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Facilitation of organic agricultural learning in school and community

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Abstract The facilitation of organic agriculture learning was investigated at Baan Dongsalao school, Dan Chang district, Suphanburi province based on participation of the school, the community around the school, and KMITL organic farm. Results revealed that learning activities of organic agriculture and skills participants after the research module was significant higher knowlege at P = 0.05. The guardians and local scholars were supporting factors who had done activities of organic agriculture at home and community. It was found that the student participants and guardians were satisfied at the highest level ($\bar{x}$ = 4.65). Besides it was found that guardians were interested at the highest level in terms of practical organic agriculture and knowledge transfer ($\bar{x}$ = 4.65). They needed to co-operate the organic agriculture activities with the school. It is sugested that, organic farming must begin with simple activities and actual practice such as home-grown vegetables.

Keywords: school organic farm learning center, organic learning module, learning facilitation, agricultural teachers, KMITL organic agriculture model

Introduction

Agricultural yields are essential factors to livelihoods and physical health. However, It must be adequated for the needs of the world population. As a limitation of the world resources, there is an increase in the world population. Also, there are problems in deterioration of resources which are basic factors of food production. It can be said that good agricultural areas are less and yields per area less than before. This lets the food supply to be inadequate and unbalance with incresing population. In addition, climate change has an effect on food production. Currently, people throughout the world are facing adversedly affected with weather and global warming which resultd in natural calamity such as drought, food, and water shortage. These conditions often occur violently. This has impacts on the agricultural sector

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directly such as food shortage etc. It found that agricultural yield are problematic by chemical contamination which is hazardous to human health.

To solve these problems, it must be continually promoted by safety agricultural management. This includes food safety through good agricultural practice (GAP) and organic farming (Soytong, 2018). The impacts of using agrochemicals, safe agriculture and sustainable agriculture must be widely promoted. Also, the extension of knowledge to young generation must concern. Importantly, the school and related agencies should provide a guideline for the provision of knowledge and understanding which are consistent with interest and skills of learners. This must be based on individual practice, thinking process, knowledge application for solving problems, and learning through actual situation. Also, there is coordinated among parents, related persons, and agencies in the community to develop learners (Royal Thai Government Gazette, 2002). The facilitation of Agricultural subjectsfor teaching/learning that involves daily livelihoods such as crop/vegetable growing, animal domestication, yield management, technology for increased yields, responsibility, diligence, conservation of energy and environment, etc. This is on the basis of learning in actual situation or learning by doing, so that learners can apply for daily life activities. Therefore, the teachers must facilitate learning activities both lecture and practice at home where the parents can join the learning activities. Importantly, the teachers must be competent in teaching techniques, methods, and approaches before teaching/learning facilitation(Thanapanyachatchawong, 1988 ; Moonkham and Moonkham, 2010). The organic agriculture learning in the school, community and KMITL organic farm would be facilitated all activities.

Objectives of the Study aimed to investigate the facilitation of organic farm learning of the school, the community, and the KM1TL organic farm.

Materials and methods

Conceptual Framework of the Study

This study anchored on the creation of the learning and wisdom society which was an important guideline for the National Education Plan (Office of Education Council, 2009). In fact, the actual learning and wisdom society should be from foundation of the society and integrated development. That is, strong societies will lead to the country security (Wasri, 2012). The proposition and community-based education management have broad goals and learning scope. In other words, it is the learning of life security creation through knowledge enrichments code of conduct, participation, practice, etc. (Sektherra,

2012). Community-based educational facilitation puts the importance on the following: the school is a big production source; the school is a mechanism for developing human resource and the country; education makes people to be perceptive and learn all their life; knowledge is a tool for developing quality of life; and code of conduct make people to be a perfect man (Sirtrangsri, 2012). Hence, the facilitation of organic farming learning is this study was the coordination among the school, the community, and the KMITL organic farm/organic farm networks in the community. The conceptual framework in this study could be concluded as shown below.

