

CHAPTER 5

CONCLUSION DISCUSSION AND RECOMMENDATION

The objective of this research was to explore and develop the SEP learning model for farmers in Phitsanulok, Thailand by exploring the component and factor of SEP learning model in application of farmers. From the theoretical framework, the in-depth interview of the model farmers, focus group discussion with the SEP extension agency and the content validity by the expert to explore and develop SEP learning model of farmers. Then, the construct validated of the developed SEP learning model by the confirmatory factor analysis model with the assumption on the appropriateness and possibility of SEP learning model of farmers in Phitsanulok, Thailand was validated in construction and fit with the empirical data.

Sample

The sample in the qualitative study to explore the component of SEP learning model of farmers was the 18 model farmers and 14 SEP extension agencies for farmers in Phitsanulok, Thailand.

The sample for examining the content validity in the appropriateness and fitness of component of SEP learning model was the 5 experts and the sample for examining the reliability of the questionnaire was 20 farmers who participated in SEP project of Mae On district, Chiang Mai.

The sample for examining the construct validity of developed SEP learning model by using CFA model in LISREL program was the 326 farmers who participated in SEP project of the Agricultural and Cooperatives Office of Phitsanulok Province.

Research instrument

The instruments for exploring the SEP learning model for farmers consisted of.

The instruments for content validity in the appropriateness of the components in SEP learning model for farmer consisted of the evaluation questionnaire of SEP learning model for farmers that consisted of 2 parts. The first part was the appropriateness of SEP learning model for farmers that were the Linkert scale evaluation questionnaire. The second part was the additional recommendation of the component of SEP learning model for farmers.

The instruments for construct validity of the developed SEP learning model for farmers with the confirmatory factor analysis model by LISREL program was the interview questionnaire of SEP learning model for farmers in Phitsanulok, Thailand that consisted of 6 sections. The first section was the checklist questionnaire with Linkert scale, the second to fifth section were 5 level scale and the sixth section was the recommendation on the SEP learning model of farmers in Phitsanulok in Thailand.

Research procedure

The first step was the exploring and developing of SEP learning model is as follows.

1. The theoretical approach was the study of model or guideline in supporting learning process from the basic concept, document and research on SEP learning process. The 4 parts of theories were 1) learning theory 2) Adult learning or learning for adult 3) the learning model for farmer 4) SEP in agricultural. The objectives of the theoretical framework was to analyze and synthesize the content to determine the guideline in exploring learning model and determine the framework for interview in data collection on the in-depth interview and focus group discussion.

2. The field study for qualitative research used 1) The in-depth interview by interviewing the 18 sample farmers who apply SEP in agriculture at Phitsanulok from 9 district and 2 persons per district 2) The focus group discussion with the officer from 14 SEP supporting agencies in Phitsanulok.

3. The collected data from step 1 and 2 were analyzed for component and factor of SEP learning model and then the content validity of SEP learning model was done by 5 experts using the evaluation form on the appropriateness of the developed SEP learning model with the 5 level Linkert scale. The median and inter-quartile range was analyzed to determine the fitness validity on component and factor of developed SEP learning model and the content validity in order to improve the learning model for correctness and accuracy. The data from the experts was analyzed by calculated for median and inter-quartile range. The criteria in determining the

conformance of the expert from the open-ended questionnaire with 5 level scales and component, sub-component and factors that median value above 3.50 and inter-quartile range value less than 1.5 indicated that those components and factors were conformance (the expert opinion were correlated). The recommendation was analyzed with the content analysis.

Second step was the construct validity of developed SEP learning model by using confirmatory factor analysis.

The sample used in the construct validity of SEP learning model for farmers was the 326 farmers who were participated the SEP project with Phitsanulok provincial agricultural and cooperatives office. The data collecting instruments was the questionnaire with interval scale of 5 levels and ration scale. The data was analyzed by using confirmatory factors analysis and the parameter approximately value of maximum likelihood. The data analysis consisted of 2 parts that were the preliminary data analysis with descriptive statistic using Mean (\bar{X}), S.D., Median, Minimum, and Maximum with SPSS/PC+ program and the data analysis to construct validate to examine the fitness and appropriateness of the developed SEP learning model of farmers with the empirical data by using confirmatory factor analysis with LISREL program.

