

PROMOTING YOUNG ADULTS TO PERFORM ENERGY SAVING BEHAVIOR THROUGH MESSAGE FRAMING: A LESSON LEARNED FROM INDONESIA

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ABSTRACT

This study examined the effects of message framing in promoting electricity saving behavior among young adults. An integrated model of prospect theory, scarcity theory and individual differences theory was developed. The effects of message framing on participants' attitudes were analyzed as well as the interaction effects of scarcity information and need for cognition. Laboratory experiments were conducted with 2 (positive and negative framing) x 2 (given scarcity information and not given the scarcity information) x 2 (high NFC and low NFC) between subjects factorial design. Participants were 228 students from 3 universities in Yogyakarta, Indonesia. Stimuli were given in the form of four pages booklet containing electricity saving messages. Based on the insignificant results of hypothesis testing, a focused group discussion research was conducted to find out the explanations of these phenomena in Indonesia.

Keywords: Message Framing, Scarcity Information, Need for Cognition, Electricity Saving Behavior.

INTRODUCTION

Young adult's awareness to perform electricity energy saving behavior is still low in Indonesia. A series of preliminary studies had been conducted to confirm these phenomena in Yogyakarta Special Region Province of Indonesia. Results of our preliminary study confirmed that people awareness to perform electricity energy saving behavior is still low. Meanwhile, among electrical consumer segments, young adult is perceived as the segment with least awareness to perform energy saving with highest energy consumption rate. Increasing young adult's compliance to perform electricity energy saving behavior remains an interesting issue to be investigated.

Discussing energy conservation behavior can be performed from many perspective such as macro perspective, micro perspective, and variety approach from knowledge and methodological perspective. Many researches have been conducted in energy saving behavior context (Hori et al., 2013; Bell et al., 2016; Ntanos et al., 2018a: 2018b). In macro perspective, for example, Ntanos et al. (2018b), investigated the relationship between energy consumption from Renewable Energy Sources (RES) and country economic growth (*per capita* GDP). The study is conducted among 25 European countries. The findings revealed consistent results with

the previous research reviewed in this study; there is correlation between the GDP and RES consumption. Higher correlation was found in countries with higher GDP than those with lower GDP.

A micro perspective study with a large sample also conducted in Asia. Hori et al. (2013) investigated factors that influence people to perform energy saving behavior in five major cities in Asia (Dalian, Chongqing, Fukuoka, Bangkok, and Ho Chi Minh). This study found that global warming consciousness, environmental behavior, and social interaction significantly affect energy saving behavior. Social interaction, particularly in rural area was strongly linked to energy saving behavior. This study implies the impact of community-based activities on energy-saving behavior.

The rise of RES usage, become a part of interest in energy-saving behavior study. Social acceptance of RES seems to be important to be investigated. Examining contribution of the use of RES to citizens' quality of life, Ntanos et al. (2018a) found that the benefit of RES is a crucial variable in the forming of respondents' perception about the usage and contribution to life quality. This study conducted in Attica region in Greece, involved 400 residents of urban area.

Almost similar with our preliminary study findings in Indonesia, that young adults (aged 18-24) is the segment with high consumption of energy demand, adolescent (aged 13 to 15 years) also identified as a high consumer of energy according to Bell et al. (2016). Based on this opinion and another reason that adolescent will be adult consumers in the future, Bell et al. (2016) conducted an online intervention based study to investigate the adolescent readiness to energy-saving behavior. A sample of 180 adolescents was recruited to this study, divided into intervention and controlled conditions. Results of this longitudinal study showed that adolescents in intervention condition showed significant increase in self-reported energy-saving behavior during the 6 weeks follow up especially for those who already actively engaged in energy-saving behavior prior to intervention.

Examining message recipient's compliance to energy-saving behavior message is an interesting topic in Indonesia due to-based on our preliminary study findings-low awareness of the community to perform it. According to our in depth interview with the Public Relation Manager of PT PLN Special region of Yogyakarta, many effort had been conducted by the government especially PT PLN, who responsible to provide the electricity in Indonesia. However, our preliminary study found the young adults awareness regarding energy scarcity and awareness to perform energy saving-behavior are still low. Even they claimed that they need more energy supply as they are very active in many energy required activities such as reading, watching television, accessing internet and many more. Our study tried to examine whether a printed public advertisement promoting electricity energy-saving behavior could persuade them to perform energy-saving behavior.

Enhancing message recipient's compliance to perform specific behavior promoted in the message is an important issue in persuasive communication. Many strategies can be performed to increase message recipient's compliance. Increasing message recipient's involvement to the message content using fear appeal of a message (Rogers, 1975) or presenting the messages in form of message framing are some of the alternative methods (Maheswaran & Meyers-Levy, 1990). According to Rothman & Salovey (1997), message framing is presentation of a message in terms that emphasize the negative aspects/losses of do not perform actions that are promoted in the message (negative framed message) or presentation of messages that emphasize the positive aspects/benefits of doing actions promoted in the message (positive framed message). Presenting a message in the form of message framing may increase its persuasion power.

Persuasion is an attitude change that occurs because of a person being exposed by a written or verbal information exposure from other parties (Wood, 2000). The effectiveness of message framing on attitude change and decision-making has been widely tested. However, so far there are no conclusive results obtained about which form of message framing that mostly affects decision making (Cox & Cox, 2001). Some studies found that negative message framing is more persuasive, but some others found the opposite results. Another study even suggested that there is no influence of message framing (Assema et al., 2001). This study examined the issue of differential effects of positive and negative message framing in promoting electricity energy-saving behavior among young adults.

