

INFLUENCE OF ENERGY SAVING BEHAVIOR OF ACADEMIC STAFF AT MANDALAY UNIVERSITY OF DISTANCE EDUCATION

Cho Cho Thin¹, Myint Myint Kyi²

Abstract

This study intends to analyze the effect of subjective norm, income, government policies and prices and attitude on energy saving behavior of academic staff at Mandalay University of Distance Education (MUDE). This study focused on 72 sample academic staff out of total 147 academic staff working at this university, by using simple random sampling method. Complete responses are received from 65 respondents. Questionnaire survey is conducted with structured questionnaires. From descriptive analysis (by analyzing the mean values), most of the academic staff at MUDE have positive attitude towards energy-saving. They believe that their energy-saving will be contributing to environmental sustainability, also to reducing global warming effect and air pollution, and in solving energy shortage problems. Academic staff at MUDE have positive perception on government energy policies although they are worrying about price increase. They perceived that the policies of pushing efficient usage on energy are practical. They also believe that the government energy policies can bring benefits to people. They noticed that the energy prices increase, and they are worries about the energy price increase. Most of the academic staff at MUDE are not influenced by the people around them. The family members, friends, and colleagues cannot influence large upon them regarding the energy-saving. They are participating in energy-saving not because of the behaviors and encouragement of people around them: they practice energy saving by their own sake. Most of the academic staff at MUDE worried much on living cost increase and expenses greater than income problem. Most of the academic staff at MUDE act good in electricity saving: they are participating in energy saving actively, and also encouraging others for electricity saving. They have the concern of others' evaluation on their behavior of electricity saving. From regression analysis, it is found that only the academic staff attitude towards electricity saving has positive significant effect on their electricity saving behavior at MUDE. The subjective norm, income, and academic staff perception on policies and prices have no effect on electricity saving behavior of academic staff at MUDE. Thus, universities should have the mechanism for knowledge sharing and training for enhancing knowledge in electricity saving techniques and materials, and consequences of electricity saving like environmental sustainability and weather changes.

Keywords: Academic Staff, Mandalay University of Distance Education, Perception on Subjective Norm, Income, Policies and Prices, Attitude, and Energy Saving Behavior

Introduction

The government policies regarding electricity, oil and gas, and the prices for electricity are playing at the crucial role in the context of shortage of energy sources all around the world, including Myanmar. Governments with intentions to electricity saving, have to reset the policies and prices during the time of depletion and climate change. To reduce the energy, particularly electricity, oil and gas usage; the role of public organizations including universities become prominent role. If the staff take care to eliminate the idle usage of electricity at offices, campuses, and classrooms, the significant amount of electricity spending can be reduced.

Electricity saving at universities can significantly contribute to the environmental protection and the resolution the depletion problem. Thus, universities' energy-saving plan and

¹ Department of Economics, Mandalay University of Distance Education

² Department of Economics, Mandalay University of Distance Education

practices reflect the national context and diverse institutional priorities. Electricity saving culture should be included in universities' environmental practices.

Rationale of the Study

Efficient use of energy at organizations has more important role than the role of households and individuals because it is relatively easier to set guidelines and disciplines for electricity saving at organizations, especially at government organizations. Although the energy usage at households and individuals cannot be directly controlled and managed by laws and rules, organizational usage can be directly controlled by rules and systems, especially at government organizations. Thus, energy using behavior of government staff must be changed with the focus on environmental sustainability.

At the government organizations, it is not obvious the electricity cost by section or department specifically, and also no need to charge on staff for their usage. Efforts to promote energy-saving behavior change form an important part of the policy agenda in many countries (Brounen et al., 2012; Geller et al., 2006). Similarly, due to the energy shortage problem worldwide, Myanmar government consider the energy buying and selling to involve in the important part of policy agenda.

