

# The Environmental Conservation Behavior of the Applied Health Science Students of Green and Clean University

Nareelux Suwannobol, Plernpit Promrak, and Kiattisak Batsungnoen

**Abstract**—The aim of this study was to investigate the environmental conservation behavior of the Applied Health Science students of Suranaree University of Technology, a green and clean university. The sample group was 184 Applied Health Science students (medical, nursing, and public health). A questionnaire was used to collect information.

The result of the study found that the students had more negative than positive behaviors towards energy, water, and forest conservation. This result can be used as basic information for designing long-term behavior modification activities or research projects on environmental conservation. Thus Applied Health Science students will be encouraged to be conscious and also be a good example of environmental conservation behavior.

**Keyword**—Energy conservation behavior, Water conservation behavior, Forest conservation behavior, Green and clean University.

## I. INTRODUCTION

AT present, Thailand's environmental situation is dangerous because its natural resource has dramatically decreased. For instance, in 1997 forest areas accounted for approximately 53.3%, or 171 million raise, (1 Acre = 2.5 raise) while there is less than 25% of the area left now. 562 kinds of animals have been threatened and nearly extinct. The rate of water consumption per person per year at 3,877 cu.mm<sup>3</sup> tends to continually decrease. More than half of 321 million raise of soil resource are unsuitable for agriculture while the rate of soil erosion is as high as 108 raise per year. For water pollution problems, 37 percent of water has lower quality than the standard specified. Heavy traffic jams in city areas are causing serious air pollution problems. There is 37,879 tons of trash every day from the whole country. Moreover, there is a problem concerning toxic waste from industry. Public and private companies, therefore, cooperate in solving environmental problems because everyone is the key to protect and sustain our country's environment.

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Environmental Conservation means using the environment reasonably to help human beings maintain good quality of life. There are 6 concepts of effective environmental conservation:

1) Have knowledge about the advantages and disadvantages of environmental conservation and always think about waste in resource usage

2) Sustain all essential and rare resources carefully and always be aware that excessive resource usage will threaten the environment

3) Maintain the amount of renewable natural resources at least as the amount of those being used

4) Be able to evaluate rate of population change by giving priority to the factor in natural resource needs

5) Improve new ways to produce and use resources effectively and try to find replacements for natural resources which are enough for the population's need

6) Educate people to make them understand the importance of the balance of Nature which will help keep the environment in good condition. The knowledge provided will be properly adjusted according to ages, competence, and places in both formal and non-formal education to make people understand the principles of environmental conservation, which is a way for humans to be able to live in a good environment in the future.

Suranaree University of Technology has given importance to environmental conservation. In the academic year 2011, the university declared itself a green and clean university with the aim of improving the environment and livelihood in this university town systematically and sustainably. The purpose was to help everybody live in a green and clean environment without pollution, all vices, and drugs. Environmental conservation behavior must be instilled into the students, who are in the majority in the university. In any case, the Office of the Higher Education Commission has specified 2 indicators of creating environmental conservation consciousness: student services and student activity promotion that are both perfect and accord with all required qualifications a graduate, especially students of the Department of Applied Health Science (medical, nursing, and public health), must acquire. These graduates will be appropriate behavioral role models for the society and impart knowledge to other people in the future.

To prepare the Applied Health Science students to be conscious and also a good example of environmental conservation behavior when they graduate, I studied their environmental conservation behavior to use the results of the

study to design inventions for them so that they would develop good environmental conservation behavior and also pass it to other groups of students while they are studying or when they graduate to serve the society.

## II. OBJECTIVES

1. To study the environmental conservation behavior of the Applied Health Science freshmen.
2. To use the results of the study acquired as basic information for designing activities which provide knowledge and continuously help create consciousness in environmental conservation for the Applied Health Science freshmen and other groups of students.

## III. STUDY DESIGN

The method of research chosen for this study was survey research. The aim was to find the environmental conservation behavior of the Applied Health Science freshmen for the academic year 2011. This environmental conservation is divided into 3 issues: energy conservation, water conservation, and forest conservation.

### A. Population

The study population was the Applied Health Science students from Medical and Nursing institutes of Suranaree University of Technology. This group comprised of 165 females (equivalent to 99.67%) and 19 males (equivalent to 10.32%).

### B. Study Instrument

The instrument used in this study was a questionnaire which helped study the environmental conservation behavior of the Applied Health Science students -- medical, nursing, and public health. The questionnaire was divided into 2 parts:

Part 1 The basic information of the respondents – 4 checklists.

Part 2 A questionnaire about environmental conservation – 20 questions.