Application of framing theory in energy-saving behavior is interesting to be studied. Highly dependency on nonrenewable energy resources should force people to control their energy consumption in order to ensure energy sustainability for present and future. However, our preliminary study found the contrary phenomena. Public awareness on energy scarcity problem is still low especially among young adults. These findings led the author to consider the possibility of energy scarcity issues in energy saving context.

The differential effects of message framing also influenced by various moderator variables (O'Keefe & Jensen, 2006), such as individual characteristic (Ferguson & Gallagher, 2007). Need for Cognition (NFC) is one of individual characteristic differences interesting to be studied regarding message framing (Zhang & Buda, 1999). NFC showed differences in a individuals' tendency to perform and enjoy cognitive activities (Cacioppo et al., 1984). Research states that NFC can predict individuals' reaction in performing a task or receiving social information. Some research on message framing effects that interacted NFC as a moderator variable were conducted to examine the differential effects of persuasive message framing on decision-making. However, results of these studies have not been conclusive (Simon et al., 2004). So far there is no agreement about which form of message framing that more persuasive for individual with low NFC score (Zhang & Buda, 1999). Shiloh et al. (2002) find that message framing affected subjects with high and low NFC. These inconsistent findings indicate that the role of NFC in message framing effects still need to be studied further.

The important aspect of this study is related with the integration of three persuasion approach theories. Three theories of persuasion are integrated in this study i.e., prospect theory approach (Tversky & Kahneman, 1985), theory of six principles of persuasion, i.e., scarcity (Cialdini & Martin, 2006; Cialdini, 2003), and theory of characteristics of individual differences: Need for Cognition (Cacioppo et al., 1984). According to review of previous studies, testing the integration of those three theories in the context of consumer decision making to perform electricity energy saving behavior is have not been performed yet. Overall, this study aims to examine the effect of message framing in promoting energy-saving behavior by considering the moderating effect of energy scarcity information and NFC as an individual characteristic variable.

LITERATURE REVIEW

Framing Theory, Message Framing and Persuasion

Framing theory starts from Prospect Theory introduced by Tversky & Kahneman (1985). Framing postulate of prospect theory states that the way information is presented, in terms of benefits and losses, may influence the behavior differently. Firstly, people tend to avoid risk when considering gain/benefit, which is presented in positive framed messages. While, they

likely to take risk when considering loss/cost which is presented in negative framed messages. Consequently, the preferences toward risk-taking heavily depend on whether the idea is presented in frame of gain or loss contexts. Secondly, this theory argues that people will likely avoid risks that make the losses look much bigger than the benefits earned. In line with prospect theory, presenting two logical statements of an issue, in two different ways may result different decisions. The principle of "*Prospect Theory*" is widely used in presenting persuasive message in order to enhance message recipient' compliance to a framed message. Framing is used as a paradigm to learn and investigate communication strategy and behavior in a wide range of disciplines.

So far, studies examined the effects of message framing on persuasion showed inconclusive results (Cox & Cox, 2001; O'Keefe & Jensen, 2006; Rothman & Salovey, 1997). Some studies reported the advantages of negative message framing on persuasion (Maheswaran & Meyers-Levy, 1990; Meyerowitz & Chaiken, 1987; Rothman & Salovey, 1997; Tversky & Kahneman, 1985) and some others reported the opposite (Donovan & Jalleh, 1999; Levin & Gaeth, 1988; Rothman & Salovey, 1997). Some research found the effectiveness of gain-framed message, such as: Krantz & Monroe (2016) in promoting forest management practices and Hurlstone et al. (2014) in reducing emissions context. Meanwhile, some investigations also reported that there were no differences in persuasive power between negative message framing and positive one (Assema et al., 2001).

O'Keefe & Jensen (2006) explained several reasons regarding the differential effects of negative and positive framed message on persuasion, i.e., 1) the existence of three asymmetries between negative and positive information: negative information generally has disproportionate effects compared to equivalent positive information, negative stimuli is easier to be detected at initial exposure compared to positive one, and negative event causes stronger and faster reaction, 2) differences in individual risk perception: participants indicated specific preferences between two options when the options presented as risky choice and less risky choice (Tversky & Kahneman, 1985), 3) related with the issue about what factors are influencing risky and less risky choices. This issue raises consideration about moderating variables that are influencing the framing effects. Those moderating variables are: the type of behavior recommended in the message (especially in health behavior context), individual differences characteristics, and level of involvement of the message recipient with the message content.

Message framing effects can be differentiated into three categories according to Levin & Gaeth taxonomy (1988), i.e., risky framing (Kahneman & Tversky, 1979), attribute framing (Levin & Gaeth, 1988) and goal framing (including message framing). Presenting a framed message in broad social changes context (promoting disease detection/prevention behavior, energy saving behavior, birth control behavior, pro-environmental behavior, save driving behavior, healthy diet and exercise behavior, and many others social context) could be categorized into goal framing.

Review on previous studies in different contexts showed that presenting a persuasive-framed message could give differential effects on message recipients' compliance to the recommended behavior. In health behavior context, some studies have been conducted by Meyerowitz & Chaiken (1987); Maheswaran & Meyers-Levy (1990); Rothman et al. (1993); Block & Keller (1995); Cox and Cox (2001); Tasso et al. (2005); Sherman et al. (2006); Cox et al. (2006); Tsai & Tsai (2006); Ferguson & Gallagher (2007); and Mowbray et al. (2016). Study in the consumer behavior context also conducted by some researchers such as: Ganzach & Karsahi (1995), Buda & Zhang (2000), Buda & Charnov (2003), Tsai (2006), and Chen & Liang

(2006). Some studies reported the effectiveness of positive framed message (Levin & Gaeth, 1988; Rothman, et al. (1993); Donovan & Jalleh (1999). However, some other studies reported the opposite results (Meyerowitz & Chaiken (1987), Maheswaran & Meyers-Levy (1990) and Rothman & Salovey (1997). Based on review of several previous studies, this study argues that different message framing have different persuasion effects on message recipient's compliance and formulate the following hypothesis:

H₁: There are differences in attitudes between subjects who received positive and negative message framing.

