Enhancing Learning System Development to Increasing Competency Skills

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Abstract: The objectives of this research were to development enhancing of learning system through educational institutions in the case of the Faculty of Agriculture Technology, RMUTT for the creating and developing learning content, the model of the teacher's knowledge transfer and the support system of entrepreneurial skills, and to improve the students 'performance. The research was conducted between March 2, 2015 - February 2, 2016. The sample consisted of 245 students in 3 departments consisted of 2 groups. The ground 1, conveyed by new system and learning in sustainable development, student performance enhancement, and incentive reinforcement. They were applied through 20 courses, 223 students. The group 2, 22 participants were disposed who was conducted as the group 1 and increasing entrepreneurial skills. Analysis of hypotheses in research were using t-test. The hypothesis testing was showed that students in group 1 had higher desirable performance. However, the behavior of sustainable development decreased significantly at the .05 level whereas the group 2 had higher of desired performance and behavior of sustainable development as shown significant at the .05 level.

1. INTRODUCTION

Due to globalization changing situation trend to knowledge-based socioeconomic. These factors as a result to changing context of the economy, society and education of the country. Especially challenging is for institutions education. The country need to preparation in academic and research to enhance competitive and challenges of the world. Consequently, the policy of the country has been adjusted to the changing circumstances. According to 11th National Economic and Social Development Plan (2012-2016) [1] was development in Thailand, such as the development of human resources which focuses on economic development under knowledge-base and innovation. The reflection had been revised in National Education Plan (2009-2016) [2], which has a policy of developing people all aspects and balancing. These can be the core of development under the moral society, wisdom and learning.

Based on the above situation and policies, the main concept is to develop people, especially in education in institutions, need to consistency in national policy. An educational institution has been responsible for preparing and developing people for the well-being of the 21st century, to move on to the future careers and develop self continuously ability, including adaptation amidst change and challenges in the changing situation. The research project developed the enhancing learning system to the competency skills through the educational institution mechanism, which aims to create and develop the learning content. The process can be transferring knowledge from the teacher to enhance the performance of students in the Faculty of Agricultural Technology. This research is in the 1st year. The past survey found that the Rajamangala University of Technology Thanyaburi, the students' knowledge of sustainable development and attitude of self-reliance increased significantly (.01) and the average attitude toward agricultural occupation was higher. The learning activities in the designated activities have resulted in

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higher average performance of the students. Whereas the non-supplementary group was less than the mean.

Thus, to achieve the development of the learning system through education has been done to get the new theme and learning. Self-reliant activity is still available whist the enhancement of professional entrepreneurial activity as a second phase of the research. This research aims to increase the potential of students to enter into a changing society. The result of this research is to create new learning styles and themes through the mechanisms education of the Faculty of Agriculture Technology, Thanyaburi, a model had created for sustainable livelihoods and the Farmer Shop format, which enhances the entrepreneurial skills of the supply chain management.

2. LITERATURE REVIEW

Integration learning management, Lardizabal and others [3] discusses integrated learning management. It must be based on the importance of the learner needs and the learning experience to determine the nature of the integration of teaching. The characteristics of integrating teaching and learning are 1) interdisciplinary is the creation of the theme and then bring knowledge from various subjects to relation. We can call this integration methodology as Thematic Interdisciplinary Studies or Application-First Approach. 2) Multidisciplinary Studies. Multidisciplinary is the introduction of the desired subject, will provide an integrated approach to the subject. We may call this integration method as the integration of the disciplinary approach (Discipline - First Approach).

Project base learning management. It is a study subject that students interested in and practice on their own. The process uses scientific method under the guidance, counsel and supervision of teachers / lecturers. It may use tools and equipment to assist in education. The study aims to achieve the objectives [4]. Project-based instruction is a hands-on experience in working as in real life. Student have direct experience that they will learn systematic workaround solution, can plan of their work, analytical thinking and self-learning. There are 2 approaches to project management. 1) Activity based on interest. 2) Activity based learning.

The internal-external locus of control is a development of the social learning theory. Rotter [5]

describes the general nature of the power of belief. Internal − external locus of control reward that comes from a person's behavior is the expectation of receiving the same return from a new behavior in conditions like the original. If the event is as expected, it will reduce the expectation of the person. Reduction or increase of this expectation will be formed from one behavior and then extended to cover other behaviors or events. Similarity or relation to the original situation has grown to become an important personality. Internal locus of control in the opposite direction, if action is not reinforced. It makes people aware that what they receive is not the result of their actions. But it is luck or a coincidence or environment, which is called external locus of control.

3. METHODOLOGY

Research objectives:
1. The development of learning system to enhance the desirable competency skills of the Faculty of Agricultural Technology students.
2. To propose policies for the development of learning systems for the Faculty of Agricultural Technology students.