5.1 Research finding and conclusion

The SEP learning model of farmers in Phitsanulok, Thailand was explored of theoretical framework and the field study by interviewing model farmers using the in-depth interview with the model farmers on SEP learning and focus group discussion with the SEP extension agencies and synthesized as a SEP learning model for farmers in Phitsanulok, Thailand. It was found that the SEP learning of farmers in Phitsanulok was learning by experience and dynamic self-learning that consisted of 5 components that were 1) the context and background of farmers 2) SEP content 3) SEP learning process 4) Component supporting learning of farmers 5) SEP learning output of farmers. The discovered learning model was the experience learning that was dynamic self-learning

The content validity result of SEP learning model from the expert found that the learning model was emphasized on the learning outputs based on the self reliance principle in the aspect of mental, social, natural resources and environmental, technology and economics according to the first level of new agricultural theory of His Majesty The King which focus on the output in the practical and attitude to become goodness, intelligence and happiness. The expert's comment on the level of appropriateness in the developed component with the median value of 5 and the inter quartile range value of 1. All five components had the median value between 4 to 5 and the inter quartile range between 0 to 2.5. Furthermore, there was a recommendation to improve SEP learning model to be more simplicity.

The development of SEP learning model by the appropriate and simplicity arrangement of component as follows: the first component on the context and

background of farmer was divided into two sub-components of socio-economic of farmers and farmers' attitude which was the internal factors of farmers. The four components of context and background of farmer, SEP content, SEP learning process and component supporting learning of farmers had an effected on the fifth component that was SEP learning output. In particular, this research uses the output as a basis lead to the component which was the influence factor on the learning of farmers that was the experience learning which was the continual self-learning.

The result of examining the construct validity on developed SEP learning model by using the confirmatory factor analysis with LISREL in aspect of appropriateness and possibility was found that the model fitted with the empirical data with the chi square value of 0, the degree of freedom was 6 and the component that had influenced on SEP learning model for farmers was statistical significant of 0.01 was the component of SEP learning process and component supporting learning of farmers. The component of the context and background of farmers and SEP content had influenced on learning of farmers with the statistical significant of 0.05

5.2 Discussion

The exploring of SEP learning of farmer found that the component and factor of SEP learning was collected from the adult learning theory and was connected to the SEP learning model of farmer which was the experience learning and dynamic self learning that correlated to the experience learning cycle of Kolb and Fry (1975) quoted by Noiampang (2008) which learning was based on experience and dynamic self-learning. The SEP learning model of farmer consist of 5 components that were the context and background of farmer, the SEP content, the SEP learning process, the

component supporting learning of farmers, and the SEP learning output in both practical and attitude. Moreover, Potisuwan (2005) quoted by Chaisopone (2008) stated that the best learning resources of adults was experience.

It was discovered that the first 4 components that were the context and background of farmer, the content of SEP, the learning process and the component and supporting factor of learning had an influence on the fifth component that was the SEP learning output of farmer. In particularly, the result of this research was the basis that leads to the component that was an impact factor for farmers' learning which was the experience learning and dynamic self-learning. The component of learning model could be described as follows.