Scarcity as One of Persuasion Sources

Integration of prospect theory and scarcity theory in this study referred to Eagly & Chaiken (1984) which state that mechanism of persuasion can be approximated by three separate approaches, i.e.: the cognitive response approach (Elaboration Likelihood Model, Petty & Cacioppo, 1986), the attributional reasoning approach (Prospect Theory, Kahneman & Tversky, 1979) and the heuristic processing mode (Six Principles of Persuasion, Cialdini & Rhoads, 2001). These three mechanisms can occur simultaneously and interacts with each other. This interaction possibility proposition motivates this study to put scarcity information as a moderating variable instead of independent variable.

According to Cialdini & Rhoads (2001), there are six principles of persuasions, i.e.: consistency, reciprocity, authority, social proof, liking and scarcity. Scarcity principle states that, when the chance of something becomes increasingly rare, it would be perceived as more valuable. Scarcity of an object makes the object more attractive. Research on the effectiveness of various techniques of persuasion state that, scarcity is one of the effective persuasion tactics (Cialdini & Rhoads, 2001). Scarcity was defined as the unavailability and specifically refers to the limited supply. Gordon (1994) reported form of scarcity manipulation that often used is "limited number tactics" (e.g., "this is the last product we have") and time limit tactic (e.g., "this price will not apply long, so soon come to buy").

Research investigating the effects of scarcity on persuasion provided variety of different explanations. Some research focus on the extent of ownership of scarce resources, increase the perception of uniqueness. Another explanation focuses on the extent of scarcity lead to psychological conditions of the reactants in the recipients (Gordon, 1994). Simonson (1992) which implicitly tested the manipulation of scarcity tactics with limited time offer found that, consumers that first asked to think about their feelings if they do not get the benefit of a limited time promotion, so should pay the full price on the next purchase occasion, more likely to make a purchase within the promotion period compared to the control group. Gordon (1994) examined the influence of perceived scarcity on student's compliance to complete the writing task before the due date and found that manipulation does not differentially affect the scarcity of the proportion of students who complete the task of writing early, but affects the speed of completion of students to submit their work. Inman et al. (1997) found that existence of restriction stimulates the pleasure or displeasure of a decision. Inman et al. (1997) investigated the role of restriction (purchase limit, limit the time of purchase and purchase requirements) on consumer evaluation of the benefits of supply. Results of this study showed that the effectiveness of the restrictions was influence by discounts and NFC. Tan & Chua (2004) investigated the effects of using scarcity restriction ("as long as there is stock") on consumer perceptions, and

suggested that, presenting “*offering to purchase*” in form of message framing and scarcity restriction improve consumers’ perception of informational value.

Based on the theoretical and empirical findings, the author argues that scarcity principles can be applied in persuasive communication context to encourage electricity energy saving behavior among young adults. This opinion is based on the facts that availability of energy resources are increasingly rare in Indonesia and the results of preliminary study, which states that the ignorance to energy-saving behavior also occurs due to the ignorance of energy scarcity issues and why they should save the energy. Furthermore, the author formulates hypotheses about the effects of scarcity information on the message framing persuasion power as follows:

H₂: Information of energy resources scarcity moderates the influence of message framing on subjects’ attitude toward electricity energy-saving behavior.

Need for Cognition

One of the interesting issues in framing effects are how to measure the framing effect precisely especially in individual differences studies (Zhen & Yu, 2016). Individuals’ motivation to process a message they received including a message in framed message will affect the individuals’ reaction to the message, (Zhang & Buda, 1999). NFC is one of determinants of consumers’ motivation to process information. NFC is individual tendency to engage and enjoy thinking activities (Cacioppo et al., 1984; Petty & Cacioppo, 1986). NFC distinguished individual in conducting in-depth cognitive processing, so it can be an important determinant in elaboration process of a message (Mongeau, 1989). NFC also influenced information processing, attitudes and decision-making (including ethical decision making), acceptance of price and normative influences. In advertising context, NFC showed the effect of level of attention to the arguments and instructions, image formation, consumer response to humor, message framing and complexity of information (Lord & Putrevu, 2006). NFC original measurement scale developed by Cacioppo et al. (1984) with 34 indicators. In its development, Cacioppo et al. (1984) subsequently developed a more efficient measurements in the 18 indicators.

Results of previous studies on the interaction effects of NFC with the message framing tend to show emergence of the interaction effects of NFC with the framed messages. Study of Zhang & Buda (1999) states that, NFC affects the strength of the framed message. But these findings are still inconclusive because of the interaction effects of low NFC with positive framed messages only support on one of the three dependent measures (willingness to buy). NFC interaction effects with message framing are also found in the study of Kuvaas & Kaufmann (2004). Contrary to the findings of some previous studies, LeBoeuf & Shafir (2003) found no association between NFC score with subjects' responses to the framed messages.