For the questionnaire construction procedure, I started by studying documents and researches on environmental conservation behavior as a guideline to frame the outline and content of the questionnaire. After that, the completed questionnaire was presented to three environmental conservation experts to verify the content validity. After editing according to their suggestions, the reliability of the research instrument was established by calculating a Cronbach's alpha coefficient. The reliability acquired was 0.78. Then, the questionnaire was used to collect information from the Applied Health Science freshmen. The students would rate how often they practice things in each question. The meaning of each rate is as follow:

- 0 = Never or practice 0 - 20% from the situation specified
- 1 = rarely or practice once a week or 21 - 40%
- 2 = sometimes or practice two times a week or 41 - 60%
- 3 = often or practice three times a week or 61 - 80%

4 = always or practice four times a week or 81 - 100%

After that, the scores acquired were averaged according to the following five levels:

- Point average 0.01– 1.00 level of practice rarely
- Point average 1.00 – 2.00 level of practice sometimes
- Point average 2.01 – 3.00 level of practice often
- Point average 3.01 – 4.00 level of practice always

### 3.3 Data analysis

Descriptive statistics were used to analyze general information and health information of the population based on frequency distributions, percentage, mean and standard deviation (SD).

## IV. RESULTS

### A. The Basic Information of the Population Group

There were 19 male respondents (10.32%) and 165 female respondents (89.67%), as shown in Table I.

TABLE I  
POPULATION

Population	Medical		Nurse		Public health	
	n	%	n	%	n	%
Female	52	87	45	98	68	87
Male	8	13	1	2	10	13
	60	100	46	100	78	100

### B. The Energy Conservation Behavior of the Applied Health Science Freshmen

The energy conservation behaviors they practiced often were turning off electric appliances by using a remote control; turning air conditioners on every time they are in a classroom even though the weather outside is warm; and leaving laptops, fans, and electric kettles plugged in all the time for convenience ( $\bar{\chi} = 2.58$ ,  $SD = 1.19$ ;  $\bar{\chi} = 2.58$ ,  $SD = 1.19$ ;  $\bar{\chi} = 2.58$ ,  $SD = 1.19$  respectively). The behaviors they practiced sometimes were not turning off lights in a classroom because they think it was a security guard's duty; use a refrigerator many times a day; and turning fans on all the time when they are in their house or dormitory even though the weather is warm ( $\bar{\chi} = 1.71$ ,  $SD = 1.31$ ;  $\bar{\chi} = 1.36$ ,  $SD = 1.15$ ;  $\bar{\chi} = 1.97$ ,  $SD = 1.21$  respectively). And the behaviors they rarely practiced were ironing clothes while they are still wet and saving energy by ironing many clothes at the same time ( $\bar{\chi} = 0.72$ ,  $SD = 0.89$  and  $\bar{\chi} = 0.80$ ,  $SD = 1.11$ ). These data are summarized in Table II.

TABLE II  
MEAN AND STANDARD DEVIATION OF THE ENERGY CONSERVATION BEHAVIOR OF THE APPLIED HEALTH SCIENCE FRESHMEN

The Energy Conservation Behavior	Practice frequency					$\bar{\chi}$	SD	Behavior level
	0	1	2	3	4			
not turning off lights in a classroom because they think it was a security guard's duty	22.83	21.20	33.15	8.15	14.67	1.71	1.31	practice sometimes
ironing clothes	53.26	25.54	17.93	2.72	0.54	0.72	0.89	practice

while they are still wet use a refrigerator many times a day	29.35	25.54	29.35	11.41	4.35	1.36	1.15	rarely practice sometimes
turning off electric appliances by using a remote control saving energy by ironing many clothes at the same time	6.53	10.87	25.54	28.80	28.26	2.58	1.19	practice often
turning fans on all the time when they are in their house or dormitory even though the weather is warm	54.52	23.26	15.37	6.09	0.76	0.80	1.11	practice rarely
turning air conditioners on every time they are in a classroom even though the weather outside is warm leaving laptops, fans, and electric kettles plugged in all the time for convenience	11.41	25.55	31.52	17.39	14.13	1.97	1.21	practice sometimes
	18.48	16.85	30.98	13.04	20.65	2.01	1.37	practice often
	8.15	15.76	22.29	25.00	28.80	2.47	1.25	practice often

### C. The Water Conservation Behavior of the Applied Health Science Freshmen

The behaviors they always practiced were segregating and disposing of garbage properly before doing dishes, letting water run while washing their face or brushing their teeth, and throwing garbage into a river ( $\bar{\chi} = 3.15$ ,  $SD = 1.10$ ;  $\bar{\chi} = 3.10$ ,  $SD = 1.23$  and  $\bar{\chi} = 3.19$ ,  $SD = 1.05$  respectively). The behaviors they often practiced were using plenty of water when showering, informing the person in charge when seeing a water leak and turning off a water running faucet when someone else left it turned on ( $\bar{\chi} = 2.43$ ,  $SD = 1.00$ ;  $\bar{\chi} = 2.33$ ,  $SD = 1.21$  and  $\bar{\chi} = 2.30$ ,  $SD = 1.14$  respectively). The behaviors they practiced sometimes were washing clothes every day despite only a few pieces of clothing and warning friends when seeing them throwing garbage into a river ( $\bar{\chi} = 1.01$ ,  $SD = 1.87$  and  $\bar{\chi} = 1.55$ ,  $SD = 1.10$ ). And the behaviors they rarely practiced were pouring water into a glass to drink just enough for their need ( $\bar{\chi} = 0.60$ ,  $SD = 0.95$ ). These data are summarized in Table III.