While Myanmar government is encouraging to reduce electricity waste and unnecessary spending by rising charges and changing policies, some government staff may not be conscious in energy efficiency. Even the government staff motivated to change their energy-saving behavior, they may fail to change their habitual responses to similar situations in the light of altered intentions (Kastner & Matthies, 2014). However, the staff income, behavior and encouragement of people around them (family, friends, bosses and colleagues), their attitude towards electricity saving will also impact on their electricity saving behavior. Thus, government policies and price rates alone will not be enough to change government staff electricity saving behavior. For effective saving, at the first step, the electricity saving behavior of academic staff must be emphasized because their education and income level are normally higher than nonacademic staff, and their behavior will significantly influence on students' behavior.

Research Questions

The four research questions are explored considering the rationale of the study, and some preliminary observation on the research area:

- (1) How do the influence of subjective norm of academic staff effective for energy saving behavior at the Mandalay University of Distance Education?
- (2) How does the income of academic staff influence on their energy saving behavior in Mandalay University of Distance Education?
- (3) Are the changes in government policies and prices regarding electricity, oil and gas effective for reducing usage in Mandalay University of Distance Education?
- (4) How do the attitude of academic staff effect on their energy saving behavior in Mandalay University of Distance Education?

Objective of the Study

The following main objective is explored to give answers to the research questions described above:

- (1) To analyze the effect of subjective norm, income, government policies and prices and attitude on energy saving behavior of academic staff at Mandalay University of Distance Education (MUDE)

Scope and Method of the Study

This study focuses only on academic staff at Mandalay University of Distance Education. There are 147 academic staff working at MUDE. By using the Raosoft sample size calculator (with 5% margin of error, 95% confidence level, 90% response distribution) is used to identify the sample size: sample size is 72. Simple random sampling method is used without concern on department and position. Questionnaire survey is conducted by distributing the structured questionnaires to randomly selected 72 academic staff. The complete responses are received from 65 respondents. For data analysis, descriptive and regression methods are applied.

Literature Review

In this study, the literature review is divided into two parts: review on background theories and concepts and review on previous articles relating to main variables used in this study.

Theoretical background

Ajzen (1991) presented the theory of planned behavior, which is based on the logical concepts that people's rational thinking and gathered information will lead their behavior systematically. Human behavior is shaped by their attitude towards behavior and subjective norm (influence of surroundings) (Fishbein & Ajzen, 1975). Ajzen (1991) added one more influencing factor, which is perceived behavioral control. Income will be included in the behavioral control factors because human have the capacity to decide to behave or not to behave in many cases due to their monetary sufficiency.

Attitude is an individual's feelings (either positive or negative) with a behavior or situation (Ginting, 2018). Attitude is a forming part of behavior (Lubis, 2021). People will behave by concerning their values, knowledge, beliefs, and feelings. If they believe an action is suitable and good, they will do this action positively. Similarly, they will not participate or conduct negatively if they are sure that this action is malpractice and not relevant.

While some people consider their feeling alone, many people consider both their individual feeling and perception of people around them. They have concern whether other people will accept or reprimand the action. Ruby et al., (2019) stated that an individual will do a certain behavior if his or her behavior can be accepted by people who are important in his or her life. Munandar (2014) named it as subjective norms, which are the feelings or expectations of a person against the expectations of the people in life regarding the behavior or not being done. Sreen et al., (2008) supported this concept by pointing out that the subjective norm is the one's perceived social pressure of people who are important for him or her. This social pressure (subjective norm) will influence the intention to perform or not perform the behavior.

The behavior of an individual can also be managed by capacity of that person to control (act or not to act). Behavioral control is a predictor of person's intention to behave (Manocha, Bhullar & Gupta, 2023). It is the person's perception of ease or difficulty to act or to do a particular case (Paul et al., 2016). Perceived behavioral control is related to the resources (including monetary capacity or income) owned and the opportunity (government policy and set price) to do something (Tan & Teo, 2000).