- 1) The context and background of farmers that had an influence in learning SEP was the farmers' attitude which consisted of the strictly behavior on religious doctrine for the peace in mind and be conscious in living with SEP. This finding was correlated to the research results of Prayukvong (2005) that said the success factors exclude money was good thinking process as the way of Buddhism economics in production which lead to carefully thinking and think over the living on the basis of Self immunity. These finding also correlated to Konthaisong (2010) that the Bhuddish Agriculture learning style was based on living with reasonableness created deep feeling and emphasized on changing farmer's production process by starting at thinking process, self analysis, developing attitude and creating inspiration that lead to behavior changing, creating biological diversity and learning from model farmer. The farmers who had positive attitude to the religion principles and commitment in applying SEP as a way of living would always interested in follow up the knowledge

of SEP and agricultural activity from the mass media with diligently and focus on self-improving continuously. Moreover, farmers who were working in agriculture were interesting to implement SEP in agriculture in order to improve their agricultural career which was correlated to the role of experience according to the adult learning concept of Knowles (1978) which stated that adults accumulated their additional experience to expand their basis connected to the new learning experience. Therefore, the appropriate learning should utilized the former experience as a guideline such as farmers who were aware of their health and the other in agricultural production turned to be more critical thinking in production methods. The health and illness had influenced on learning of farmers according to the research of Tawon (2007) stated that the reasons that farmers turned to apply sustainable agriculture was their health problems such as intolerance and Pesticide Residues that caused cataplexy or dark black blood, faint, light-headed and skin burned. Moreover, the economy crisis and problem of farmers living also influenced the learning of farmers as the report of Tawon (2007) stated that the economic problem such as the high cost of chemical substances in cultivating and the formal and informal debt caused the farmers to use sustainable agriculture in order to reduce the use of chemical and turn to take care their own health and consumer and also reduce the cost of agricultural. The personnel factors on the basic data in economic and social of farmers that was sex, age, education, religion, social status, household members, family labour, land holding, farm area, income, loan and water resource did not affected to SEP learning output of farmers. This finding was correlated to the research of Kerdsri (2010) that reported the personnel factors such as sex, age, education, social status, household members, family labour, loan and saving did not effected to the success in apply SEP. Due to

those factor was different and did not correlated to the empirical data, there should not included in the SEP learning model for farmer.

2) The SEP content mean the content of SEP that consisted of the moderation, the reasonableness and self immunity under condition of the knowledge and ethics that measured by the understanding in content which lead to the SEP learning in both practical and attitude. The research found that most of the understandable meaning in SEP was reasonableness and next was the condition of knowledge and moderation, respectively. The reasonableness was the aspect of resource planning and management reasonably that was easy to understand according to the concept of Roger (2003) which stated that understandably innovation lead to better learning. In the aspect of condition of knowledge, farmer understood the methods of acquire knowledge from the continual development by use of knowledge to be benefit and appropriate with carefully which was correlated with the past experience in agricultural. When apply SEP in agriculture, farmers was more understand in SEP. In the moderation aspect, there was a clearly activity such as household account for farmers to understand how to use or how to save. Roger (2003) also state that the property of the difficult or easy of innovation pay an important role in farmers' learning. In the aspect of self immunity and ethics were difficult to understand because it was a prevention of problem which was not arising in present. So, it was difficult for farmer in understand. In the ethics aspect, it was difficult to explain clearly in any activity, it was difficult to understand this factor. Therefore, the understanding of philosophy content had influence for farmer in apply SEP in daily life correctly and appropriately.

3) SEP learning process was the learning by using experience and continual self learning by farmer that was correlated to the adults learning component of Knowles (1953) that adults had a clear target of learning in mind and the creating of learning inspiration was the primary step in learning process. The next step should be to demonstration the clear picture of learning output by emphasized on learning activities such as the demonstrate farm and the farmers who was the learner always change as a dynamic learner. Worth (2006) also stated that the component of learning principle and learning management were equally important. When developing SEP learning process for farmer, both components should be consider at the same level of important. The factor that was most effect learning was the extension for farmer to understand the diversify agriculture system and saved environment by learning from SEP learning center as a learning resource and practically apply their own farm. Wattanawong (1981) stated that the important component in adults learning was the most valuable experience that helps adults in using those values in learning by practically research to search for knowledge continuously. The report of Worth (2006) also stated that the SEP learning center was the learning source and agricultural activity demonstration and the learning method was acquired from reflected experience from model farmer in order for farmer to aware in apply SEP as a guideline in agriculture and knowing the reason of apply SEP as a guideline in production. The finding also correlated to Knowles (1974) that the management of adults learning process should pay less attention on teaching such as learning on case study, self-practice and self-assessment by farmers would apply SEP on their interested activity and in their own farm. Kolb and Fry (1975) cited by Noiampang (2008) also stated that farmers learnt from experience on their convenient learning

