

## **Determinants Effecting to the Environmental Education Learning, Participatory and Self-Reliance in Living Based on the Sufficiency Economy Philosophy**

Chanchainarong Songkasri, Sunthorn Kohtbantau and Pairote Baojai

Department of Environmental Education, Faculty of Environment and Natural Resources,  
Mahasarakham University, Northeast Thailand

**Abstract:** The main purpose of this research, was to find the determinants effecting to self-performance according a participatory learning in living based on the sufficiency economy philosophy using environmental education principles. This study was conducted at prototype sufficiency economy villages. The sample consisted of rural community people age 15 years and over, 90 stratified randomly subjects according to community organizational memberships were used. The instruments used were a questionnaire on self-behaving based on the environmental education learning principles, participation and self-reliance in living based on the sufficiency economy philosophy. The statistics used for analyzing the collected data were frequency, percentage, mean, standard deviation, F-test (One-way MANOVA) and stepwise multiple regression analysis. The results of the study were as follows: The rural community people had self-performance according to environmental education learning principles and self-reliance in living based on the sufficiency economy philosophy as a whole and in each of these aspects at a high level: awareness, knowledge, attitude, skill, evaluation, participation in learning, technology, economy, natural resource, mind and society. However, the participatory in living based on the sufficiency philosophy as a whole and individual all these aspects was at a medium level: Planning, doing, checking and acting. The rural communities people with different genders had different performances according to the environmental education learning principles as a whole and in each of the three aspects and self-reliance in living based on the sufficiency economy philosophy as a whole and in each of the 2 aspects; those with different age groups had different participation as a whole and in each of the 2 aspects; those with difference status of being core leaders of community group members had different performances according to environmental education learning principles as a whole in each of the 3 aspects, participation as a whole and in each of the 3 aspects and self-reliance as a whole and in each of the 5 aspects; those with different statuses of positions in the community had different participation in learning as a whole and in each of the four aspects and those with different status of being community organizational membership had different participation in learning as a whole and in each of the 3 aspects at the 0.05 level of significance. There were 2 variables which, could predict self-reliance in living based on the sufficiency economy philosophy (y) of the rural community people ( $F = 20.47, p \leq 0.005$ ) including: Being core leader of group members in the community ( $x_1$ ) and participation doing ( $x_2$ ). The equation could be written as:  $y = 2.50 + 0.47x_1 + 0.28x_2$  and the predicting accuracy was at 31.00% ( $R^2_{adj} = 0.31$ ).

**Key words:** Environmental education learning, participation, self-reliance, sufficiency economy

### **INTRODUCTION**

The development of natural resource and environment capitals in rural communities have been carried out since the past, in such a way to wake become for production, community infra-structure and consumption to fulfill as human needs as demands. The fulfillment of human needs had been so limitless that they affect economy, society at large and environment. The have also created hardships in their living and livelihood

such as problems of environmental pollution, problems of moral deterioration and other social problem. These problems affect people's life quality and more severe living hardships, suitability of occupation and income, low mental health people in the country as a whole have to become economical and patient for these prevailing economic situations (Sanyawiwat, 2007). At present, the sufficiency economy philosophy initiated and established by His Majesty the King Bhumipol Aduldej, of Thailand, has been applied for daily living and the trend has been

increased in rural areas. The living through learning in the community from wisdom and culture is a means to support production of consuming goods to be sold and exchanged within the community. This will help in management of resources in order to be able to increase incomes and to decrease expenditure through the process of production without destruction natural resource and environment. At the same time, it can also help in environmental conservation in rural communities in the future (Limthai, 2006). The mobility of sufficiency economy so far has faced the main problem of the communities lacking immunity. This means the people still lack self-dependence and lack appropriateness in mental, social, natural resources and environmental, economic and technological perspectives (Limthai, 2006). The development of environment must, therefore, be started from management of human beings who apparently use and destroy environment at the maximum (Veeravatananon, 2003). To learn the way of living as of sufficiency economy philosophy is, therefore, a good alternative to help in alleviating morale and encouragement of rural people, by emplacing participation of people within the community itself and regarding it as a tactic to apply the sufficiency concept for making them have awareness of environment according to the self-reliance principle of a concrete sufficiency economy community that it has to be always started from management of natural resources and environment as the first priority.