Location of the study: Faculty of Agricultural Technology, Rajamangala University of Technology Thanyaburi Patum Thani Campus

Method of data collection:
The population is student in Faculty of Agricultural Technology. There were 322 students in the plant production and landscape technology and 359 students in the field of animal production and animal sciences technology, and 197 students in the field of agricultural technology. The sample were 245 students in 3 disciplines including, there were 76 students in the plant roduction and landscape technology and 122 students in the field of animal production and animal sciences technology, and 47 students in the field of agricultural technology.

The group was divided into two groups: group 1 as called as the control group, there were 233 students, there was conducted in the teaching model consisting of the new learning management system, self-reliance activities and motivation activities. There were 22 students in group 2 as called as the experimental group, there was conducted in self-reliance activities,

motivation activities enhancing and entrepreneurship skills.

Variables of research:

1. Independent Variable: there were the new learning management system, self- reliance activities and motivation activities and enhancing in entrepreneurship skills
2. Dependent Variable: there were desirable behavior in sustainable development and desirable competency skills of Faculty of Agricultural Technology students.

Research hypotheses:

Assumptions 1: the new learning system management model can increase the desirable competency skills of the Faculty of Agricultural Technology students.

Assumption 2: the new learning system management model can increase the desirable behavior in sustainable development.

Assumptions 3: the new learning system management model and enhancing in entrepreneurship skills can increase the desirable competency skills of the Faculty of Agricultural Technology students.

Assumptions 4: the new learning system management model and enhancing in entrepreneurship skills can increase the desirable behavior in sustainable development

Assumptions 5: enhancing in entrepreneurship skills can increase the desirable competency skills of the Faculty of Agricultural Technology students more than another group.

Assumptions 6: enhancing in entrepreneurship skills can increase the desirable behavior in sustainable development more than another group.

Research methodology

1. Researcher workshop participation to understanding in the logical framework research. There were 20 courses in research methodology.
2. Plan was set up a learning system for students through teaching and learning methods. The samples were measured before and after the experiment. There were divided two group; group 1 as called as the control group, and group 2 as called as the experimental group, as following:

   2.1 Strengthening the knowledge base on sustainable development applied through the content of the course, scheduled for 4th -12th week.

   2.2 Stimulation self-reliance activities carried in 4th -12th week, at least two times in 15 weeks.

Researcher selected from two activities as following;

Activity 1; researchers introduced a successful person in their performance capabilities who have be famous profession.

Activity 2; student groups to presentations who has impressed professional person of them.

3. Motivational enhancement was proceeded through seminar project in "Encouraging agricultural and agro-industrialization to succeed". The project was carried by the senior generation of agricultural professionals guided how to successful career. The purposes were provided a positive attitude towards their profession, scheduled in 7th week.
4. Implementation of learning activities and entrepreneurial skills program applied through "Farmer Shop by RMUTT" with student volunteers who is experimental group. There were 2 activities as follows:

   Activity 1: sales promotion training and entrepreneurial skills were provided, after that they were created a business plan to carry out an entrepreneurial activity, scheduled in 10th week.

   Activity 2: Implementation in business plan.
5. Conclusion and discussion between researchers were provided enhancing learning system.
6. Policy recommendations to achieve to competency framework.

Research instruments and data analysis

Attitude measurement was used for desirable competency skills of the Faculty of Agricultural Technology students; 24 questions were measured on 5 levels; The internal consistency Cronbach's alpha values was 0.85 and the desirable behavior in sustainable development; 25 questions were measured on 5 levels; the internal consistency Cronbach's alpha was 0.75.

4. RESULTS

There were 245 questionnaires distributed by sex, age, years of study, GPA, Graduated, number of children, Average income of the family. Most of the samples 42.04% (103) were students in animal technology and animal health science 49.80% (122). They had an average GPA of 2.00. -3.00, 71.2% (174) and were females 66.53% (163). Most of the graduated of science were 75.92% (186). Most of them were from the Central Region who had 1-2 children in the family, 73.47% (180). 54.69% (134) was the first child of households

and has average salary households as 50,000 Baht per month 78.78% (193) and the average expenditure cost of 6,000-10,000 baht per month. 51.43% (126).

Results of compare between the control group and experimental group

223 samples of group 1 and 22 samples of group 2 in desirable competency skills of the Faculty of Agricultural Technology students as Table 1 and 2 were found the mean 76.61 and 84.18, respectively. Comparison between pre-post test scores that it was found the students who received the entrepreneurial skills had higher level of satisfaction at the .05 level. All desirable competency skills scores were significantly higher at .10, except for creative capacity, but it does not statistically significant.

Table 1 Pre-post test scores and t-test statistic at significant 0.1 of the group 1based on desirable competency skills.