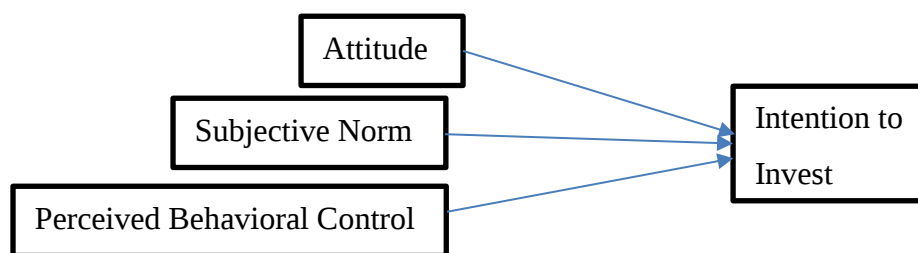
Empirical studies

The two previous papers, which are closely relating to major assumptions of the conceptual framework of this study are reviewed. The first reviewed paper is "Energy saving on campus: a comparison of students' attitudes and reported behaviors in the UK and Portugal" by (Cotton, Shiel and Paco, 2016). They explored similarities and differences between students' energy-related attitudes and reported behaviors, as well as their perceptions of their institution's energy saving efforts using data from two universities of UK and one university of Portugal.

The population includes 800 students from Portugal (University of Beira Interior), 679 students from Plymouth University, UK and 815 students from Bournemouth University, UK. Sample size is 800 (34.9% from Portugal, 29.6% and 65.1% from UK two universities respectively). The findings showed that there are differences between two countries reflecting the different contexts of countries. Thus, different policies regarding energy-saving will influence the energy-saving behaviors of different country's citizens. This research applied just one-way ANOVA, and no conceptual framework is presented.

The second review paper is "The effect of attitude, subjective norms and control of behavior towards intention in share investment" by (Rahadjeng & Fiandari, 2020). This paper intends to determine and analyse the effect of attitudes, subjective norms and behavioral control on investment intentions in the capital market. The population is scholars in Malang, who are familiar with finance courses. The sampling method is purposive sampling, determining the sample according to the research objectives. The sample size is 110.

The questionnaire survey method is used by distributing questionnaires to 110 scholars of the Faculty of Economics and Business, University of Muhammadiyah Malang, and complete responses from 100 are received. Likert scale is used to measure attitudes, opinions and perceptions: each question is measured with Likert scale which has five levels of preference answers, each of which is given a weighting of 1 to 5 with breakdown of a score of 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The path analysis is used, and found that the attitudes, subjective norms and behavioral control have an influence on the intention to invest in shares. The conceptual framework of this research is shown in Figure (1).



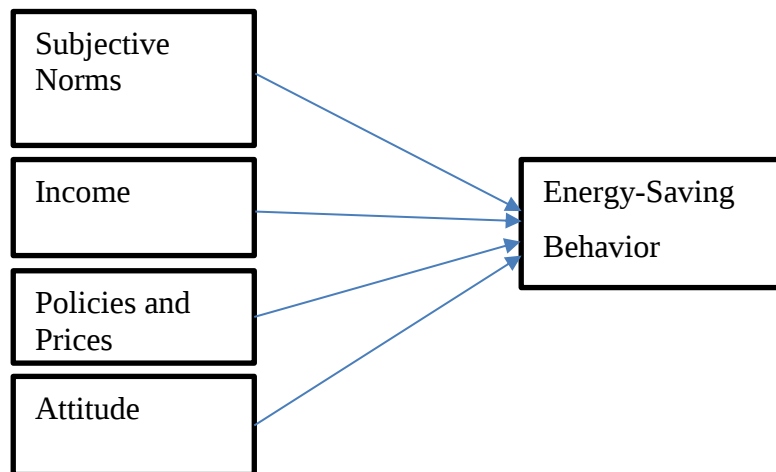
Source: Rahadjeng & Fiandari (2020)

Figure (1) Conceptual Model of Rahadjeng & Fiandari (2020)

Findings from this research showed that the attitude, subjective norm (influence of important people), and perceived behavioral control are positively influencing on the intention to behave a particular action.

Conceptual Framework of the Study

The conceptual framework is developed based on the theory of planned behavior, and the findings from the two previous papers as mentioned above. The conceptual framework is shown in Figure (2).