According to this study, the researcher used the self-reliance principle in technological, economic, mental, social and natural resource and environmental perspectives; the participation principle according to Deming's circle of plan, do, check and act and the environmental education learning principle in the aspects of awareness, knowledge, attitude, skill, evaluative ability and participatory learning. The main purpose was the guideline, for environmental education participatory learning to so speedily mobilize the distribution of sufficiency economy philosophy that it could suitably and sustainably support conservation of natural resources and environment.

The purposes of this research was therefore;

- To compare self-performances according to environmental education learning principles, participation and self-reliance in living based on the sufficiency economy philosophy of rural community people as classified by demographic status
- To predict self-reliance in living based on the sufficiency economy philosophy of rural community people prototype sufficiency economy villages

## **MATERIALS AND METHODS**

**Population and sample:** The rural community people at prototype sufficiency economy villages B.E.2550 (2007 A.D.) and with 15 years old and above. The sample of 90 people were determinant by the mean hypothesis test formula (Cohen, 1988), with the 5% error and the power of test 80% for the effect size of score at 0.5 with the mean of 3.95 and standard deviation of 0.91, based on sufficiency self-performance in the community level (Pilot study) and though the stratified random sampling from the name-list record of those being members or non-member of community organizations.

**Data collection and processing:** The questionnaires were self-delivered to the sample by appointment and collected about a week later. The data were processed as follows:

- The data, were checked by frequency and percentage; while, the self-performances and self-reliance of each learning level were assigned with the scales with 1-5 and the criteria of the mean scores of 4.51-5.00 (highest), 3.51-.00 (high), 2.51-3.00 (medium), 1.51-2.00 (low), 1.00-1.50 (lowest) (Kohtbantau, 2008)
- The data, were assigned with the scales with 1-3 and the criteria of the mean scores of 2.51-3.00 (high), 1.51-2.50 (medium), 1.00-1.50 (low) (Kohtbantau, 2008)

**Statistics for data analyses:** The statistics use for analyzing the data included descriptive statistics: frequency percentage mean ( $\bar{X}$ ), Standard Deviation (SD) and inferential statistics: for testing hypotheses the F-test One-way MANOVA, stepwise multiple regression analysis.

## **RESULTS**

The research findings from the study on self-performance according to the environmental education learning principle and self-reliance in living based on the sufficiency economy philosophy, shows in Table 1-3.

The rural community people with different genders, positions in community and being members and non-members of community organizations had performances according to environmental education principle and self-reliance in living based on the sufficiency economy philosophy as a whole with no difference, whereas, the rural community people with different ages and being core members in community had participatory and in living based on the sufficiency economy philosophy as a whole with statistically significant difference at the 0.05 level.

Table 1: Mean, standard deviation, level and order of self-performances according to the environmental education learning principles and in living based on the sufficiency economy philosophy as a whole and individual of rural community people

Performances	$\bar{X}$	SD	Level	Order
Awareness	3.63	0.62	High	6
Knowledge	3.94	0.62	High	2
Attitude	3.70	0.64	High	5
Skill	4.01	0.60	High	1
Evaluation ability	3.78	0.57	High	4
Participatory learning	3.93	0.60	High	3
Total	3.83	0.48	High	

Table 2: Mean, standard deviation, level and order of participation in living based on the sufficiency economy philosophy, according to Deming's circle as a whole and in each of rural community people

Participation	$\bar{X}$	SD	Level	Order
Plan	2.46	0.46	Medium	1
Do	2.42	0.46	Medium	3
Check	2.34	0.51	Medium	4
Act	2.43	0.50	Medium	2
Total	2.41	0.44	Medium	

Table 3: Mean, standard deviation, level and order of self-reliance in living based on the sufficiency economy philosophy as a whole and individual aspect of rural community people

Self-reliance	$\bar{X}$	SD	Level	Order
Technological	3.72	0.58	High	4
Economic	3.61	0.61	High	5
Natural resource and environmental	3.87	0.51	High	3
Mental	3.90	0.56	High	2
Social	4.03	0.56	High	1
Total	3.83	0.47	High	

The male rural community people had self-performances according to the environmental education learning principle and self-reliance in five aspects, namely, awareness, evaluative ability, participatory learning, natural resource and environmental and mental more than the female; the rural community people 35 years of age and over had different participation in 2 aspects of Deming circle, namely, plan and do more than those below 35 years of age; the rural community people being core groups members in community self-performances according to the environmental education learning principle, participation and self-reliance in 11 aspects namely, knowledge, attitude and participatory learning, do, check and act and self-reliance in technological, economic, natural resources and environmental, mental and social, more than not being core group members in community; rural community people, with different positions had different participation, in all four aspects, namely, plan, do, check and act and the rural community people being member of community organizations had participation in three aspects, namely, plan, do and cat more than those being non-members of community organization.

