-50 years), while adolescents are still interested in organic rice farming (12.5%). Farmers under 20 years of age are not participating. In the case of the basic education knowledge of the farmers involved in this research project, the majority are high school graduates. This is a group that acknowledges knowledge transfer and is prepared to face changes that will improve quality of life and job security. In terms of the participation of farmers in the central area in organic rice. The system that designs and develops online information systems for transferring knowledge about organic rice production is practical and effective. The result of testing the black box with an expert qualitative questionnaire based on the quality of the program.

Keywords: Organic rice, Participle of farmer, Problem-based learning

INTRODUCTION

Thailand has set up a project to promote organic rice production in 3 years (2017-2020), amounting to 1,600,000,000 square meters that implemented by the Department of Rice Ministry of Agriculture and Cooperatives. They want to encourage farmers to grow organic rice according to departmental standards and to expand the rice production zone to achieve certified organic rice standards throughout the country. Farmers participating in the project will receive continuous subsidy support for 3 years and after passing the group system certification according to the organic rice standard, it has been certified 'Organic Thailand Standard'. In addition, will be supported for organically grown rice seeds. Additionally, the total area of the group must be at least 160,000 square meters, which may be within or adjacent to the same community [1]. The use of drone farming in Thailand mainly used as a tool for spraying fertilizers, agricultural chemicals, pesticide seeds and seeding granular fertilizers. In addition, follow-up of plant growth Inspection of plant diseases, parasites, measurement of plant density and mapping for agriculture. It can use drones helps farmers save the workforce and can operate

quickly. which saves time than manual labor Especially the use of drones to spray biological or organic substances in time while the stomata of plants are open and improves the efficiency of absorption even more. In addition, unmanned aerial vehicles protect farmers by reducing their direct exposure to agricultural chemicals and can remember the previous spraying site that allows farmers to access the area more conveniently, such as spraying fertilizer onto steep slopes. [2], [3].

The goal of using drones namely spraying chemicals, fertilizing, taking pictures, checking for diseases and insects, etc. It can work in places where human workers cannot reach, reduces the labor required for spraying chemicals and increase the efficiency of using chemicals to be higher. Drones are also accurate and work over a large amount of space in comparison with human work [4]. Wichai [5] was experiments using drones to spray biochemicals in fields of kale, onion, coriander, paddy fields and sugar cane fields found that spraying time can be reduced by 4-5 times when compared to manual labor using a motorized backpack and reduce the amount of chemical use by 30-50%. Moreover, it has a limitation that most farmers cannot use it themselves because the user must be competent and well-informed in the complex operation of the drone. Users must possess a flight license and a high price [6]. The use of mobile devices by students has increased exponentially in recent years [7] as technological advances rapidly change society. This change and technological progress has also led to the evolution of the educational process to be improved and more efficient. Using a mobile phone, people found it difficult to remember what they were using. Because of mobile applications can be utilized for a variety of tasks. The work is very varied, both professionally as well as personally. The variety of applications is also so different that users may not reference a service or application. They have been used in changing circumstances in the past [8]. Mobile devices as teaching and learning resources that help educators adapt traditional educational methods to a 21st century. A digital learning environment in which all educators are expected to adopt and adopt this new development standard. The use of mobile devices in the classroom can help faculty cope with today's digital chaos and become a better educator in the future. The mobile app has been shown to be effective tools in increasing learner engagement and learning experience [9]. Hinze et al. [10] suggested the experience of mobile applications in teaching and research by academics. The outcome shows that academics and students use the mobile application for teaching and research. Primarily through the storage and exchange of documents and information and communication. It promotes the ability to communicate, collaborate and share with one another. Furthermore, very few applications are recorded for classroom activities (teaching) or fieldwork (research). Nowadays, academics and students use mobile apps for purely personal purposes rather than for institutional support or delivery. Opportunities for better support for the use of mobile apps remain. In addition, students and academics need institutional support and flexibility. This incentive will lead to a greater use of application for research and teaching.

Problem based learning (PBL) is a learning model that originates from the concept of creative learning theory by giving students create new knowledge from the use of problems in the world reality. This is a learning environment that allows learners to develop critical thinking and problem-solving skills, as well as scientific knowledge within their field of study [11]. Teaching of learning that emphasizes students to learn on their own using the problem as a

motivating factor. Learners will study and search for their own knowledge through the problem-solving process. Students can make good decisions, think critically, learn to work with others and learn through life [12]. PBL provides a powerful medium for instruction and learning. Especially when these are valued for long-term conservation and knowledge translation. The only weakness in past studies on the efficacy of PCL is that studies tend to focus on medical studies. However, a growing number of researchers experimenting in other disciplines provide evidence of a better performance of student learning under PBL conditions compared to reading conditions. The stages or components in the PCL process that influence student learning. Causal modeling is an LPP process that begins by analyzing problems. This is followed by a process of self-learning and further reporting which is important in predicting student learning. This study suggests that engaging students with problems is more sufficient to enhance student learning than traditional methods and the collaboration component did not have a significant impact on student learning [13].