TABLE III  
 MEAN AND STANDARD DEVIATION OF THE WATER CONSERVATION BEHAVIOR OF THE APPLIED HEALTH SCIENCE FRESHMEN

The Water Conservation Behavior	Practice frequency					$\bar{\chi}$	SD	Behavior level
	0	1	2	3	4			
using plenty of water when showering	1.09	15.22	42.39	22.28	19.02	2.43	1.00	practice often
informing the person in charge when seeing a water leak	7.61	16.85	32.61	20.65	22.28	2.33	1.21	practice often
pouring water into a glass to drink just enough for their need	63.58	21.20	7.07	7.61	0.54	0.60	0.95	practice rarely
segregating and disposing of garbage properly before doing dishes	1.64	8.74	18.03	15.85	55.74	3.15	1.10	practice always
washing clothes every day despite only a few pieces of clothing	51.09	23.37	15.76	4.89	4.89	1.01	1.87	Practice sometimes
letting water run while washing their face or brushing their teeth	1.61	11.96	19.35	12.83	54.25	3.10	1.23	practice always
warning friends when seeing them throwing garbage into a river	17.39	33.70	30.97	11.96	5.98	1.55	1.10	Practice sometimes
turning off a water running faucet when someone else left it turned on	5.98	17.93	33.70	24.46	17.93	2.30	1.14	practice often
throwing garbage into a river	1.09	9.84	11.48	24.59	53.01	3.19	1.05	practice always

### D. The Forest Conservation Behavior of the Applied Health Science Freshmen

The information on the forest conservation behavior of the students in their cooperation in protecting the trees around the university indicated that 74.46% never took part in protecting the trees while 12.50% rarely did it and only 2.71% always took part in the activity. The average point of this behavior was 0.47% ( $SD = 0.96$ ). As a result, the level of the forest conservation practice was at 'rarely', as shown in Figure I.

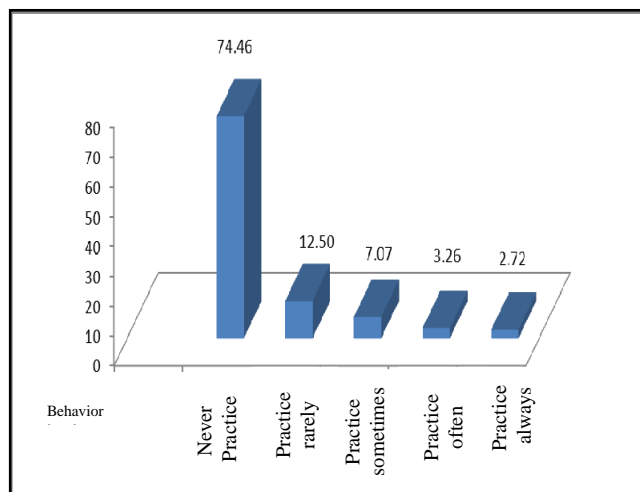


Fig. 1 The result of the forest conservation behavior of the applied health science freshman

## V. CONCLUSION AND DISCUSSION

This research studied the environmental conservation behavior of 184 first-year students for the Academic Year 2011 from the Institutes of Applied Health Sciences, Suranaree University of Technology, a clean and Clean University. By using a questionnaire to collect information, it was found that from all the eight energy conservation behaviors the students only practiced 3 positive ones: 1) not ironing while the clothes are still wet; 2) not opening a refrigerator too often; and 3) not turning a fan on all the time when staying in a house or a dormitory in warm weather. Meanwhile, there was five negative behaviors they practiced: 1) not turning off lights in a classroom because they think it was a security guard's duty; 2) turning off electric appliances by using a remote control instead of turning them off from their switches; 3) ironing only a few items of clothing every time; 4) turning air conditioners on every time they are in a classroom even though the weather is warm; and 5) leaving electric appliances plugged in all the time for convenience. From nine water conservation behaviors, there were four positive ones: 1) informing the person in charge when seeing a water leak; 2) turning off a water running faucet when someone else left it turned on; 3) segregating and disposing of garbage properly before doing dishes; and 4) not washing clothes if there were only a few pieces of clothing. There were five negative behaviors: 1) using plenty of water when showering; 2) pouring water into a glass to drink more than their need; 3) letting water run while washing their face or brushing their teeth; 4) not warning friends or acquaintances when seeing them throwing garbage into a river; and 5) throwing garbage into a river.

For the forest conservation behavior, it was negative since most of the students never took part in protecting the trees in the university.

The results of the study can be used as basic information for designing long-term behavior modification activities or research projects on environmental conservation. However, students must be encouraged to practice positive behaviors

until it becomes their habit. While there must be a variety of means to persuade them into stopping negative behaviors and changing their attitude towards environmental conservation.

## ACKNOWLEDGMENT

The work described in this paper was supported by Thai Public Health Network, Thailand under contract No.52-PH 11003. Any conclusions stated here are those of the authors and do not necessarily reflect official positions of HPF.

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