Empirical evidences of the interaction effects of message framing with individual differences indicate that psychological process happened when consumers respond to a framed message. These conditions are determined by their intrinsic motivation to process the message, which is reflected in NFC score. Based on above logical thinking and empirical findings, this study assumed that different levels of NFC can influence the style and the amount of information processing performed by each individual when they get a framed message promoting electricity energy saving behavior. Recipients with different NFC score can perceive and respond a similar message differently. Based on this, argument a hypothesis is proposed as follows:

H₃: Need for Cognition moderates the influence of message framing on subjects' attitude toward electricity energy-saving behavior.

Mediation Effects of Intention on Attitude-Behavior Relationship

Fishbein (1967) stated that for more than seventy-five-years research on attitudes, there is only little consistent evidence support the hypothesis that individual attitudes toward an object can predicts how individual will behave associated with the object. Many evidences from previous studies showed that people tend to behave in line with their attitude than the study that suggests that behavior is a function of attitude. Intention to behave is regarded as a determinant variable for actual behavior (Assael, 1984). The stronger intention of an individual has, the greater the probability of behavior to be performed. Kamins & Marks (1987) explained, the findings of the current research has clearly shown that, knowledge is activated and available during the evaluation process of a message greatly influence decisions and consistency of attitude and behavior.

Ajzen (2005) explained that there are conditions and requirements that must be supported to produce a high correlation before measurements were obtained. Strong correlation can occur only if the sizes of the two variables that show clearly the relationship in terms of: 1) acts as the reference, 2) targeted towards the action, 3) the context of the action took place, and 4) the time the action was performed. Significant correlation between the antecedents, and outcomes of mediating variables is one of the conditions creating the mediating effects (James & Brett, 1984).

Related with electricity energy saving behavior, it is predicted that the formation of attitudes and intentions toward electricity energy saving behavior would be the antecedent for electricity energy saving behavior. Furthermore, the intention to perform electricity energy savings that have been formed is expected to mediate the effect of attitude on electricity energy-saving behavior. Based on this logic, the author formulated the following hypothesis:

H₄: Intention to perform electricity energy-saving behavior mediates the influence of subjects' attitude on electricity energy-saving behavior relationship.

RESEARCH METHOD

Design

This study combined qualitative and quantitative methods. Qualitative method was used in preliminary study stage. Quantitative method in form of laboratory experiment was chosen in main study stage, to test the research hypotheses. A 2 (positive/negative message framing) x 2 (with/without scarcity information) x 2 (high/low NFC) factorial between subject design was used in this research. The experimental design is as shown on Table 1. Based on Table 1, participants were split into 12 groups.

Group	Individual Characteristics	Message Framing	Scarcity Active Factor							
			Scarcity Information				Without Scarcity Information			
			M1	T	M2	N	M1	T	M2	N
Treatments	Low NFC	Positive		1				7		
		Negative		2				8		
	Medium NFC	Positive		3				9		
		Negative		4				10		
	High NFC	Positive		5				11		
		Negative		6				12		

Note:

M1: measurement before treatment.

T: treatment (in 12 conditions).

M2: measurement after treatment.

N: number of participants in each group condition.

Preliminary Studies

Preliminary studies were conducted to ensure whether the phenomena being investigated is really happened and perceived by the society member in the same way and to determine the proper subject of the research. Firstly an in depth interview was conducted with the informant from electricity provider in Indonesia, PT PLN. The informant is the Public Relation Manager of PT PLN for Special Region of Jogjakarta Indonesia, which concluded that the public awareness to save electricity energy is still low. Secondly, an in depth interview with 48 married participants was also conducted. Results confirmed the previous findings that people awareness to save electricity energy is still low, they tend to waste electricity energy and the age segment which least concerned to electricity energy saving behavior is young adults segment. The final stage of preliminary study is Focused Group Discussion (FGD) involving 3 groups of 21 person young adults to confirm whether they are really do not care with electricity energy saving behavior. Surprisingly, they stated that they do not believe in energy scarcity issues and perceived that energy scarcity phenomena is happening because of the lack of governments' capabilities to manage national energy consumption. Results of the whole preliminary studies showed that the problem being investigated in this research actually exists in daily life. These findings also give a good basis to determine the subject of the experiment, i.e., young adults who were perceived as the segment that least concern to save electricity energy behavior.

Participants

The main study divided into two stages, pretest and the main experiment. Pretest stage involved 387 participants, measured the NFC scores of all participants as the basis for random assignment. Pretest was held in three different universities in Special Region of Yogyakarta Indonesia involving 11 classes. Results showed, the lowest NFC score is 40 and the highest score is 90. Based on this data, participants were divided into three NFC groups: high, medium and low NFC categories. Participants with medium NFC score will be excluded in data analysis stage in order to maintain variability in NFC variable.

One week after the pretest stage, the main experiment was held involving 350 participants. Thirty-seven participants from 10 classes were not attending the class. Participants

were randomly assigned into 12 treatment conditions as described in Table 1. At the end data analysis process, only 288 participants left due to the participants with medium score of NFC were dropped in order to get variability of the NFC data.

Stimuli

The stimuli were energy-saving message presented in a four pages public service advertisement booklet. The stimuli material was divided into four types of booklets stimuli, namely: 1) positive message framing and scarcity information, 2) negative message framing and scarcity information, 3) positive message framing, without scarcity information, and 4) negative message framing, without scarcity information. The advertisement contains four short articles about: electricity and life, problems of electricity energy in Indonesia, what is meant by electricity saving and what is the benefit/risk of saving/wasting electricity energy and practical tips to save electricity energy.

Manipulation Checks

Manipulation checks were performed to ensure the manipulation effects of message framing and scarcity information. Message framing manipulation checks were conducted to measure the ability of the stimuli to deliver the benefits of saving electricity energy (gain frame) and the risks of not doing electricity energy saving (loss frame). It was measured using the instruments referred to Tsai & Tsai (2006). Results of manipulation checks showed that there is significant difference ($\text{sig}=0.000$) between the positive (4.80) and negative frame groups (5.33).

