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The learning activities of green university for environmental education undergraduate students

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Abstract

The purpose of this research was to study and compare knowledge and awareness before and after the learning activities of green university. The sample were 40 undergraduate students in environmental education program, Faculty of environment and resource studies, Maharakham University, acquired by quota for participation. The instruments were manual, knowledge test and awareness measures. The statistics used to analysis were to percentage, mean, standard deviation and hypothesis testing t-test. The results revealed that before the learning activities, the sample had mean score of knowledge about green university high level, after the learning activities the sample had mean score of knowledge the most level. And learning activities, the sample had mean score of awareness the medium level, after the learning activities the sample had mean score of awareness the most level. When comparing the results of the learning activities, the sample had an average score of knowledge and awareness after the learning activities more than before learning activities.

Keywords: Activities; learning; knowledge; awareness; Green University.

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1. Introduction

University is an institution whose activities main action is education, implementation of instruction, support education operations, facilities, and the use of audiovisual media services. Under such an operation would have to use resources such as energy, paper use chemical materials. Electrification the use of water resources as well as waste management, etc. (Tikul, 2014).

The current study was to focus on environmental issues has increased the university's green campus worldwide. The conference, organized by the University of Indonesia (UI Green Metric Ranking of World Universities) or UI. The mechanism is intended to promote the institution of the global policy and environmental management system within the university. To achieve a sustainable and conducive to reducing the impact that contributes to global warming taking into account the principle of conservation of energy good environmental management and the green areas on campus and to foster the use of renewable energy, the criteria take into account the policy. The system management activities to foster awareness and bringing it into practice within the university. By scoring six areas: 1) setting and infrastructure 2) energy and climate change 3) waste management 4) water management 5) transportation management and 6) education (University of Indonesia, 2012; Rodtusana, 2015).

Campus Green University policies have targeted the operations of the university clearly. To strive for the campus green (Green University), from the year 2009 onwards, the management system for environmental management, the better. Which is an important factor in planning, environmental conservation within the university (Pathomvanickul, 2013). Such action is important that the university has to take into account and to focus on environmental issues and has developed into a green campus and applied to environmental issues as well as to add to the positive image institution.

The importance of such studies, the researchers were interested in the activities of green learning university undergraduate students, to study and compare the knowledge and awareness on the campus green for undergraduate students in environmental education program, faculty of environment and resource studies, Mahasarakham University. The bachelor of science department of environmental studies a course in higher education institutions that have produced an environment to respond to today's environmental problems and next development of a green campus. The environmental study will be able to transfer the knowledge of the environment, so that people have the knowledge, attitudes, values and attitudes towards the environment, awareness on environmental issues skills to solve environmental problems participation and evaluation of environmental problems to the environment and quality of life (Wongchantra, 2016).

Learning activities of green university was a way of learning that focuses on students with the knowledge and awareness of green university which was a green university has had to have the policy environment, including the setting and infrastructure, energy and climate change, waste management, water management, transportation management and education on the results and will be used in the learning activities of the environment.

2. Objectives

- To study and compare the knowledge about the university green, before and after the activity of learning.
- To study and compare the awareness of green university, before and after the activity of learning.

3. Research Methodology

3.1. Population and target population

The population consisted of 288 undergraduate students in environmental education program, Faculty of environment and resource studies, Mahasarakham University, the first semester of the academic year 2016. The sample is the undergraduate students in environmental education program, Faculty of environment and resource studies, Mahasarakham University, the first semester of the academic year 2016 number 40 people, the selected quota to join the learning activities.

3.2. Tool used in the research

1. Activity guide learning green university from the study of the consistency of the manual to learn and the suitability of the guide to learning from an expert, found that the value of greater than 0.50 IOC guide above. And the fitness value is greater than the 3.50 which is guide to learning is consistent and proper.

2. Test of knowledge about the university green was multiple-choice type choice of 30 options 4 item value discrimination item (R) since 0.33 - 0.60 the difficulty (P) levels available is the lowest and highest 0.73 0.367 and the reliability of whole issue, as with 0.84.

3. Measurement of awareness of green university was rating scale of 20 items 5 level value discrimination item (R) since 0.35 - 0.80 and reliability of the original as 0.87.

