

7th World Conference on Educational Sciences, (WCES-2015), 05-07 February 2015, Novotel Athens Convention Center, Athens, Greece

## Association of Interest in Receiving Information, Society's Support and Energy Saving Responsibility with Energy- saving behavior of the Nursing Students at The Royal Thai Navy College of Nursing

Vacharaporn Choeisuwan<sup>a\*</sup>

*<sup>a</sup>Royal Thai Navy College of Nursing, Bangkok 10600, Thailand*

---

### Abstract

The study was a descriptive research which aimed at studying the association of interest in receiving information, society's support and energy saving responsibility with energy-saving behavior of 177 nursing students in academic year 2012 at the Royal Thai Navy College of Nursing. The research tool was a questionnaire which was tested in terms of content validity by 3 experts. The reliability was measured by means of Cronbach's Alpha Coefficient method. The data were analysed using descriptive statistics and Pearson's Product Moment Correlation Coefficient. The results reflected as following: 1. The energy-saving behaviors of the nursing students in the dimensions of energy-saving knowledge, attitude and action were at high level; 2. The students' interest to receive information was at moderate while the society's support and responsibility in terms of energy-saving were at high level; 3. The association of interest in receiving information, society's support and energy saving responsibility with attitude and energy-saving behavior was positively at the moderate level with the statistical significance at .05 level.

© 2015 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of Academic World Education and Research Center.

*Keywords:* Energy-saving Behavior; nursing student

---

### 1. Introduction

The mutual cooperation to save the precious energy is of paramount importance and needs to be taken seriously. It can be started with minimizing prodigality and wastefulness and maximizing the efficient use of resources. The

---

\* Vacharaporn Choeisuwan. Tel.: +6689-527-4131

*E-mail address:* [kungvach@yahoo.com](mailto:kungvach@yahoo.com)

crucial element to achieve the goal is to promote energy-saving behaviors which are based on accurate background knowledge in order to enhance personal accountability for saving conservation and efficient energy use. (Chutapha, 2009) According to Bloom (1975), a behavior is an activity human beings perform to react to any stimuli, or a selected response human beings have considered appropriate for a particular situation. Behaviors are both observable or unobservable outcomes of human's reaction to surrounding circumstances. The behaviors can be classified into 3 aspects which are 1) Cognitive Domain, 2) Affective Domain and 3) Psychomotor Domain. It is, therefore, inevitably that the energy-saving behaviors also consist of these three elements. Hence, to form the so-called energy-saving behaviors, it needs not only a quest for alternative energy sources or cutting-edge energy-saving innovation but also all contributing factors forming such a behavior which will consequently stimulate the learning process relating to energy-saving approach. As shown in study of Muangkaew (2011), it stated that the elements contributing to energy-saving include knowledge of energy-saving, attitude toward energy-saving, interests in receiving information, society's support to promote energy-saving, energy-saving behaviors and responsibilities.

To respond to the Royal Thai Navy's policy in saving the precious energy, The Royal Thai Navy College of Nursing has established measures that encourage the personnel and nursing students to minimize the use of energy by readjusting their own behaviors to productively and efficiently utilize it. This is to reduce the unnecessary loss that might occur in the unit and will conserve the country's energy as a whole. Therefore, the study was emerged to study the energy-saving behaviors and to investigate the association between the interest in receiving information, society's support, energy-saving responsibility and receiving information with energy-saving behaviors which will work as a guideline for developing the three domains included cognitive, affective and psychomotor relating to energy-saving goal to ensure the maximum efficient use of energy.

## **2. Research Objectives**

1. To study the energy-saving behavior of the nursing student at the Royal Thai Navy College of Nursing, Naval Medical Department.
2. To investigate the association between the interest in receiving information, society's support and energy-saving responsibility with energy-saving behaviors.

## **3. Research Method**

### *3.1 Sample*

Samples were 177 nursing students at the Royal Thai Navy College of Nursing in academic year 2012. Sample size was identified using Yamane's formula (1973) with the statistical significance at 0.05. The calculation was performed separately in each class as follows: 34 students from the first year class, 45 from the second year, 49 from the third year and 49 from the fourth year. Then, the simple random sampling was conducted to randomly select the sample.