Scarcity information manipulation checks conducted to ensure the ability of the stimuli conveying information about the scarcity of energy resources. It was measured using three questions that asked: 1) subjects' opinion on the availability of energy sources in the country, 2) the extent to which subjects are sure that their energy resources are scarce and limited and 3) the extent to which subjects are sure that they will run out of energy. Subjects' responses were measured in 1-7 scale ranging from not rare to rare (point 1) and start from not sure until sure (points 2 and 3). The results of scarcity manipulation checks showed there were significance differences ($\text{sig } 0,000$) between subjects with scarcity information (5.501) and subjects without scarcity information (4.7727).

Measurements

In order to measure participants' attitude and intention toward electricity energy saving behavior, this study conducted an instrument development through scale purification process. Several steps of scale purification were conducted to obtain a valid and reliable instruments to measure attitudes and intentions toward electricity saving referred to Churchill (1979). Message framing is defined as the presentation of messages in form of positive or negative frame, which encourage electricity energy-saving behavior. Scarcity information is expressed in form of energy resources scarcity information that describes limited availability of energy resources for humans on the earth. These stimuli were manipulated by providing and not providing scarcity information about energy resources. Need for Cognition (NFC) is defined as differences in a persons' tendency to perform and enjoy cognitive activities (Cacioppo et al., 1984). This is a measured variable and as a proxy for differences in individual characteristics. The measurement of NFC performed with 18 indicators NFC Scale (Cacioppo et al., 1984) ranging from strongly

disagree (1) to strongly agree (5). Attitude is operationalized as attitude towards electricity energy-saving behavior and defined as subjects' overall evaluation toward electricity energy-saving messages they receive. The measurement of attitudes towards electricity energy-saving behavior was developed based on previous research and followed by some stages of scale purification referred to Churchill (1979). These measurements were developed in several dimensions i.e., evaluation of the message (10 indicators), belief (6 indicators), perception of risk (4 indicators), perception of energy resources scarcity (3 indicators) and reluctance (3 indicators). Intention is operationalized as an intention to save electricity energy. It shows tendency of a subject to perform electricity energy-saving behavior after she received an exposure of a message promoting electricity energy saving. Measurement of intention is performed using six indicators developed by Maheswaran & Meyers-Levy (1990) and Davis (1995) ranging from very unlikely (1) to very likely (7). Behavior is operationalized as electricity energy-saving behavior. Several studies on message framing did not accommodate the direct measurement of behavior changes, and it limits the significance of the results of these studies (Tasso et al., 2005).

This study attempted to measure changes in behavior due to the exposure of energy-saving message. Measurement of behavior was made by providing two prizes options of equal values to the participants, i.e., an energy saving lamps as a proxy for electricity energy-saving behavior and a T-shirts gift options as a proxy for not perform electricity energy-saving behavior yet.

Procedure

The experiments were carried out through the following steps. Firstly, a pretest with 387 participants was conducted to measure all participant's NFC scores and attitudes toward electricity energy saving behavior. The NFC scores of all participants were then divided into three categories: high, medium and low score. In order to get the NFC score variability, only participants with high and low NFC scores were included in the study while participants with medium NFC scores were dropped. Secondly, one week after the NFC measurement, the main experiment was held involving 340 participants. A randomization process was prepared by scrambled code cards, which identify four type of treatment condition for the participants. Thirdly, the code cards were distributed to all participants randomly. Fourth, all participants were given stimuli according to the treatment condition written in the code cards. They were asked to read all of the messages in the booklet. Fifth, a questionnaire was given to all of participants according the treatment condition written in the code card. Sixth, the last step was closing the experiment session, by giving souvenir based on the participants' preference regarding the souvenir choice and debriefing. Debriefing is explaining the purpose of the experiment and the reason for the experiment (Christensen, 1988) to the participants. This is an important step especially when the researcher performs a deception that provides information that can give a misleading perception (misleading) about a particular phenomenon for the purposes of experimentation (Neuman, 2013).

DATA ANALYSIS

Outlier and normality test were conducted before data were analyzed. The results of outlier test left 342 participants. Normality test results revealed that all of NFC, attitude and intention indicators were significant. Data analysis was conducted by firstly dropping the subjects in the middle NFC score categories in order to get variability in NFC score. This step left 228 participants for further analysis.

Results of the first hypothesis testing using independent sample t test technique showed that there were no differences between group of participants who received positive message framing treatment (5.9158) and group of participants who received negative message framing (5.8511). Levene test results showed significance value of 0.259. It means that there was common variant and the assumption of homogeneity of variance was met. Significance value t test of 0.416 showed no significant results. Thus, the first hypothesis was not supported as shown in Table 2.

Table 2									
HYPOTHESIS 1 TESTING RESULTS									
Main Effect	N		Mean	SD	Levene Test		T test for equality means		Note
					F	Sig	t	Sig	
Framing→ Attitude (<i>HI</i>)	Positive	116	5.9158	0.57883	1.280	0.259	0.815	0.416	Not Significant
	Negative	112	5.8511	0.61911			0.814	0.416	

Testing of the second hypothesis using two-ways ANOVA techniques showed that there were no differences on average value of each group. As shown in Table 3, results of Levene test of equality indicate a significant value of 0.770, which means there was a common variant and the assumption of homogeneity of variance were met.