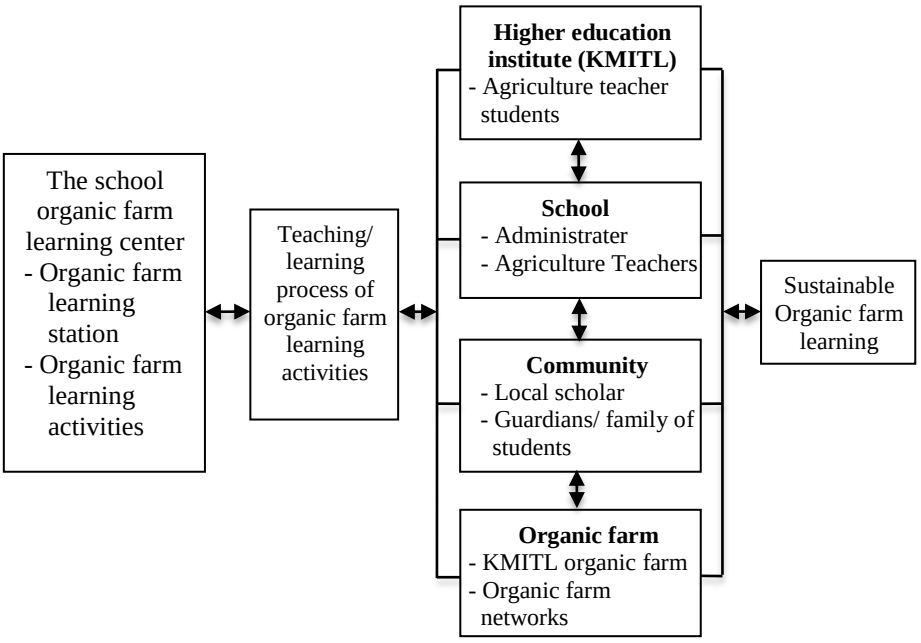

Figure 1. Conceptual framework of the study

Research Methodology

This study employed participatory action research among the following: 1) Baan Dong Salao school, Danchang districts Supanburi province; 2) the community around the school; and KMITL organic farm. This aimed to encourage people awareness of the learning facilitation for the youths and the community. It promoted group activities and team work for problem solving and development. The sample group was 111 stakeholders in the learning facilitation and they were obtained by purposive sampling. They were 1 school

administrator, 2 Agriculture teachers, 6 local scholars, 12 Agriculture teacher students, 45 students, and 45 guardians. The research tools in this study were the school organic farm learning center, an organic farm learning module, learning achievement tests, questionnaire and interview schedule. Obtained data were analyzed by using frequency, percentage, mean, standard deviation and t-test (Dependent).

Research processes

Period 1. Construction and development of the school organic farm learning center. This was participated by the school administrators, Agriculture teachers, local scholars, students, guardians, and KMITL Agriculture teacher students. Learning achievement tests were done before and after using the organic farm learning module, the learning achievement lest consist of 60 items (4 multiple choices) and IOC=0.80 and above. The test was tried out and r = 0.21-0.95, p = 0.06 - 0.75 and the reliability value = 0.98.

Period 2. The learning facilitation process employed the organic farm learning module and learning stations in the school organic farm learning center. Also, there were learning activities in the school and the community among KMITL Agriculture teacher students, Agriculture teachers, local scholars' students and guardians. Learning achievement was accesses. The stakeholders were interviewed and inquired about their satisfaction with the learning facilitation.

Period 3. Learning activities involved educational trip, practice in KMITL organic farm, and organic farm networks. An assessment was conducted by using interview schedule and questionnaire.