4. Research Steps

1. Explain the steps in the learning activities by using manual learning activities for green university for activities.

2. Test of learning activities (Pre - Test) using the knowledge test, and awareness test about the university green, measurement of learning activities were conducted.

3. The learning activities use the guide learning activities green university was a tool used in the transfer of knowledge, including the time of 12 hours, school until the time appointed in the plan.

4. The learning activities (Post - test) using the knowledge test, and awareness test about the university green.

5. Data Analysis

Comparative study of knowledge and awareness of green university of students using learning guide learning activities green university between before and after learning activities, The data were analyzed by percentage, mean, standard deviation, and t-test

6. Research Result

1. Knowledge of green university of undergraduate students before and after learning activities, found that before learning activities, they had scores in high level. (Table 1) The comparison of the knowledge of green university before and after learning, it was found that undergraduate students had the knowledge after than before the learning activities the significant 05. (Table 2)

2. Awareness of green university of undergraduate students before and after learning activities, found that before learning activities, they had scores in high level. (Table 3) The comparison of the awareness of green before and after learning, it was found that undergraduate students had the awareness after than before the learning activities the significant 05. (Table 4)

Table 1. Score of knowledge about green university of undergraduate students before and after learning. (n = 40)

Activity	Knowledge about the Green University	Pre-Test		Post-Test	
		\bar{X}	S.D.	\bar{X}	S.D
1	Setting and Infrastructure	3.40	0.98	4.77	0.42
2	Energy and Climate Change	3.30	0.82	4.55	0.59
3	Waste Management	3.22	0.73	4.45	0.59
4	Water Management	2.92	0.82	4.37	0.66
5	Transportation Management	3.17	0.71	4.42	0.59
6	Education	3.12	0.85	4.40	0.49
	Sum	19.15	2.22	26.97	1.36

Table 2. Comparison of knowledge about the green university of undergraduate students before and after learning

Knowledge	Pre-Test			Post-Test			t	df	p
	\bar{X}	S.D.	Level	\bar{X}	S.D.	Level			
Knowledge (30 score)	19.15 (63.33%)	2.22	High	26.97 (89.90%)	1.36	Highest	-22.318	39	.000*

* Statistically significant level. 05.

Table 3. Average awareness of green university of undergraduate students before and after learning. (n = 40)

Activity	Awareness of Green University	Pre-Test		Post-Test	
		\bar{X}	S.D.	\bar{X}	S.D
1	Setting and Infrastructure	3.55	0.57	4.60	0.34
2	Energy and Climate Change	3.50	0.56	4.57	0.36
3	Waste Management	3.36	0.68	4.55	0.35
4	Water Management	3.44	0.60	4.25	0.63
5	Transportation Management	3.43	0.66	4.50	0.42
6	Education	3.49	0.46	4.55	0.40
	Sum	3.46	0.34	4.50	0.19

Table 4. Comparison of awareness of green university of undergraduate students, before and after learning

Awareness	Pre-Test			Post-Test			t	df	p
	\bar{X}	S.D.	Level	\bar{X}	S.D.	Level			
Awareness (5 score)	3.46	0.34	Medium	4.50	0.19	Highest	-15.582	39	.000*

* Statistically significant level. 05.

7. Discussion

Comparing the knowledge about the green university of undergraduate students before and after the learning activity, it was found that after the activity of students had score of knowledge about the university green than before learning activities. This fact that was a form of learning activities in the nature of the training using, technique in the learning activities at the wide variety of lectures. There were a brainstorming to debate or conclusion and the environmental education method to the source of knowledge from the knowledge to the target population through media, tools, equipment, process and thread a particular way (Wongchantra, 2010).