### *3.2 Research Tools*

The research tools used in this study were the five-point rating scale questionnaires modified from Muangkaew's questionnaire (2011) and a closed-ended questionnaire on knowledge relating to energy-saving. The closed-ended questionnaire consisted of three options: yes, no, don't know, which 1 point was awarded for any correct answer and 0 point for the incorrect and "don't know" responses. The tool's content validity was tested using Cronbach's alpha coefficient and it was found that the reliability of the tool was at .64 - .87.

### *3.3 Data Analysis*

The collected data were analyzed using descriptive statistics and the correlation was investigated through the application of Pearson's product-moment correlation coefficient.

4. Conceptual Framework

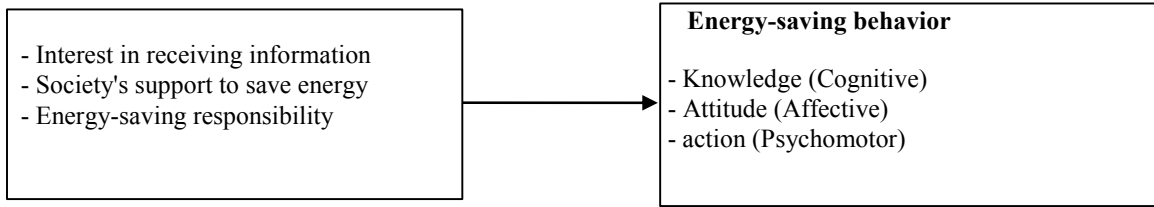


Fig. 1 Conceptual Framework

5. Results

5.1 Results of data analysis on interest in receiving information, society's support and energy-saving responsibility

The interest to receive information of nursing students was at moderate level ( $\bar{X} = 3.44$ ,  $SD = 0.81$ ) while society's support and energy-saving responsibility were at high level ( $\bar{X} = 4.05$ ,  $SD = 0.78$  and  $\bar{X} = 4.10$ ,  $SD = 0.72$  respectively). As shown in table 1.

Table 1 Mean and Standard Deviation of interest in receiving information, society's support and energy-saving responsibility

| Factors affecting energy conservation | $\bar{X}$ | SD   | Interpretation |
|---------------------------------------|-----------|------|----------------|
| interest in receiving information     | 3.44      | 0.81 | moderate       |
| society's support                     | 4.05      | 0.78 | high           |
| energy-saving responsibility          | 4.10      | 0.72 | high           |

5.2 Results of data analysis on energy-saving behavior in the aspect of knowledge, attitude, and action

5.2.1 The nursing students's knowledge on energy conservation

Most of the nursing students which accounted for 80.79 percent had knowledge on energy conservation at high level. Most students from First Year, Second Year, Third Year and Fourth Year which were equal to 82.40, 93.30, 69.40 and 79.60 respectively had possessed the knowledge in high level. As shown in table 2.

Table 2 Number and percentage of knowledge on energy conservation of the nursing students in each class at the Royal Thai Navy College of Nursing

| Knowledge level            | First Year |        | Second Year |        | Third Year |        | Fourth Year |        | Total |        |
|----------------------------|------------|--------|-------------|--------|------------|--------|-------------|--------|-------|--------|
|                            | N          | %      | N           | %      | N          | %      | N           | %      | N     | %      |
| High (more than 16 points) | 28         | 82.40  | 42          | 93.30  | 34         | 69.40  | 39          | 79.60  | 143   | 80.79  |
| Moderate (11-16 points)    | 6          | 17.60  | 3           | 6.70   | 14         | 28.60  | 10          | 20.40  | 33    | 18.64  |
| Low (less than 11 points)  | 0          | 0.00   | 0           | 0.00   | 1          | 2.00   | 0           | 0.00   | 1     | 0.56   |
| Total                      | 34         | 100.00 | 45          | 100.00 | 49         | 100.00 | 49          | 100.00 | 177   | 100.00 |