OBJECTIVE

1. To Create a mobile application to find out more about drone use in agriculture.
2. To Transfer knowledge of UAV use in agriculture to farmers.
3. To Implement a problem-oriented learning model for farm groups.

METHODOLOGY

In this work, the author was used Arksey and O'Malley's methodological framework for conducting with the sample with five steps: identifying the research question, ascertaining relevant studies, determining study selection, charting the data and collating, summarizing and reporting the results [14]. This method allows researchers to analyse, evaluate and synthesize in a critical manner. The target group for this research is a group of 30 farmers in the central region of Thailand in 2021. The research tools are the PBL management plan and the tools used to collect the data examined by five experts. There are 3 units of content including:

Unit 1. Problem-Based Learning Management Plan on Organic Rice Farming, 1 hour:

Problem- Ask students to discuss problems in farming, Teacher- Link problems with suggesting solutions for learners to consider and Student-Choose a solution that the student considers possible make a learning plan

Unit 2 Problem-based learning plan about organic rice farming, 1 hour, students discuss their knowledge of drones and problems in using them: Teacher- Link problems with suggesting solutions for learners to consider, Student-Choose a solution that the student considers possible.

Unit 3 steps in using drone farming for 1 hour: Problem- ask students to discuss the problems of drone usage and acquisition, Teacher- Link problems with suggesting solutions for learners to consider, Student-Choose a solution that the student considers possible.

The author used the ability assessment form to design learning management plans in the 21st century according to the conceptual framework of Sahin (2009) [15] in all 6 areas defined as follows: 1) analysis of learning goals; Analyze learners 3) Design learning activities, 4) organizing learning activities, 5) selection and use of learning materials, and 6) measurement and evaluation [16].

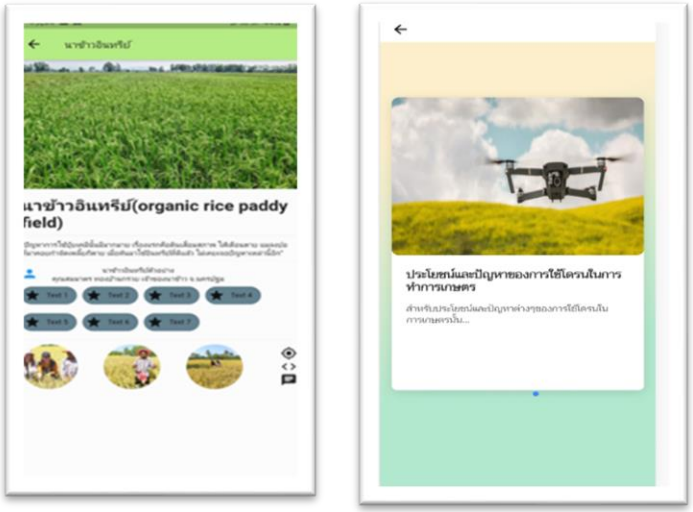
RESULTS

Table 1
The results of the assessment of the ability to design learning management.

Section	$\bar{x}$	S.D.	%	level
1	13.61	1.43	72.34	Good
2	9.37	0.85	46.56	Fair
3	18.20	1.58	87.23	Very good

From Table 2, it was found that learners who were farmers, students who received problem-oriented learning management. They are capable of conceiving how to manage learning. Out of the full score of 20, they were at a good level ($\bar{x}$ = 13.61, S.D. = 1.43). The ability to design learning management on a learning plan focused on the issues of organic rice production was at a moderate level. However, the results of the evaluation of the stages of UAV use for agriculture are at a very good level (x = 18.20, S.D.=1.58). Because learners understood the learning management plan better than when they started to learn.

Figure 1 Example of Mobile application



CONCLUSION AND FUTURE WORK

Problem-based learning (PBL) is a popular method in education and has become one of the most potent learning methods during this period of educational reform. In addition to increasing study motivation because learners have participated in learning more than listening to teacher content in a unilateral manner. The importance of the situation, the main issue or case study that is presented. There must be a nature of the problem, interesting, difficult and interesting to search for answers, as well as being relevant to the students. The impact of this method towards learners cannot be denied that helps to promote students' problem solving skills, communication skills, critical thinking, lifelong learning attitude and also motivate students to learn. Learners will also be taught how to solve problems and how to apply their knowledge. It can be used as a tool to effectively manage problems that help develop the ability to solve analytic reasoning problems and make decisions for yourself.

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