Table 3			
LEVENE'S TEST OF EQUALITY OF ERROR VARIANCES			
Dependent Variable: MEAN_ATTITUDE			
F	df1	df2	Sig.
.376	3	224	.770

According to Table 4, the significance of t test showed no significant values of Framing (0.431), Scarcity (0.418) and Framing X Scarcity (0.932). Results of these tests showed that there were no differences on average between the attitudes of the group treated with the scarcity information and the group without scarcity information. Thus, the second hypothesis was not supported, as shown in Table 4.

Table 4					
SUMMARY OF INTERACTION EFFECT RESULTS TESTING (FRAMING X SCARCITY)					
Variable	df	MS	F	Sig	Partial square
Corrected Model	3	.159	.442	.723	.006
Intercept	1	7837.188	2.172E4	.000	.990
Framing	1	.225	.622	.431	.003
SCARCITY	1	.238	.659	.418	.003
Framing SCARCITY	1	.003	.007	.932	.000

Variable	df	MS	F	Sig	Partial square
Error	224	.361			
Total	228				
Corrected Total	227				

R Squared = 0.006 (Adjusted R Squared=-0.007).

Testing of the third hypothesis regarding interaction effects of message framing and NFC conducted by two-ways ANOVA techniques. Based on Table 5, Levene test of equality showed a significant value of 0.494, which means there were no significant common variants and the assumption of homogeneity of variance were met.

Dependent Variable:MEAN_ATTITUDE			
F	df1	df2	Sig.
.802	3	224	0.494

Results of t test showed no significant value for both framing (0.432) and framing interaction with NFC (0.762). Meanwhile, the significant value of NFC was 0.04 and the interaction effects of framing with NFC did not significant too. These mean, there were no differences between the average attitude values for groups in positive/negative framing with high/low NFC. Thus the third hypothesis was not supported, as shown in Table 6.

Variable	df	MS	F	Sig	Partial Eta square
Corrected Model	3	.598	1.684	.171	.022
Intercept	1	7779.297	2.191E4	.000	.990
Framing	1	.220	.619	.432	.003
NFC_ctgry	1	1.514	4.264	.040	.019
Framing*NFC_ctgry	1	.033	.092	.762	.000
Error	224	.355			
Total	228				
Corrected Total	227				

R Squared=0.022 (Adjusted R Squared =0.009).

The fourth hypothesis testing was performed by multilevel regression analysis, which consists of multilevel linear regression and logistic linear regression. Both regression methods were used for nominal scale dependent variable, which cannot be tested in one linear regression method. Hypothesis testing was conducted to examine the effects of attitudes and intentions on behavior as the dependent variable. Results were listed in Table 7.

Table 7
REGRESSION OF ATTITUDE AND INTENTION ON BEHAVIOR

Variable	B	SEB	β	t	Sig
Constant	-.151	.312		-.485	.628
Attitude	.005	.003	.150	1.688	.093
Intention	.002	.007	.029	.324	.746

F stat=3.388
Sig.=0.035
R=0.171
R square=0.029
Adjusted R square=0.021
SE=0.475

Based on the above test results, the effect of attitudes on behavior was significant at α 0.093 whereas influence on behavioral intention was not significant. It happened because of behavior was measured as categorical variable. In order to confirm the testing results, then a simple linear regression testing of attitude on intention as the dependent variable was performed. The results revealed that attitudes positively predict intentions at 0.000 significant level as shown in Table 8.

Table 8
REGRESSION OF ATTITUDE ON INTENTION

Variable	B	SEB	β	t	Sig
Constant	-2.60	0.415		-0.625	0.533
Attitude	0.965	0.070	0.675	13.741	0.000

F stat=188.823
Sig.=0.000
R=0.675
R square=0.455
Adjusted R square=0.453
SE=4.431

Based on Table 8, conclusions could be drawn that attitudes only positively predict intentions (based on the results of linear regression), whereas intentions does not predict behavior. Attitudes actually predict behavior but statistically weak at significant level of α is 9 percent. The next testing step continued with a linear regression technique combined with logistic regression to measure the effect of intention on energy-saving behavior. This method was chosen because the dependent variable has a nominal scale. Table 8 presents the results of testing the accuracy of a logistic regression model, while results of logistic regressions testing shown in Table 9.

Table 9
SUMMARY OF LOGISTIC REGRESSION MODEL FITNESS

2 Log likelihood	142.577
Cox and Snell R Square	0.044
Nagelkerke R Square	0.061

Table 10
SUMMARY OF LOGISTIC REGRESSION TESTING

Variable	β	SE	Odd ratio	Sig
Intention	0.079	0.036	1.082	0.027
Constant	-2.387	1.361	0.092	0.080

Logistic regression test results in Table 10 showed, intention to perform energy-saving positively predict the behavior of electricity energy-saving with a significance value at α is 0.027 or less than 0.05. Thus, it could be concluded that the mediation effect hypothesis is fully supported. These findings suggest that the fourth hypothesis was statistically supported, as shown in Table 10.

DISCUSSION

The first hypothesis (H_1), proposed differences in attitudes between subjects who received positive framed message, with the subject in negative framed message condition was not supported. This finding was not consistent with the majority of opinions in prospect theory which become the basic of message framing theory, which states that individuals will respond differently to the messages that are essentially equivalent, depending on how the message is framed (Tversky & Kahneman, 1985). The insignificant results of message framing effects could be explained based on the taxonomy of framing effects described by Levin et al. (1998), which makes taxonomic differences in framing effects in three categories, namely risky framing, attribute framing and goal framing. Study of Levin et al. (1998) states there was no framing effect in the goal framing and electricity energy-saving behavior can be categorized in goal framing. Levin et al. (1998) State that the evidence supporting the effectiveness of goal framing is less than the empirical evidence supporting the effects of risky framing and attribute framing. The findings of this research is opposed to findings of two previous research in the context of energy conservation (Davis, 1995; Gonzales et al., 1988), which supports the effectiveness of negative message framing. However, some findings of previous studies in different contexts also showed no effect of message framing (Finney & Iannotti, 2002; Lerman et al., 1992; Tykocinski et al., 1994; Van Assema et al., 2001).