methods and the learning started from that point by using multi-activity which they were capable. Furthermore, farmers should exchange knowledge in agricultural among themselves continually which was correlated with the research of Worth (2006) that was farmers should exchange knowledge among themselves continually. Rodkeow (2008) also supported that the learner want to search for knowledge by themselves with the supporting learning resource from the institute and the extension worker and the learning resources should consist of diversity of activity for farmers.

4) Component supporting learning on SEP was external factor to driven the farmer in learning SEP better. The most influence factor was the extension officer should clearly understand SEP and monitor the learning output of farmer continually which was correlated to the research of Sirichoti (2000) that learning process and learning content were equally important up to the cooperative methods and cooperation. The role of extension officer was the stimulator for change because the extension officer was disseminated knowledge to farmer and at the same time he was the government officer. If the government policy change with the politics of the country mean the country was not secure. The job of the extension officer with the government could not be continually. This was the obstacle in SEP extension continually. Moreover, not only the extension officer has to learn simultaneously with farmer, the extension officer should cooperated learning with farmers because the agency was the supporter, policy setter and the working direction of extension officer. Furthermore, the driven of SEP for farmers in the role of extension officer should change from technology transfer through farmer to cooperate learning with farmers because SEP learning for farmers was experience learning and dynamic self-searching for production methods. Therefore, the extension officer should change from

technology extension for farmers to support farmers in learning in the way of farmers was the owner of the knowledge and act as an extension officer at the same time. Worth (2006) also stated that the role of extension officer was the supporting to generate the skill of farmer and meanwhile share knowledge to farmers. This supporting was difference from technology transfer but was the cooperating between farmers and extension officer and other supporting institute continuously. Knowles (1974) also stated that the management of adults learning should reduce the emphasis on teaching by the teacher should decrease the role of teaching to be more on extension role.

5) The SEP learning output in practical and attitude. The output on attitude was more important than practical which was meant that when the attitude of farmers was changed, farmers would implement SEP continuously with sustainably. Farmers learnt SEP in aspect of agricultural activity. The most activity that farmers learn was having green manure and bio – fertilizer to reduce cost and help in improving soil quality. The next activity was having bio – extracts from farm production to anti-pesticide in farm include production cost reduction by having multiple activities to subsidiary in production such as diversity farming, having fishery in garden plot or rice field. These activities indicated that farmers had a production management by aware of the value of natural resources and environment on the basis of conservation and sustainably utilization. Extension (2000) also stated that the application of SEP according to the first stage of New Theory Agricultural stage was the self-reliance principle by use diversity farming such as growing variety crops in subsidiary each other's and employ workers in family to reduce production cost and raise income for farmers.

Moreover, most of farmers learn SEP in attitude aspect of having leadership ability, known oneself and controllable. Next attitude aspect was able to work with the others happily, having good consciousness, able to develop themselves and country, having compromising and considerate of common interest, and having good human relations which was the SEP learning according to the first step of new theory. This finding was correlated with the research of Wongwasan (1999) that learning model and systematic thinking of career had relationship by learning nature in 3 aspects of knowledge, skill and attitude simultaneously. It was also correlated in agricultural production because the output of learning had developed the systematic thinking for practical decision to be appropriate with farmers' living. The output of SEP learning was measured the degree of SEP learning on the new agricultural theory level 1 by the aspect of individual sufficiency that divided as the output of learning on practical and the output of learning on attitude to be good, intelligence and happiness was the required characteristics of Thai people. This finding also correlated to the learning output of Kaewaurai *et al.* (2003) that was to be good, intelligence and happiness which had to understand the steps of practice in applying knowledge for solving daily trouble, strengthen basic living management including understand the role of oneself in a family member, community and country. Then, the awareness, consciousness, moral and ethics would be developed as the required characteristics person who could develop oneself continuously and sustainably