Source: Own Compilation

Figure (2) Conceptual Framework of the Study

This study's conceptual framework is developed with four conceptual assumptions:

- (1) The influence of subjective norms (people around) the academic staff working at the Mandalay University of Distance Education (MUDE) has positive effect on their energy saving behavior.
- (2) The income (behavioral control) of academic staff working at the Mandalay University of Distance Education (MUDE) has positive influence on their energy saving behavior.
- (3) The government policies and price are influencing on energy saving behavior of academic staff working at the Mandalay University of Distance Education (MUDE).
- (4) The attitude of academic staff working at the Mandalay University of Distance Education (MUDE) has positive influence on their energy saving behavior.

Hypotheses

The following hypotheses are developed for this study:

- (1) The influence of subjective norms (people around) academic staff has positive significant effect on their energy saving behavior at MUDE.
- (2) Academic staff income has negatively significantly influence on their energy saving behavior at MUDE.
- (3) Academic staff perception on energy policies and prices has positively significantly influence on their energy saving behavior at MUDE.

- (4) Academic staff attitude towards electricity saving positively significantly influence on their electricity saving behavior at MUDE.

Findings from Descriptive Analysis

To explore the academic staff attitude towards energy saving, the mean values based on their response scores are calculated. Data are received from 65 academic staff. The attitude of academic staff from Mandalay University of Distance Education towards electricity saving is shown in Table.

The subjective norm (influence of people around academic staff) in Mandalay University of Distance Education is shown in Table (1).

Table (1) Perception on Subjective Norm

Sr. No.	Items	Mean	Std. Dev.
1	Households need to be conscious of electricity saving behavior.	4.22	0.63
2	One's electricity saving behavior is influenced by family, friends, or neighbors.	1.98	0.88
3	If everyone around participates in saving electricity, a person will participate more actively in saving electricity.	3.56	0.96
Overall Mean		3.26	

Source: Survey Data (2024)

Most of the academic staff at MUDE is not influenced by the people around them. The family members, friends, and colleagues cannot influence large upon them regarding the electricity saving. In this study, as perceived behavioral control, income of academic staff is analyzed. The data from analysis on staff perception of their income are shown in Table (2).

The data from analysis on staff perception of their income are shown in Table (2).

Table (2) Perception on Income

Sr. No.	Items	Mean	Std. Dev.
1	Daily living cost is higher and higher	4.63	0.65
2	Worrying about income less than expenses	4.33	0.74
3	Spending tightly due to worries on income deficit	4.45	0.71
Overall Mean		4.47	

Source: Survey Data (2024)

Most of the academic staff at MUDE worried much on living cost increase and expenses greater than income problem. All question items are developed with negative direction. Thus, instead of behavioral control, unable to control aspect is based.

In this study, according to the conceptual framework as shown above, the attitude; subjective norm; perception on electricity policies and price, and income would have influence on

electricity saving behavior. The energy-saving behavior of academic staff from MUDE is analyzed by calculating the mean values on their response scores. The results are shown in Table (3). Academic staff from Mandalay University of Distance Education on government policies and prices is shown in Table (3).

Table (3) Perception on Policies and Prices

Sr. No.	Items	Mean	Std. Dev.
1	Policies encouraging economical and efficient use of electricity are practical	4.03	0.53
2	Electricity saving policies bring many benefits to people	3.83	0.79
3	The current price of electricity is high compared to the average income	4.67	0.47
4	The price of electricity gradually increases	4.64	0.48
5	Feel worried when electricity price increase	4.44	0.75
Overall Mean		4.32	

Source: Survey Data (2024)

Academic staff at MUDE has positive perception on government electricity policies although they are worrying about price increase. They understand that government must promulgate rules and policies relevant to the new challenges of energy shortage. Moreover, they have knowledge about the causes of the energy price increase. To overcome this energy price increase problem, they must take responsibility by reducing waste and unnecessary usage of electricity. The attitude of academic staff from Mandalay University of Distance Education towards electricity saving is shown in Table (4).