In activity, There were also media used in the learning activities, including activity guide to learn green university being verified by content experts in educational technology, the measurement and evaluation of a procedure. Which in the manual that covered the environmental issues, such as the setting and infrastructure, energy and climate change, waste management, water management, transportation management and education, and from activities which activities that undergraduate students had the most knowledge as possible, both before and after the activities; setting and infrastructure, energy and climate change, waste management, water management, transportation management and education. As the university had improved the landscape; the space allocation into green space, a project to increase the green area many projects, undergraduate students understood the policy in the energy saving of the university. And the students understood in waste management, operations about the traffic university, integrated solid waste management on the part of the management of university course and curriculum were related to the environment. The courses and courses related to the environment several courses in accordance with the research Rodtusana (2015) studied that the results indicated that the success of factor analysis step towards green university, it should set the policy environment with clear in geared towards green university and covering environmental issues including setting and infrastructure, energy and climate change, waste management, water management, transportation management and education. And to create knowledge, awareness, so the effect of activity of undergraduate students had knowledge about green university experimental activities, consistent with research Wongchantra (2016) studied that the study development of manual for green products, for students majoring in Environment Education, Mahasarakham University. The results indicated that the average score of students knowledge about green products after the training was higher than before the training, significantly, .05. And in accordance with the research Toomhome and Wongchantra, (2016) studied that the study of natural resources and environment of training manual: the Republic of Indonesia, the study found that the undergraduate program in environmental studies. Knowledge after training than activities training. And in accordance with the research Boonserm, Wongchantra and Sali (2015) studied that the results showed that the participants had significantly better knowledge activities after the activities more than before participating at significant .05 which effects of learning activities can make green university undergraduate students with knowledge increase. Because the researcher was the famine, learn a respectively step and also guide activities to learn green university to enhance the knowledge to the student participants.

Comparing the awareness of green university of undergraduate students before and after learning, it was found that after learning the students' awareness of green university was than before learning at significant .05 according to the hypothesis. This was fact that the students had learn through the activity is a step. The researcher used techniques in learning management in the wide variety of lectures. There were recreational techniques and create an atmosphere to have fun while learning activities in a way that maked students born enjoyment, fun to participate in learning activities by compilation and the priorities of and the content respectively awareness from step less towards awareness in step higher, and also a learning activity guide university green was media used for activities. The manual was content consists of activities that 1) setting and infrastructure 2) energy

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and climate change 3) waste management 4) water management 5) transportation management and 6) education. Each activity was analyzed by the end of activities for undergraduate students to do a test, the researcher studied based on guidelines from study on university ranking green which proceeding by University of Indonesia. UI Green metric World University Ranking (2012), which is used for 6 evaluation criteria, 1) setting and infrastructure 2) energy and climate change 3) waste management 4) water management 5) transportation management and 6) education, Atthanaka Arreerard and Arreerard (2015) studied that the study of personnel information technology university challenge round development to be Rajabhat University green university. The questionnaire was developed data sampling; the questionnaire 1) setting and infrastructure 2) energy and climate change 3) waste management 4) water management 5) transportation management and 6) education. The students had knowledge and this resulted in increased awareness. In accordance with the concept of Breckler (1986) awareness caused by attitude toward stimuli, including individuals, social groups, and the situation as well as the trend, is what caused the learning and experience. The factors causing awareness, knowledge, emotion includes feeling, behavior, when the latter activity undergraduate students have awareness of green university experimental activities, consistent with research Raksasri (2015) studies that the research found that students aware of most the environmental waste. The overall level students sample had an average score of awareness of environmental waste was higher than the average pre-trial activities. The level of statistical significance. 05. And in accordance with the research Thongkam (2006) studied that the study found that awareness after learning from educational population had increased awareness of health have a significantly .05 following the hypothesis set. And in accordance with the research of the merit and tight and faculty, the result showed that when compared to the mean score before and after school, biology and biology environment. Undergraduate students aware of after learning than before studying at significance level .05 from learning activities, found that the students' awareness because of the increased the learning process was the process that students were willing to recognize, and also a learning activity guide green university to enhance understanding for students to participate in activities to the awareness of students increased.

8. Suggestions

8.1. Recommendations in the findings

Research indicates that the learning activities of green can make undergraduate students with the knowledge and increased awareness. It can be applied to teaching courses in environmental studies. The undergraduate students who attended the event to learn the campus green, the knowledge and awareness was increasing. You should take a guide or learning management applications to manage the campus green.

8.2. The suggestion to do further research

Should research on green university for teaching in the form of lesson through online media in the form of mass communication such as radio, television, posters, etc. Should study comparing other variables of the students who were learning, such as attitude, participation in the green university.

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