The five components of SEP learning model was the essential element in Learning SEP for farmers which the component on learning process of farmers had the most influenced on SEP learning. It was meant that the learning of farmers was

depend on the appropriate development of learning process for farmers which had to consider the learning principle and the guideline steps in learning management by developing the SEP learning center in every location for the model farmers to exchange and pass on experience directly to farmers on their nearby location. Konthaisong (2010) also stated that the learning of farmers from local wisdom learning center (model farmers) use the objectives of farmers as a guideline in operating with the mission of developing knowledge to drive social and the management for solve the problem relating to the production plan of farmers and the local wisdom learning center (model farmers) had inspiration from the concept of ideology and leadership of community, relative and generosity from the center committee. Moreover, there should be supporting from government sectors by assign as a continual policy and pay attention on clearly presenting the SEP content as the agricultural activity by cooperate learning among farmers, between farmers and the extension officer, and between farmers and policy supporting agency. The learning of farmers called experience learning would be developed which demonstrate in an implemented activity such as household account to recognize the status of family, to reduce and managing expense reasonably including the farm management by reduce the reliance on external factor and more self reliance and used available resources nearby for agricultural such as using bio – fertilizer instead of chemical, using bio – extracts instead of pesticide. It was noticed that farmers in Phitsanulok gave priority to implement SEP as a new theory of agriculture level 1 by the management of area on their proficiency and utilized knowledge in land management especially water resource and agricultural activity that appropriate with area and was diversified by using subsidiary activity in farm including the awareness of natural resource

utilization and fully utilized family labor to reduce the cost of production along with the mixed activity on growing plant, raise animal and fishery in farm to the extent beneficial. Konthaisong (2010) also stated that the ideology of self-reliance, self-sufficiency, small pond in farming, the unity of family, empathy, the main income from diversity farming and raise animal, knowledge management of farmers, the developing and extension of farmer's network, the thinking process and practical research in farming are the main factors that influenced the success of farmer's learning.

5.3 Recommendation

5.3.1 General Recommendation

From the explored and developed SEP learning model of farmers in Phitsanulok, the recommendations on SEP extension to farmers in Phitsanulok were that the SEP extension should emphasize on the learning process that the Agricultural Extension Agencies in private and government sector should play an important role on the learning principle together with the guideline on learning management for farmers because the farmers learning was the leaning from experience and dynamic self-learning and the content in SEP learning of farmers should be emphasized on self-reliance by using the available resources for most beneficial and trying out and searching activity that was appropriated with oneself. The relationship between stakeholder and farmers who learn SEP was shown in figure 5.1