Table (4) Perception on Attitude

Sr. No.	Items	Mean	Std. Dev.
1	Saving electricity in daily life will be helpful for environmental protection	4.02	0.75
2	Saving electricity in daily life will help reducing global warming and pollution	3.95	0.76
3	Saving electricity in daily life is valuable to alleviate the current electricity shortage problems	3.66	1.00
Overall Mean		3.88	

Source: Survey Data (2024)

Most of the academic staff at MUDE generally have positive attitude towards electricity saving. As they are educated and they are trying to be role models of their students, they have strong beliefs that the electricity saving by individuals can contribute at large to electricity shortage problem resolution, disaster effect and climate change, and also to environmental sustainability.

In this study, according to the conceptual framework as shown above, the attitude; subjective norm; perception on energy policies and price, and income would have influence on electricity saving behavior. The electricity saving behavior of academic staff from MUDE is analyzed by calculating the mean values on their response scores. The results are shown in Table (5).

Table (5) Electricity Saving Behavior of Academic Staff

Sr. No.	Items	Mean	Std. Dev.
1	Participating in daily electricity saving activities	4.08	0.78
2	Willing to use skills to reduce electricity consumption (turn off equipment when not in use)	3.84	0.91
3	Willing to pay to invest in electricity saving products.	4.44	0.59
4	Reminding others for electricity saving and efficient use	3.66	0.88
5	Taking concern the behavior and perception of family and the people around regarding electricity usage	3.67	0.89
Overall Mean		3.94	

Source: Survey Data (2024)

Most of the academic staff at MUDE act good in energy saving; they are participating in electricity saving actively, and also encouraging others for energy saving. They have the concern of others' evaluation on their behavior of electricity saving.

Findings from Regression Analysis

To reach the main objectives of this research, multiple linear regression analysis is conducted to examine the effect of subjective norm, income, policies and prices, and attitude of academic staff at MUDE on their electricity saving behavior. Data from 65 academic staff are analyzed, and the results are shown in Table (6).

Table (6) Factors Influencing Energy-Saving Behavior of Academic Staff

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
	B	Std. Error	Beta			
(Constant)	- 0.409	0.819		- 0.499	0.619	
Subjective Norm	0.196	0.145	0.155	1.348	0.183	1.272
Income	0.251	0.167	0.218	1.504	0.138	2.029
Policies and Prices	0.392	0.258	0.214	1.517	0.135	1.918
Attitude	0.231**	0.123	0.223	1.884	0.045	1.355
R Square	0.389					
Adjusted R Square	0.347					
F Value	9.373***					

Source: Survey Data (2024)

Dependent Variable is "Energy-Saving Behavior"

*** Significant at 1 percent level

** Significant at 5 percent level

* Significant at 10 percent level

From regression analysis, it is found that only the academic staff attitude towards electricity saving has positive significant effect on their energy saving behavior at MUDE. The subjective

norm, income, and academic staff perception on policies and prices have no effect on electricity saving behavior of academic staff at MUDE. Only the hypothesis (4) is accepted.

Discussions

Academic staffs at MUDE believe that their electricity saving will be contributing to environmental sustainability, also to reducing global warming effect and air pollution, and in solving energy shortage problems. They perceived that the policies of pushing efficient usage on energy are practical. They also believe that the government policies can bring benefits to people. They are participating in electricity saving not because of the behaviors and encouragement of people around them: they practice electricity saving by their own sake.

The academic staff attitude towards the electricity saving positively influences on the electricity saving behavior. Only if they believe that the energy saving is beneficial to their society, they will participate in electricity saving effectively. Their family members, friends and colleagues cannot influence them to behave actively for energy saving. Their understanding on energy policies is not effective for their energy saving actions. Their income level has also no effect on their electricity saving behavior.

Conclusion

For energy saving, the academic staff at MUDE behave by their own attitude. Their behavior cannot be influenced largely by the influence of family members, friends and colleagues, and also cannot be influenced by government policies and prices. Thus, electricity saving education and knowledge should be enlarged by universities for staff positive attitude towards electricity saving. This attitude will shape their electricity saving behavior.