The prediction of self-reliance in living based on sufficiency economy philosophy of rural community

Table 4: Results of stepwise multiple regression analysis between 2 predictors and self-reliance variables in living based on sufficiency economy philosophy of rural community people

Predictor	R	R <sup>2</sup>	R <sup>2</sup> <sub>adj</sub>	F	S.E. <sub>est</sub>	p-value
x <sub>1</sub>	0.51	0.26	0.25	30.08	0.42	<0.001*
x <sub>1</sub> x <sub>2</sub>	0.57	0.32	0.31	20.47	0.40	<0.001*

a = 2.50 F = 20.47

\*Significance at the 0.05 level

people could lead to the prediction equation of self-reliance in living based on sufficiency economy philosophy (y) with statistically significant difference of the 0.05 level (F = 20.47, p≤0.005), in 2 determinants (predictors), namely, being group members in community (x<sub>1</sub>) and having participation in doing (x<sub>2</sub>), as the equation in the raw score form of  $y = 2.50 + 0.47x_1 + 0.28x_2$  and with multiple correlation coefficient (R = 0.57) and the adjusted prediction coefficient (R<sup>2</sup><sub>adj</sub> = 0.31), as in Table 4.

## DISCUSSION

From the research results it could be explained into main points, namely, the comparison of learning and the comparison of self-performances as follows.

**Comparison of learning:** In comparison of learning according to the environmental education learning principle, participation in living based on sufficiency economy philosophy by aspect it was found that all aspects were at the high level, with the skill aspect were as the high order and knowledge, participatory learning, evaluative ability, attitude and awareness in respective order. This might be owing to the fact that most of rural community people were laborers and worked in line with their own way of life and made the skill aspect come up as the highest in learning on living based on sufficiency economy philosophy. The finding also, revealed that the male rural community people had the skill higher than the female. This was true with being core group members in community, being group leaders in community, being members of community organizations and the age of 35 years and above that made rural community people have skill in living based on sufficiency economy philosophy very well.

The knowledge participatory learning ability aspects came next in order might result from having the skill or performance in living in such a way of doing along with learning, or learning from a real practice. However, one important thing of learning according to the environmental education principle, namely, attitude and awareness, the first step to be created according to the objectives of environmental education before leading to skill and evaluative ability and participatory learning aspects (Veeravatnanon, 1998) and they were found at the

lowest level. In this respect, in order to become sustainability of performances, based on sufficiency economy, those involving in mobilizing sufficiency economy should find techniques in creating awareness and attitude along side with living based on sufficiency economy as well in order to be immunity from within people in helping make the community become sufficient in self-reliance in the long run.

Accordingly, it was found that the successful model in learning on sufficiency economy of self-reliance when considered aspect by aspect could be explained.

**Sufficient technological aspect:** This was found at the high level, showing that the ability of rural community people in maintaining and using appropriate technology and modern technology, or using both, as well as the ability in bringing raw materials or objects to produce tools in making living by themselves. This made item bring local wisdom in combining with modern knowledge obtained through training in to use together. It was also, significant by found that there was an exchange of wisdom in production among rural people and increasing production skills. This finding was in line with the modern theory of communication proposed by Karl and Chaplin, that modern communication make people have knowledge, experience and thinking pattern systematically (Karl, 1961; Chaplin, 1973).

**Sufficient economical aspect:** It was found at the high level, showing that such situation might come from the economic production base or engaging in various group activities in communities, such as in agriculture, trading, raising fund or entering into cooperatives, animal raising or economic crop plantation and so on. From the variety of economic crops planted by people in their households on their pieces of land and in communities, an economic animals it made the villages have regular daily incomes from selling kitchen garden products. They also, gained incomes from selling fruit and animal raising approximately once or twice a year. In addition, it also decreased in the cost of living of people, because of the decrease of expenditure on food. This finding was in line with Mathewson, showing that the capital factor is an important and necessary one for strengthening economic self-reliance, because finance is regarded as are important production factor (Mathewson, 1995).