The quality assessment of the research instruments was done by 3 scholars for finding correctness of the learning content and Index of item Objective Congruence: IOC=0.80 and above. The questionnaire and the structured interview schedule were in the form of 5-rating scale and the interpretation criteria were in accordance with that of Roengprapan (2000: p.30) as shown below:

$$\frac{\text{Highest criterion - Low criterion}}{\text{All criteria}} = \frac{5-1}{5} = 0.80$$

Based on the computation, the criteria are shown below:

Score	Scale Limits	Description
5	4.21 – 5.00	Highest
4	3.41 – 4.20	High
3	2.61 – 3.40	Moderate
2	1.81 – 2.60	Low
1	1.00 – 1.80	Lowest

Results

Regarding outcomes of the establishment and development of the school organic farm leaning center, it was found as follows:

Period 1. - It was found that the school organic farm learning center covered an area of 1 rai. It consisted of 6 stations and learning activities: 1) vegetable growing, 2) earthworm culture, 3) compost production, 4) Oyster Mushroom culture, 5) good-tempered layer rearing, and 6) catfish rearing. All of these passed a quality assessment by the scholars. Also, the reliability was found by using a leaning achievement test (60 items).

Period 2. - It involved the learning facilitation process based on the learning module and the 6 learning stations. Regarding readiness of the leaning facilitation on of the stakeleolders, it was found that, as a whole, the sample group had a high level of there opinions. They perceived that the teachers, the students, and the guardians were interested in organic farm leaning activaties most. Besides, they claimed that the school had adequate budgets to support organic farming found at a moderate level (Table 1).

Table 1. Readiness about facilitation of organic farm learning of the school organic farm leaning center

Item	$\bar{x}$ (n=111)	S.D.	Description
1. The school has a policy support organic farm teaching/learning in the school	3.41	1.048	High
2. The school has an area for organic farm activities	3.64	.892	High
3. The school has enough equiment/ materials of organic farming	4.05	.851	High
4. The school area is suitable for organic farming	4.02	.967	High
5. The school has enough budgets to support organic farming	2.83	.929	Moderate
6. The school farm leaning center is suitable for the facilitation of learning activities	3.98	.972	High
7. The organic farm learning activities are suitable for the facilitation of learning activities	4.07	.891	High
8. The teachers, the students, and the guardians are interested in the school organic farm learning activities.	4.24	.716	Higher
9. The teachers, the students, the local scholars, and the agriculture teacher students participate in the learning facilitation	3.69	1.150	High
10. Yields of the organic farm learning activities are sold and prepared for lunch meal	3.89	1.012	High
11. The students practice activities about organic farming at home with there family.	4.17	.773	High
Total	3.82	2.89	High

Regarding learning achievement of the students after using the school organic farmer learning activities module, it was found to be higher than before with a statistical significance level at .05 (Table 2).

Table 2. A comparison of learning achievement of the students before and after using the school organic farm learning activities module

Learning achievement	N	$\bar{x}$	S.D.	t	Sig.
Before	45	28.69	1.59	-33.706	.00*
After	45	39.02	1.03		

*Statistically significant level at .05.

Period 3. - Learning activities though educational trip and practice at the KMITL organic farm and organic farm networks in the community around the school. This was accessed by using an interview schedule and a questionnaire on satisfaction.

Regarding the preparation for the educational trip of the students and concerned personnel, there was the periodical operation in accordance with the organic farm learning activities plans (6 stations). Local scholars having a body of knowledge relevant to the learning activates plan were invited to join the educational trip at the KMITL organic farm (once per semester) and organic farm networks (6 times).

Table 3. The guardian satisfaction with the schooler organic farm learning activities

Item	$\bar{x}$ **(n=45)**	**S.D.**	**Description**
1. The school support on organic farm leaning facilitation	4.06	.579	High
2. Appropriateness of the location of the school organic farm leaning center	4.08	.668	High
3. Components/learning stations of the school organic farm learning center	3.97	.690	High
4. Content of the learning module	3.95	.796	High
5. Facilitation of learning activities in the center	4.22	.703	Highest
6. Organic farm practice in the student families and the community	4.13	.625	Highest
7. Learning achievement of san/daughter	4.26	.719	Highest
8. Yields of the school organic farm learning center	4.31	.668	Highest
9. The guardian interest and coordination in the facilitation of learning activates	4.51	.548	Highest
10. The local scholar participation in the continual facilitation of organic farm activities	4.31	.668	Highest
11. Satisfaction and needs for continual participation	4.62	.490	Highest
Total	**4.22**	**.191**	**Highest**

For participation in the learning activities facilitation it was found that the students were interested and participated in the activities. They claimed that it was challenging because it was leaning in actual situations and not boring. Also, they were proud to eat organic vegetables produced by them. According to an interview, it was found that the students also pursuated their guardians to grow organic vegetables at home.