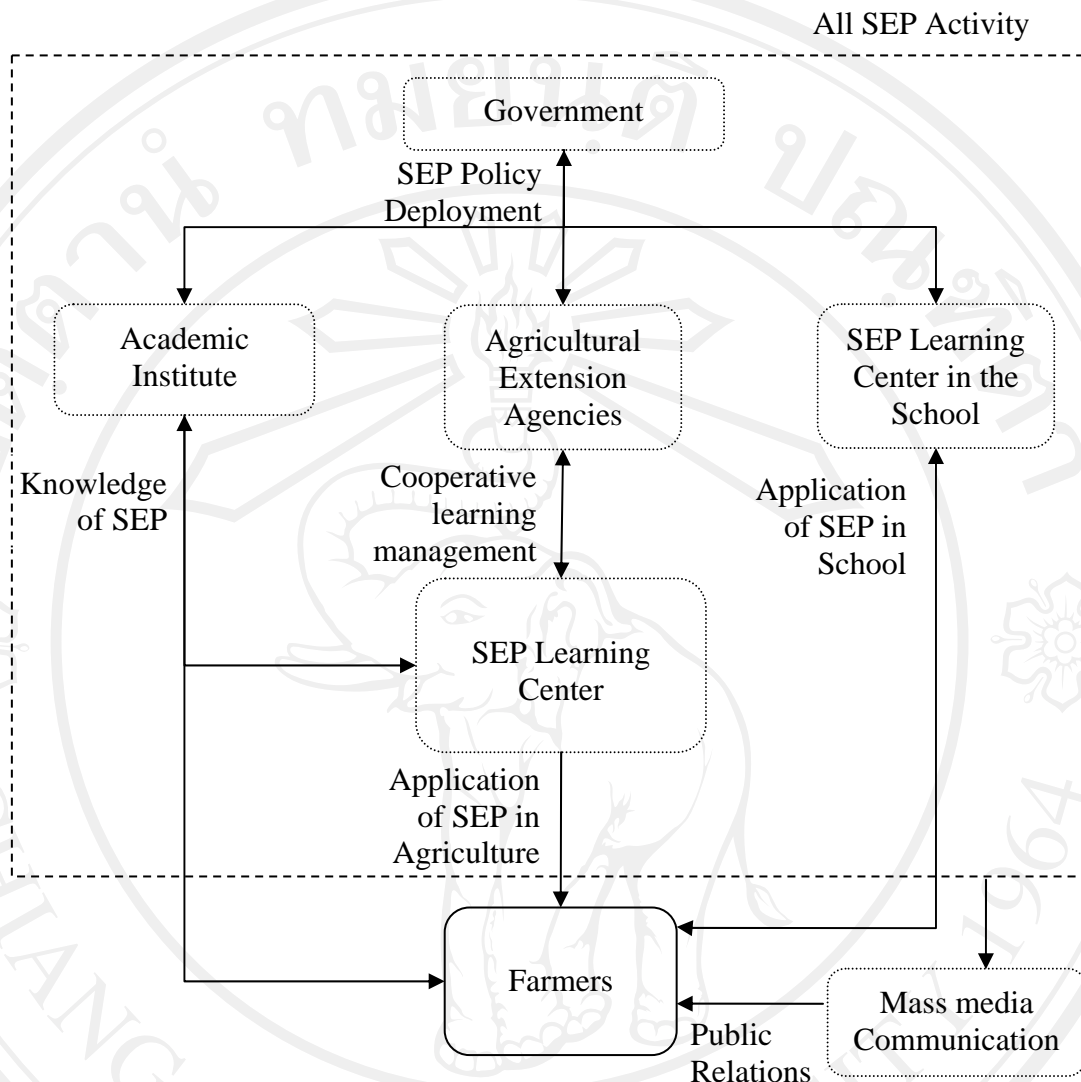


Figure 5.1 The Recommendation Guideline on SEP Extension for Farmers.

From figure 5.1, the recommendations on SEP extension for farmers from the finding were as follows.

- 1) The government sector should contain SEP as a country policy on the National Economic and Social Development Plan continuously so as to support the budget on SEP extension continuously and earnestly. The government sector must aware that SEP is included the National Economic and Social Development Plan and

is not the political party's plan because it was clear that changes in political part influence the supporting of SEP extension officer which was correlated to the report of Sirichoti (2001) that the policy of the government changed due to the unstable politics which was effected to the extension officer who was a government employee in discontinuing knowledge transfer to farmers. Therefore, the containing of SEP in the Nation Economic and Social Development Plan could drive the SEP for farmers continually because SEP is suitable with Thai farmers' context. The government and related agencies including extension officers who are responsible for driving SEP have to completely understand SEP in order to carry out the supporting activity and build appropriate activity for farmers to learn the appropriate application of SEP.

2) The Agricultural Extension Agencies in both government and private sectors should support the agricultural activity and cooperate with small group of farmers to learn such as the training, study tour, practice and knowledge and experience exchange in SEP agricultural from SEP learning center or model farmer in their local area. The extension activity of the agricultural extension agencies should be as follows.