Desirable competency	Pre-score		Post-score		t	P
	$\bar{x}$	S.D.	$\bar{x}$	S.D.		
Systematic thinking	3.46	0.20	3.29	0.22	1.89	0.05
Information and communication technology	2.86	0.92	2.84	0.28	1.89	0.49
Teamwork	3.22	0.63	3.3	0.32	1.89	0.07
Successful operation	3.60	0.24	3.77	0.24	1.89	0.20
Entrepreneurship	2.83	0.30	3.02	0.24	1.89	0.13
Creative thinking	2.82	0.39	2.93	0.28	1.89	0.39
Total	3.13	1.073	3.19	1.075	1.32	0.29

Table 2 Pre-post test scores and t-test statistic at significant 0.1 of the group 2 based on desirable competency skills.

Desirable competency	Pre-score		Post-score		t	P
	$\bar{x}$	S.D.	$\bar{x}$	S.D.		
Systematic thinking	3.55	0.24	3.61	0.15	1.89	0.35
Information and communication technology	3.11	0.91	3.26	0.32	1.89	0.41
Teamwork	3.32	0.67	3.52	0.32	1.89	0.05
Successful operation	3.83	0.33	4.02	0.23	1.89	0.09
Entrepreneurship	2.73	0.51	3.31	0.3	1.89	0.06
Creative thinking	3.02	0.35	3.32	0.29	1.89	0.35
Total	3.26	1.01	3.51	1.00	1.32	0.01

22 samples of group 2 in sustainable development skills as Table 3 were found the mean 86.95 and 92.14, respectively. Comparison between pre-post test scores that it was found the students who received the entrepreneurial skills had higher level of satisfaction at the .05 level in sustainable development skills.

Table 3 Maximum, minimum, standard deviation, T-test statistics at significant 0.05. Compare pre-post scores groups 1 and 2 on sustainable development skills.

	Group 1	Group 2
Maximum score	115.00	112.00
Minimum score	49.00	77.00
$\bar{x}$	86.95	92.14
S.D.	11.01	9.42
t	1.65	
P	0.017	

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Implementation of learning activities and entrepreneurial skills program applied through "Farmer Shop by RMUTT" with student volunteers who is experimental group. Results were three training courses consists of the production of meatballs, yeast donut and management of primary goat milk and goat milk production. The students interested in the field that can be trained as a knowledge as well as an integration of teaching and create an entrepreneur. The student has a broader perspective. It can be used as a guide to career development.

Research hypothesis testing
Assumptions 1: the new learning system management model increase the desirable competency skills of the Faculty of Agricultural Technology students at the .05, the results of this analysis support the assumption 1.
Assumption 2: the new learning system management model decrease the desirable behavior in sustainable development at the .05.
Assumptions 3: the new learning system management model and enhancing in entrepreneurship skills can increase the desirable competency skills of the Faculty of Agricultural Technology students. Students with higher desirable performance were statistically significantly at the .05, Team performance, successful operation and entrepreneurship were higher statistically significantly at the .05.
Assumptions 4: the new learning system management model and enhancing in entrepreneurship skills can increase the desirable behavior in sustainable development, were statistically significantly at the .05. Thus, students have higher sustainability development behaviors that results support the assumptions 4.
Assumptions 5: enhancing in entrepreneurship skills can increase the desirable competency skills of the Faculty of Agricultural Technology students more than another group at the .05
Assumptions 6: enhancing in entrepreneurship skills can increase the desirable behavior in sustainable development more than another group at the .05

5. DISCUSSION AND CONCLUSION

The groups were divided into 2 groups. The both group were conducted in three activities; the activities of sustainable development, self-reliance activities and motivational enhancement seminar project. Whereas group 2 chose voluntarily to continue their activities by carried in entrepreneurial activities through training. and conduct real business through "Farmer Shop by RMUTT". The results show that transferring new learning content to students could improve the desirable competency skill of the Faculty of Agricultural Technology students, but could not improve the desirable behavior of the sustainable development. Possibly due to the linkage of some courses with

sustainable development unclearly understand for students or they unclearing to apply in their life. Although some of these activities may not contribute to sustainable development. But still, the effect higher on the desirable competency skill of the Faculty of Agricultural Technology students. Especially, the self-efficacy activity corresponded to that Zimmerman [6] College students' self-efficacy or self-confidence for learning and performance is crucial for their academic achievement and reflects a student's perceived competence with respect to tasks in the academic domain [7].

The learning system management model and enhancing in entrepreneurship skills can increase the desirable competency skills of the Faculty of Agricultural Technology students. And the desirable behavior in sustainable development, were statistically significantly at the .05 level. As mentioned above, Group 2 is a voluntary group of activities that results higher in the learning system of both desirable competency skill and entrepreneurship. By such self-efficacy consistent with Pintrich [8] as mentioned self-efficacy is likely enhanced when self-regulated learners actively manage their internal and external environment by following a scheduled timetable for study and review, clarifying intentions to achieve, determining the level of effort needed, and knowing whom to ask for help.

7. REFERENCES
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