Regarding satisfaction with the school organic farm learning activities, it was found that as a whole, the guardians had highest level of satisfaction with it (Table 3). Besides, the guardians and the local scholars suggested that organic farming must begin with easy activities and do it in actual situations such as home grown vegetables. It was also found that, as a whole, the students were satisfied with the school organic farm learning activities at a high level (Table 4).

Table 4. The student satisfaction with learning activities of the school organic farm learning center

Item	$\bar{X}$ (n=45)	S.D.	Description
1. School support on the facilitation of organic farm learning in the school	4.13	.694	High
2. Appropriateness of location of the school organic farm learning center	3.86	.726	High
3. Components or the 6 learning stations of the center	4.15	.562	High
4. Content of the learning activities module	3.64	.980	High
5. Learning activities facilitation of the center	3.75	.908	High
6. Organic farming practice in the student family and the community	3.71	.869	High
7. Learning achievement of the students	3.75	.679	High
8. Yields of the school organic farm activities learning center	3.95	.737	High
9. The guardian coordination in the learning activities	4.00	.738	High
10. The local school continual participation in the facilitation of organic farm activities	4.26	.687	High
Total	**3.42**	**.322**	**High**

Discussion

According to period 1 of the study, it was found that the school organic farm learning center covered an area 1 rai in the school. It had 6 organic farm

learning stations: 1) vegetable growing, 2) earthworm culture, 3) compost production, 4) mushroom culture, 5) good-tempered layer rearing, and 6) catfish rearing. This was consistent with the school area and resources. The establishment of the center was assisted by concurned personnel in the educational facilitation and local scholars. In addition, the six modules of organic farm learning activities could be used effectively. That was the learning achievement after using the modules of the students was higher than before with a statistical significance level at P = 0.05. This might be because learning content of the modules was consistent with needs of the students. Besides, it was found that the guardians and the students were interested in organic farm learning activities at a highest level and they were willing to coordinate in the facilitation of organic farm learning activities. As a whole, it was found that they were satisfied with the organic farm learning activities at a highest level. This conformed to a study of Saduak *et al.* (2016); Mersit, (2012) and Saduak *et al.* (2017) which found that the development of agricultural learning center should have a clear scope. Besides, the facilitation of learning activities in the form of learning station together with a learning module for each station could develop learning achievement of students. Not only this, the community and guardian participation in the learning activities helped enrich direct-experiences to learners (Saduak *et al.*, 2017).

The facilitation of learning activities of Baan Dong Salao school organic farm learning center was diverse i.e learning activities of the 6 stations, holding activities with the community and guardians at home, and educational trip/actual practice at the KMITL organic farm and organic farm networks. All of these were the coordination of the school, Agriculture teachers, scholars, students, guardians, and KMITL Agriculture teacher students. As a matter of fact, the learning activates held with guardians and the community was free time activities of students and it was a kind of diligence/discipline practice for them. Moreover, (abstract-concrete) made the students and do their tasks to achieve the goals of leaning facilitation (Saduak *et al.*, 2017). This conformed to a study of Paksa (2014) which process skills of sixth years elementary school student made the students have a higher learning achievement after learning than before with a statistical significance level at .05.

It is recommended that the guardians promoted and supported organic farm activities held at home. This was because they were interested and satisfied with it at a highest level. Hence, the participation process should create a monitoring system for organic farm learning activities of guardians and the community. This could gain data for continually developing learning facilitation of agriculture and other subjects. The findings showed that the stakeholder participation in the school educational facilitation was beneficial to

learning achievement of the students. Thus, it should have a study and development of forms of integrated organic farm learning facilitation. It could be the participation among the university, vocational college, school private sector etc. so as to be a model for sustainable organic farm learning development.

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