5.2.2 The nursing students' attitude and action towards energy conservation

The overall attitude of the nursing students towards energy saving issue was at high level ( $\bar{X} = 4.49$ ,  $SD = 0.36$ ). Considering each class, it was found that the class which had the highest mean was the first year class ( $\bar{X} = 4.59$ ,  $SD = 0.52$ ) while the class that had lowest mean score was the third year class ( $\bar{X} = 4.36$ ,  $SD = 0.73$ )

In terms of the action towards energy conservation, the score was generally at high level ( $\bar{X} = 4.23$ ,  $SD = 0.85$ ). Focusing on each class, it was found that the class which had the highest mean score was the first year class ( $\bar{X} = 4.33$ ,  $SD = 0.77$ ) while the class that had the lowest mean score was the fourth year students ( $\bar{X} = 4.18$ ,  $SD = 0.94$ ). As shown in table 3.

Table 3 Mean and Standard Deviation of each class's attitude and action towards energy conservation

| Class (Year) | Attitude towards energy conservation |      |                | Action towards energy conservation |      |                |
|--------------|--------------------------------------|------|----------------|------------------------------------|------|----------------|
|              | $\bar{X}$                            | SD   | Interpretation | $\bar{X}$                          | SD   | Interpretation |
| 1            | 4.59                                 | 0.52 | Highest        | 4.33                               | 0.77 | High           |
| 2            | 4.58                                 | 0.47 | Highest        | 4.21                               | 0.83 | High           |
| 3            | 4.36                                 | 0.73 | High           | 4.22                               | 0.77 | High           |
| 4            | 4.45                                 | 0.78 | High           | 4.18                               | 0.94 | High           |
| Total        | 4.49                                 | 0.36 | High           | 4.23                               | 0.85 | High           |

### 5.3 Analysis on association of interest in receiving information, society's support in energy conservation and energy-saving responsibility with the energy-saving behavior

There was a moderate positive correlation between interest in receiving information and attitude towards energy conservation and between the interest and action towards energy conservation with statistical significance at .05 ( $r = .32$  and  $.38$  respectively). In terms of society's support in energy conservation, it was also found that there was a moderate positive correlation between the support factor and attitude towards energy conservation and between the support and action towards energy conservation with statistical significance at .05 ( $r = .38$  and  $.32$  respectively). Focusing on energy-saving responsibility, there was also a moderate positive correlation between the responsibility factor and attitude towards energy conservation and between the responsibility and action towards energy conservation with statistical significance at .05 ( $r = .38$  and  $.32$  respectively). As shown in table 4.

Table 4 Correlation Coefficient between interest in receiving information, society's support in energy conservation and energy-saving responsibility and the energy-saving behavior

| Factor                                   | Correlation Coefficient Value (r) |          |        |
|--|-----------------------------------|----------|--------|
|  | Knowledge                         | Attitude | Action |
| Interest in receiving information        | -.06                              | .32*     | .38*   |
| Society's support in energy conservation | .04                               | .38*     | .32*   |
| Energy-saving responsibility             | .12                               | .50*     | .44*   |

\*P < 0.05

## 6. Discussion

From the results of the study on the energy-saving behaviors of the nursing students at the Royal Thai Navy College of Nursing and the data analysis, there were various important points to be discussed as following.

### Association of interest in receiving information, society's support in energy conservation and energy-saving responsibility with the energy-saving knowledge

The results showed that interest in receiving information, society's support in energy conservation and energy-

saving responsibility correlated with knowledge on energy conservation with no statistical significance at .05. The results were not corresponded with the study's hypothesis and the results from the study conducted by Pattiyanon (1999) which investigated the knowledge, attitude, and practices of the personnel at Mahidol University. The previous study showed that knowledge correlated with education level, career position and information perception. Bloom (1975) defined knowledge as behavior that related to awareness, memorization, exposures to facts and principles, intellectual ability and skills, and consideration ability gained from a study or an investigation for decision making. Knowledge was perceived as intellectual ability which was classified into 6 groups from easy to difficult. This has explained why interest in receiving information, society's support in energy conservation and energy-saving responsibility correlated with knowledge on energy conservation with no statistical significance at .05.