**Sufficient natural resources and environmental aspect:** It was found at a high level, showing that these was a support among the resources used for development that was able to be used in producing local resources. This would create productivity all year round and with a high

yield. The result of this research was also found that awareness and attitude towards learning on sufficiency economy were lower than other aspects, such as knowledge, skill, evaluative ability and participatory learning. This finding might affect the conservation of natural resources and environment so much that it became disadvantageous in misuse of natural resources and environment. This was in line with the theory of innovation of Everett, showing that the spread of new things, especially methods of management of natural resources and infrastructures, such as plantation of rapid growing trees, building irrigation dams and so on in the target areas where, the government has to accelerate in taking action. If they can do more, it will open opportunities for people to learn and have more vision. This will also an increase of people's competency at the same time (Everett, 1971).

**Sufficient mental aspect:** It was found at the high level, showing that there were more harmony and help among community members by will power to develop their own knowledge and improve their own communities. This finding was in line with other findings in the research that the learning an sufficiency economy according to the environmental education revealed the attitude at the highest order, followed by knowledge and participatory learning. Accordingly, the mentality of self-reliance must begin with self performance or take action in doing activities first and then the knowledge will follow. This finding was in line with the research of Green, showing that provision of education suitable for competency and fulfilling demands of rural farmers is regarded as the most wonderful tool for strengthening the villages and sustainable self-reliance (Green, 1994).

**Sufficient social and cultural aspect:** It was found that at the high level, showing that such situation might result from the village leaders having high leadership in management, such as organizing village forum for exchanging knowledge among members, constructing leaning centers, searching for local wisdom and so on. However, it could not be precisely concluded that success in learning of the social aspect in the community, such as dissemination of the reputation of community success resulted from taking part in sufficient economy group activities likely to happen by imitating good behaviors of the leaders and increasing the number of participants in sufficient economy group activities. The research finding was in live with the idea of Paul B. Horton, saying that the society can not become strong or solidified if lacking the group process or networking in order to take part in doing group activities for the benefits of public at large (Horton, 1976).

**Comparison of self-performances:** In comparison of self-performances participation according to the environmental education principle and participation in living based on the sufficiency economy philosophy of rural community people it was found that the rural community people in master's sufficiency economy villages as a whole had learning at the high level and participation at the medium level, but the participatory learning in living based on the sufficiency economy philosophy had no difference ( $p>0.05$ ). This might be owing to the indicators of the living outcomes of the government in mobilizing sufficiency economy in the master's sufficiency economy villages were in a good standard or pattern. Although, they in different contexts or provinces, the outcomes were the same. The learning and sufficiency in self-reliance in living based on the sufficiency economy philosophy were at the high level.

Although, the analysis results were found that the sufficiency in self-reliance in economic, technological aspect and learning according to the environmental education principle in awareness, attitude and evaluate ability aspects had different statistical significance at the 0.05 level, the participation had no difference in all aspects. This showed the self-performances in sufficiency were at the high level in natural resource and environmental, social and cultural and mental aspects; as well as knowledge and attitude towards living based on the sufficiency economy philosophy. The research finding was in line with significant principle leading to appropriateness, reasonability and immunity that relied on knowledge cum morality in balanced living and happiness, as mentioned by Seri Puangpit, the heart of sufficiency economy philosophy is the appropriateness in using heart to measure and reflect; reasonability is to use head to think technically and immunity is to use head to build up the system (Pongpit, 2007). In addition, it was in line with the seven factors of sufficiency economy, including self-reliance, having appropriateness, following the middle path, having immunity, having reasonability, being a good antigen and knowing harmony (Prapanpong, 2007).

In regard to using the referential verify the variable factors that could predict self-reliance base on sufficiency economy philosophy of rural community people, it revealed that there were 2 predictors that could predict the change in self-reliance base on sufficiency economy philosophy with statistically significant difference at the 0.05 level, including being group members in community ( $X_1$ ) and having participation in doing ( $X_2$ ). The prediction equation of variance yielded the adjusted prediction coefficient ( $R^2_{adj} = 0.31$ ), or 31.00%. The finding of this research was in line with Nimitr Khaivaniij, studying indicators of self-reliance economy in the upper part of the North and finding that sufficiency economy

philosophy was the notice that could determinant strategies of economic and social development and made the growth carry on strongly and sustainably, including 3 parts of the main structure, namely, community participation, community development level and community efficiency (Khaivaniij, 2001).