Suggestions and Recommendations

In general, academic staff attitude is crucial for effective energy saving at universities like Mandalay University of Distance Education. Thus, universities should have the mechanism for knowledge sharing and training for enhancing knowledge in electricity saving techniques and materials, and consequences of electricity saving like environmental sustainability and weather changes.

Acknowledgements

We would like to express our deepest gratitude to Professor Dr. Khin Thant Sin, Rector of Mandalay University of Distance Education for her persuasion and dedication to submit this research paper to the Myanmar Academy of Art and Science. Our sincere thanks will also go to Dr. Win Mar, Pro- Rector of Mandalay University of Distance Education for her encouragement and systematic yardsticks for research quality, format, and methods to be compliance with MAAS guidelines. I would like to give special thanks to Dr. Myint Myint Kyi, Professor and Head Department of Economics for their kind permission to submit this paper. We also would like to convey our deepest thanks to U Htein Linn, Head of Administration and Finance Department, and his assistants U Win Naing and U Tin Moe Lwin from Administration and Finance Department, Mandalay University of Distance Education, for supporting us to collect data from teachers from MUDE. We are grateful to send our thanks to rector and prorector, and all teachers of Mandalay University of Distance Education, for participating in survey as respondents.

References

- Ajzen, I., and M., Fishbein, (1975). A Bayesian analysis of attribution processes. *Psychological bulletin*, 82(2), 261.
- Ajzen, I. (1991). The Theory of planned behavior. *Organizational Behavior and Human Decision Processes*.
- Brounen, D., N., Kok, and J. M., Quigley, (2012). Residential energy use and conservation: Economics and demographics. *European Economic Review*, 56(5), 931-945.
- Cotton, D., C., Shiel, and A., Paço, (2016). Energy saving on campus: a comparison of students' attitudes and reported behaviours in the UK and Portugal. *Journal of cleaner production*, 129, 586-595.
- Geller, H., P., Harrington, A. H., Rosenfeld, S., Tanishima, and F., Unander, (2006). Policies for increasing energy efficiency: Thirty years of experience in OECD countries. *Energy policy*, 34(5), 556-573.
- Ginting, S. A. (2018). Language Attitude of Sellers in Traditional Market toward Karonese Language. *English Language Teaching*, 11(7), 125-130.
- Kastner, I., and E., Matthies, (2014). Implementing web-based interventions to promote energy efficient behavior at organizations—a multi-level challenge. *Journal of Cleaner Production*, 62, 89-97.
- Lubis, R. M. (2021). Mother's Behavior in Caring for Low-Birth-Weight Babies (LBW) At Home. *Journal of Midwifery and Nursing*, 3(3), 93-97.
- Manocha, S., P. S., Bhullar, P. S., and P. K., Gupta, (2023). Exploring the Determinants of Investment Behavior: Evidence from Agrarian Investor Class of India. *Business Perspectives and Research*, 22785337231156659.
- Munandar, A. S. (2014). Culture and management in Indonesia. In *Culture and management in Asia* (pp. 82-98). Routledge.
- Rahadjeng and Fiandari (2020). The effect of attitude, subjective norms and control of behavior towards intention in share investment. *Manajemen Bisnis Journal*, 10 (02), 17-26.
- Paul, J., A., Modi, and J., Patel, (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of retailing and consumer services*, 29, 123-134.
- Ruby, G. E., U. F. U. Z., Abidin, S., Lihan, N. N., Jambari, and S., Radu, (2019). A cross sectional study on food safety knowledge among adult consumers. *Food Control*, 99, 98-105.
- Sreen, N., S., Purbey, and P., Sadarangani, (2018). Impact of culture, behavior and gender on green purchase intention. *Journal of retailing and consumer services*, 41, 177-189.
- Tan, M., and T. S., Teo, (2000). Factors influencing the adoption of Internet banking. *Journal of the Association for information Systems*, 1(1), 5.