Explanation of this phenomenon can also be associated to Hutton (1982) which states, although various research have been conducted to examine how consumer behavior can be changed in energy-saving behavior context, however, the response shown in energy saving behavior changes seems slow. Hutton (1982) describes that, reasons for resistance to persuasive attempts to reduce energy consumption are: the absence of supporting infrastructure, the absence of sufficient information about how to save energy, the economic signal which are not appropriate (the decline of natural gas and oil prices gives a signal to society that energy conservation behavior becomes irrelevant).

Hypothesis 2 (H_2), which states that scarcity information moderates the effects of message framing on subjects' attitude, was not supported. Results indicated that there were no interaction effects between message framing and scarcity information. This finding is not consistent with scarcity theory, which states, when the chances of existence of something increasingly rare, it will be perceived more valuable. A person tends to associate greater value to something rare, diminishing availability or difficult to obtain (Cialdini & Rhoads, 2001). These findings also did not support previous research findings by Inman & McAlister (1994) and Inman et al. (1997), in consumer behavior contexts. However, the lack of interaction effects of message framing with scarcity information supports the findings of preliminary study about young adults' ignorance and distrust to the issues of energy scarcity. Need to find out alternative efforts to increase young adult's awareness to energy scarcity issues, such as improving their knowledge about energy crisis and explaining forms of behavior changing that can be performed in their everyday life.

Results of third hypothesis testing (H_3) do not support the hypothesis of message framing interaction effects with NFC. Previous studies (Chatterjee et al., 2000; Zhang, 1996; Zhang & Buda, 1999) tend to show interaction effect between NFC and messages framing. However, our results indicated, subjects with high NFC scores have better attitude toward electricity energy saving behavior compared to subjects with low NFC scores. Subjects with high NFC scores tend to have better motivation to process message than subjects with low NFC scores. Thus, the findings showed that subjects with high NFC scores have better involvement and willingness to process information in the message of electricity energy saving compared to subjects with low NFC scores. Implication of these findings is, delivering messages to the subject with low NFC will be more effective when using message that more emphasis message attractiveness, endorser attractiveness as well as other aspects besides the contents of the message itself.

Results of the fourth hypothesis (H_4) testing about mediation effects of electricity energy saving intentions on attitudes-electricity saving behavior relationship, indicated that the mediation effect existed. Intention predicted participants' behavior (regarding their choice of gift), while attitude did not predict behavior. Results of regression analysis concluded that attitude positively predicted intentions (based on the results of multilevel linear regression testing) and intentions positively predicted behavior (based on logistic regression test results). This finding is consistent with the majority of attitude theory which states that individual behavior can be predicted from attitudes and intentions, and the intention is the variable among the causes of behavior (Ajzen, 2005). The finding of mediation effect testing is also consistent with the findings of previous study in the context of health behavior (i.e., early detection of breast cancer through breast self-examination) conducted by Meyerowitz & Chaiken (1987). The same finding was also obtained in the study of Detweiler et al. (1999) in the context of skin cancer prevention behavior measured by willingness to use sunscreen with certain SPF level.

According to the regression results shown in Tables 7 & 9, low R square were found. Some notes can be put for these phenomena. First, the consequences of using the experimental design which limiting to consider many aspects in one model simultaneously, so that when our integrative model was unable to support the proposed causal relationship, the R square tends to be low. Second, the insignificant finding implies that there are methodological and conceptual aspects need to be considered in the next study. The methodological aspect is, the use of college students whose do not have obligation to pay the electricity bills told us that they tend to have low awareness regarding energy conservation behavior. It is possible to consider the use of bill payer participants in the next study, as it is predicted they will have higher awareness to the energy conservation program. From the conceptual aspect, the future research needs to consider level of involvement of the message recipients to the message contents. The higher involvement of the message recipients to the message contents is predicted to have higher awareness to message.

In order to explain the insignificant findings of the experiment results, the study then being continued with a focused group discussion. This also conducted by Cox et al. (2006) to explain insignificant finding in their study. Participants of our focused group discussion are 27 young adults who have not been involved in the previous studies stage. The participants were divided into three group of discussion. There were six questions which asked to the participants: 1) do you think that you already perform energy saving behavior?, 2) is it right that young adults is the consumer segment that have not been perform energy saving behavior among other consumer segment?, 3) based on your opinion, what makes young adults do not perform energy conservation behavior?, 4) in your opinion, what are the needed actions to be conducted to make

young adults perform energy conservation behavior?, 5) do you think that we experienced lack of energy supply?, and 6) do you think that young adults also need to perform energy conservation behavior?

Results of the qualitative study stage indicated that, there are resistances among young adults to energy saving behavior promotion. The participants revealed that they were not the electricity bill payer, they did not experienced the lack of energy supply in their daily life, even they claimed that they need much more energy supply as they have many activities that require electrical energy. The most important findings of this qualitative study stage maybe their questions about why should they perform energy saving behavior and why there are no role model and examples from the government and other roles models that perform energy saving behavior. In short, it is concluded that this qualitative study findings support the insignificant results of the experiment study stage.