## CONCLUSION

The rural community people had self-performances according to the environmental education learning principle and self-reliance in living based on the sufficiency economy philosophy as a whole in individual aspects at the high level and in the order of attitude, knowledge, participatory learning, evaluative ability, participatory learning, social, mental and environmental aspects, respectively while, the participation in living based on the sufficiency economy philosophy as a whole and in individual aspects was found at the medium level and in the order of plan, do, check and act, respectively.

The rural community people had self-performances according to the environmental education learning principle, participation and self-reliance in living based on the sufficiency economy philosophy as a whole and in individual aspects with statistically significant difference at the 0.05 level. The details revealed that there were 5 aspects when classified by gender, namely, awareness, evaluative ability, participatory learning, natural resource and environmental and mental; by age in 2 aspects, namely, participation in planning and participation in doing; by being cores of group members in community in 11 aspects, namely, knowledge, attitude and participatory learning, do, check and act and self-reliance in technological, economic, natural resources and environmental, mental and social; by positions in community in four aspects, namely, participation in planning, doing, checking and acting and by being members of community organizations had participation in three aspects, namely, participation in planning, doing and acting.

The variables that could predict the self-reliance in living based on the sufficiency economy philosophy ( $y$ ) of rural community people ( $F = 20.47$ ,  $p \leq 0.005$ ) included 2 variables, namely, being cores of group members in the community ( $x_1$ ) and participation doing ( $x_2$ ). The equation could be written as:  $y = 2.50 + 0.47x_1 + 0.28x_2$  and the predicting accuracy was at 31.00% ( $R^2_{adj} = 0.31$ ).

## REFERENCES

- Chaplin, J.P., 1973. Dictionary of Psychology. Dell Publishing, New York, pp: 76-78.

- Cohen, J., 1988. Statistical Power Analysis for the Behavioral Sciences. 2nd Edn. Hillsdale, NJ: Lawrence Erlbaum, pp: 128. ISBN: 0-8058-6283-5.
- Everett, M.G., 1971. Communication of Innovations. 2nd Edn. Free Press of Glencoe, New York, pp: 476.
- Green, S.E., 1994. Age and adoption of recommended agricultural practices among peasant farmers in Guatemala: A reexamination (sustainable development). Tulane University Printing, Guatemala. pp: 122-124.
- Horton, P.B., 1976. Sociology. McGraw-Hill Book Company, New York, pp: 12. ISBN: 0256-01987-8.
- Karl, D., 1961. Social mobility and political development. *Am. Political Sci.*, 2 (4): 2.
- Khaivani, N., 2001. The complete research report on indicators of self-reliance community economy in Thailand (A Case Study of the Upper Northern Communities). Bangkok: Office of Funds for Res. Support Printing, pp: 633. <http://kkulib.kku.ac.th/>.
- Kohtbantau, S., 2008. Principles of doing and writing research words. Bangkok: Panyachon Printing, pp: 75. ISBN: 78-974-7306-39-2.
- Limthai, S., 2006. Ministry of interior and mobilization of sufficiency economy. Community Department. *J. Soc. Sci.*, 45 (8): 16-19.
- Mathewson, A.L., 1995. Eco-investing: Developing a financing strategy for sustainable communities. Simon Fraser University Canada Printing, pp: 121.
- Pongpit, S., 2007. Happy learning communities: sufficiency economy in Thai society can happen if desired. Bangkok: Charoenvidhya Printing, pp: 37-44. ISBN: 978-974-8062-79-2.
- Prapanpong, R., 2007. Sufficiency and new theory. Bangkok: Sathaporn Books Printing, pp: 36-38. ISBN: 978-974-8466-38-5.
- Sanyawiwat, 2007. Theories and strategies of social development. 3rd Edn. Bangkok: Charoenvidhya Printing, pp: 141. ISBN: 974-9993-93-4.
- Veeravatnanon, V., 1998. Environmental and Development. 4th Edn. Nakorn Pathom: Asian Institute for Public Health, pp: 202. ISBN: 974-276-174-4.
- Veeravatnanon, V., 2003. Environmental Education. 3rd Edn. Bangkok: Odeon Store Printing House, pp: 8. ISBN: 974-276-174-4.