2.1) Selecting the model farmers who apply SEP in their agricultural practices as the SEP learning center in each district in order to disseminate SEP to the nearby farmer. Some agricultural extension agencies had established SEP learning center according to the government policy by setting up the Agricultural SEP application model. The government officer should establish the model of SEP learning center in order to disseminate the knowledge to farmers but this is only the knowledge on the production according to the new agricultural theory.

There is no change in farmers' in production behavior and the awareness of SEP application to be a guideline in agricultural production. Therefore, in order for the farmers to learn and apply SEP in agriculture, the model farmers who are successful in using SEP should be the ones who help in disseminating this knowledge.

2.2) The driven for farmers to understand the application of SEP as a guideline in agriculture include training, demonstrating and study tour at the established SEP learning center in order to exchange knowledge and attitude about SEP including the agricultural activity in actual circumstance between farmers and model farmers and among farmers.

2.3) The agricultural experience reflection from model farmers to other farmers to be aware of applying SEP as a guideline in agriculture and aware of reason in applying SEP as a guideline in production by exchanging knowledge during carry out the activity in SEP learning center.

2.4) The supporting for farmers to absorb knowledge by practicing until understanding the knowledge in SEP activity from the moderation, reasonableness and self immunity under the condition of knowledge with moral, with emphasis on the activities as follows.

2.4.1) Encouraging farmers to produce everything for consuming to reduce cost in household by emphasis on self reliance for farmers.

2.4.2) Encouraging farmers to know oneself by making family and farming accounts in order to achieve self moderation and reduce unnecessary cost and see values of resources from making family account.

2.4.3) Encouraging farmers to know and understand the diversify farming in the ecological system by learning from learning center and actual practice in their location

2.4.4) Encouraging cooperate problem solving by the children of farmers to make family account in order to know the status of family problem and solve the problem together.

2.4.5) Encouraging the cooperation between farmers and extension officers in discussion as a continuous activity.

2.4.6) Encouraging the discussion to exchange the agricultural knowledge among farmers continuously.

2.4.7) Developing the model farmers to be a lecturer in disseminating the knowledge to farmers.

3) The Office of Basic Education in cooperated with agricultural extension agencies in both private and government sector should drive the SEP to farmers as follows.

3.1) Establishing the SEP learning center in school in order to build the learning process to farmers' children and they would be part in agricultural extension activity according to SEP concept.

3.2) Conducting model farmers as a special teacher in local school as the model farmers have experience and are familiar with children in local area.

Therefore, it is easy to give knowledge and practice for students in order to set the SEP concept in their mind.

3.3) Encouraging students to learn SEP from saving money in school and family account in order for student to make saving account and farming account with their parents which will make the awareness of spending money reasonably with their parent farmers. Moreover, the students who are the children of farmers are also expected to be a media in extension SEP to farmers.

4) Academic institutions should consider the SEP extension methods as follows.

4.1) Studying and researching in searching for knowledge of SEP in agriculture with the model farmers and farmers in order for farmers to develop knowledge based on academics along with the SEP principle correctly in simultaneously manner. Therefore, the academic institution would develop the understanding of the methods in transfer academic knowledge into actual practical correctly and appropriately.

4.2) Reflecting the cooperative research with farmers in SEP by presentation of academic work in the form of publication in journal, presentation in academic conference and report presentation to the Office of National Economic and Social Development Board to use as the supporting data in the National Economic and Social Development Plan.

5) Government, academic institute and agricultural extension agencies who are responsible in supporting SEP to farmers should present their SEP works through

the mass media communication in order to disseminate SEP knowledge into practical use for farmers.

5.3.2 *Recommendation for the Further Research*

1) There should be some researches on the assessment of learning output of farmers by establishing the indicators of SEP learning output to measure the SEP learning output into application as a standard.

2) There should be some experimental design researches by using the developed SEP learning model to experiment the SEP extension for farmers, as an alternative by using action research technique.

3) When using the model confirmation by the research finding on Experimental design and action research methods, it should be confirmed with the structural equation model to approve and improve the SEP learning model for farmers with more efficiency.