#### **Association of interest in receiving information, society's support in energy conservation and energy-saving responsibility with the attitude towards energy conservation**

The results reflected that interest in receiving information, society's support in energy conservation and energy-saving responsibility moderately and positively correlated with attitude and action towards energy conservation with statistical significance at .05 which corresponded with the set hypothesis. The results also corresponded with those gained from the studies conducted by Choteprukchukul (2000) and Srinang (1999). From the previous studies, the results showed that the factors affecting the energy-saving behavior included age, gender, education level, main career of family member, average monthly income, number of family members in a household, experiences relating to energy shortage, perceiving of information relating to energy conservation and attitude towards energy conservation. According to Bloom (1975), attitude was interest, feeling, stance, preferences, values, and adopting, changing or improving the held values. It was a behavior that was difficult to explain as it was something occurring inside human's mind. In terms of society's support, individual would receive love, care, recognition, admiration to implant the feeling of integration as part of the society and willing to volunteer to help the society in various aspects. Responsibility was an individual's characteristic to care, focus and have strong determination to perform well at full capacity in career, study or society arena. Action relating to energy conservation involved the implementation of physical performances which included those being expressed and observable in a situation or those being delayed but assumed to be conducted. This aspect of behavior was the last stage of behavior which was the aim of education; it needed to be composed of behavior related to cognitive domain or knowledge, thinking and attitude. The behavior was easy to evaluate but it needed time and complex decision making to form the preferable behavior; therefore, the interest in receiving information, society's support, and responsibility in energy conservation correlated with attitude and practices towards energy conservation with statistical significance at .05.

## **7. Suggestions**

1. From the study, it showed that the attitude of the nursing students in relation to energy conservation was at high level but the college should maximize the chances for information perception on energy conservation such as organizing exhibitions, publicizing, providing trainings on energy conservation, and holding activities to enhance the right attitude towards energy saving together with the continuous evaluation of those stated activities in the aspect of effect on energy conservation.

2. The Royal Thai Navy College of Nursing should state the clear policy on energy conservation. There should be a constant encouragement and request to the nursing students to save energy which would lead to the habit development of energy conservation.

## **References**

- Bloom, B.S. (1975). *Taxonomy of Education*. New York: David McKay Company Inc.,
- Choteprukchukul, P. (2000). *A Study on Factors Affecting Knowledge, Attitude and Practice of Housewives in Muang Lumpang District*, Chutapha, S. (2009). *Guidelines for Electrical Energy Saving at Institute of Advanced Naval Studies*. Institute of Advanced Naval Studies. Royal Thai Navy.
- Lumpang Province about *Economical Water Consuming in Household*. (Online). <http://department.utcc.ac.th/library/image/stories/Thesis/216048>. (retrieved on 20 June 2012).
- Muangkaew, T. (2011). *Analysis on Elements of Evaluation Form of Electrical Energy Saving*. *Master of Science Thesis in Education Industry, Graduate School, Srinakharinwirot University*. (Online). <http://haamor.com/knowledge/>. (retrieved on 2 July 2012).
- Pattiyanon, C. (1999). *A Study Report on Knowledge, Attitude and Practices of Mahidol University's Personnel at Salaya Campus about*

*Electrical Energy Saving*. (Online). <http://www.thaithesis.org/detail.php?id=43476> (retrieved on 22 June 2012).

Sriniang, S. (1999). *Factors Affecting Electrical Energy Saving Behavior in Household of Government Officials Attached to the Office of the Permanent Secretary for Interior*. (Online). [http://mis.krirk.ac.th/library/Kr\\_resdetail.asp?BookID=001419](http://mis.krirk.ac.th/library/Kr_resdetail.asp?BookID=001419). (retrieved on 22 June 2012).