CONCLUSIONS

Overall results of this research indicate that message framing does not strong enough affecting consumer attitudes. Although participants showed good attitudes, intention and behavior toward electricity energy saving, however, these cannot be attributed as the effects of message framing. Several reasons for these phenomena are as follow. First, electricity energy saving behavior is considered as low-risk behavior among young adults, which categorized as a segment that is not the responsible for the electricity bill payment (non-payer). Second, participants have been exposed by so many electricity energy saving messages and energy scarcity issues. However, they did not experience the effects of not doing the promoted message in their daily life so that they became insensitive with the framed message energy saving behavior. Results of the interaction effect test also did not support the moderating hypothesis of the scarcity information. These findings did not support the findings of previous research in consumer behavior context (Inman & McAlister, 1994; Inman et al., 1997). Nevertheless, the findings about the absence of interaction effects of message framing with scarcity information support the findings of the preliminary study of the phenomena of participants' ignorance and distrust to the issue of energy scarcity. Results of NFC interaction effects also did not provide statistical support. The differences in NFC levels gave no significant effects of message framing on participants' attitude. The interaction effects test of message framing with NFC did not give significant results. However, this study shows different findings from previous research findings related to NFC interaction with message framing. This research actually indicates that the differences in attitudes towards electricity saving behavior are influenced by the differences in the NFC of the subject. The results indicated, the subjects with high NFC scores have a better attitude toward the behavior of electricity energy saving compared to subjects with low NFC scores. Test of mediation effects of the intention to behave on participants' attitudes and behavior relationship suggest that there are mediation effects of intention. Overall, this study concludes that message framing does not encourage electricity energy-saving behavior. In addition, the provision of scarcity information did not affect the attitudes, intentions, and behavior of energy saving on young adults. The attitudes shaping is determined more by individual differences tested in this research i.e., the need for cognition. FGD results also demonstrate the phenomena of the young adults' distrust to the issue of energy scarcity.

However, this research provided three contributions related to theoretical, methodological, and practical contributions. Firstly, theoretical contributions in form of development and testing the effectiveness of persuasive communication model, which integrated

two persuasion sources (the message framing of prospect theory and the scarcity of the six principles of persuasion) and an individual differences factor: need for cognition in a model simultaneously. Secondly, methodological contribution in form of electricity energy-saving behavior instruments, although it still relatively simple. Thirdly, is the practical contribution in developing a communication model promoting electricity energy-saving behavior among young adult. The model built in this research is expected to provide a better understanding of the factors that encourage the decision making of the electricity energy-saving behavior.

This study has some limitations regarding the design of the experiment. The first is the use of between- subject designs that might not sufficient to capture the attitude changes of the participants. The second is related the type of the stimuli used. The stimuli used were written educational interventions that might be too short. This condition could limit the process of attitude changing on participants. The last is related with the behavior measure used in this study, which is still simple, as only measure the behavior through the proxy of gift choice.

The findings of preliminary and primary research revealed the low awareness of young adults in performing electricity energy saving behavior. The finding also answers the question why the electricity energy-saving campaign programs did not sufficiently encourage young adults to perform electricity energy saving. This study suggests that encouraging electricity energy saving were not effective enough by only using educational messages, but it also needs to be backed up with concrete actions such as increasing the price or the application of penalties.

This research's findings provide theoretical implications for the future research. Integration of message framing theory and theory of persuasion based on the principle of scarcity needs to be studied further to investigate in what context the integration of these two theories of persuasion can be conducted. It is also required further investigation in what context both theories of persuasion can be implemented. In the context of energy conservation, the integration of both theories is also relevant for further investigation. It is predicted that different forms of scarcity manipulation, as well as the increasing of message strength, can provide a stronger effect on the future research.

In methodological context, future research can combine 'between and within' subject design, so that the effects of changes in attitude can be observed by comparing participant's attitudes before and after receiving treatment. The stimuli of future research also can use more attractive stimuli (audio visual stimuli) as individual with low involvement predicted to be more attracted with the peripheral aspects of the message instead of the content of the message itself. As the behavior measure in this study is still simple, future research is recommended to develop better measure.

It is predicted that replication of this research on different subjects, such as managers or heads of households, which are responsible for electricity bills payment, can give different results. Based on such consideration, it is recommended that future research in the context of energy conservation will involve different participants, particularly the subjects who have high involvements with the energy conservation efforts.

Some recommendations are provided for researcher. The first recommendation is regarding the message format. Delivering message in the form of framed message proved to be ineffectively influences young adults to perform the promoted behavior. Thus, the sender can use other formats such as humor or the exposure of the facts about the importance of energy saving behavior. The second recommendation is related with the message content. No support on the second hypothesis suggests that, scarcity information is not the relevant variable to be included in the message intended to young adults. Designing content of the message to young adults can

consider the use of testimony or practical example from other party who is more influential to them. The third recommendation is about the message sender. The attractiveness of message sender is an important aspect in attracting the message recipient when they have low involvement to the message content. Based on the findings of the young adults' low involvement to electricity energy-saving efforts, it is recommended to use a stronger endorser to increase the attractiveness of the message and the message recipients' compliance itself. The proposed endorsers are, for examples, celebrities, common people, or public figures that persuasive enough to the young adults. Another alternative recommendation to increase the awareness to save electricity energy is emphasizing on the concrete aspects, such as increasing the price or penalties and incentives. Our findings prove that although encouragement to use energy efficiently has been conducted by governments and related institutions, however it is effective enough to encourage people to be environmentally friendly. Therefore, some real actions expected to be performed by government or related institutions to overcome this problem, as the young adults segment required for real examples beside encouragement.

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