

# 以計畫行為理論探究重複訊息對消費者回收行為之影響 Repetitive Message Effect on Consumer's Recycling Behavior Based on Planned Behavior Theory

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## 摘要

重複效果常被運用於廣告及社會行銷的策略工具，然而它不僅需要強烈的理論支持，同時也需要實務上的操作運用。因此，本研究以計畫行為理論為基礎來探討重複訊息之影響效果。本實驗是針對一個回收訊息對同樣消費者進行三種程度的訊息暴露，結果發現，重複效果對態度、客觀的規範、知覺的行為控制以及行為意圖都會造成改變，此研究資料分析，也充分顯示重複訊息在溝通效果上具有理論和實務的重要性。

**關鍵詞：**計畫行為理論，重複效果，行為意圖

## Abstract

Repetition effect as a commercial marketing tool has been applied much in advertising and also in social marketing. However, repetition effects are not merely based on sound theories but also related to a number of important researches and practical operations. Therefore, this paper pays more attention on the effects of repetition message from the basis of Planned Behavior Theory. An experiment is conducted where these effects are examined at three levels of message exposure. As a result, repetition effect always causes changes wherever in attitude, subjective norm, perceived behavioral control, and behavioral intention. Given the analysis of data obtained, the findings from this conceptual perspective in examining repetitive communicating of message effectiveness significantly highlight this issue of both practical and theoretical importance.

**Keywords:** planned behavior theory, repetition effect, behavioral intention

## I. INTRODUCTION

Recycling is not only an effective resource-recovery, which is not only meaningful for economic but also environmental benefits. Ajzen [1] highlights how the theory of Planned Behavior is applied to show how the audiences' attitude and behavior change under effect of repetition effect. Attempts to understand the effects of advertising repetition have been frequent in the marketing literature as well as the other marketing fields [2-4]. We discuss repetition effect presenting the benefits that are results of the effect as shown after the message is presented. Many researchers apply the repetition effect, such as mere exposure effects theory [5-7], attitude toward the advertisement theory [8] and advertising repetition [9] in their studies to make consumers get familiar with the brands and to form consumers' attitude toward the advertisements.

Social marketing communications usually focus on making it easier to change people's behavior, the people who are a part of the society [10-12]. With regard to many researchers in social marketing communications, knowing people's opinions and attitudes can help social marketers maximize participation or develop programs to change behavior in social marketing [13-19]. Therefore, based on Planned Behavior Theory, this study explores that knowing people's attitudes and understanding their behavior toward recycling. Ajzen [1, 20] argue that the individual's behavioral intention is affected by the attitude toward behavior, subjective norms, and perceived behavioral control in Planned Behavior Theory.

Planned Behavior Theory and repetition effect are found to be modest predictors of social and green marketing communication for changing behavior in recycling. Therefore, the objectives of the research are

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Manuscript received 11 March 2013; revised 11 April 2013; accepted 12 April 2013

followings: firstly, to find the influencing factors on social behavior. Secondly, to construct a behavior model based on these influencing factors. Finally, to propose suggestions for social marketing based on the results of an empirical study. Therefore, this research focuses on whether or not the repetitive message affects crucial variables of Planned Behavior Theory, including attitude, subjective norm, perceived behavioral control, and behavioral intention. The repetitive message also helps communication effectiveness in social marketing. Nevertheless, it is uncertain if it reaches the same level of effectiveness as commercial marketing.

This research tries to hit the psychology point of people based on daily-life behavior, understand the reason that influence to behavior through the repetition effect, attempts to discover the relationship between the repetition effect and Planned Behavior Theory. The study proposes two important issues: the first is to interpret the relationship of those factors in social marketing to test the communication effect. The second is to examine the impact of repetition on the communication effect for recycling work. This analysis supports the value of conducting student opinion surveys as part of encouraging the recycling work. Such surveys are useful tools for learning people behaviors and attitudes that can be used to improve idea marketing for participation in recycling.

## II. LITERATURE REVIEW

This research applies repetition effect to investigate the issue of how to persuade people to change their intended behavior in general and more particularly, with respect to recycling, with attitude toward recycling, subjective norm toward recycling, and perceived behavioral control toward recycling as independent variables assumed consequences of recycling intention as a dependent variable. Then, the repetitive message might make people to adjust or follow what the message offers [21-23]. Many previous researchers apply Planned Behavior Theory to examine relationships among attitude, subjective norm, perceive behavioral control, and behavioral intention and a relationship between repetitive message effects with Planned Behavior Theory. In social marketing communication, the relationship between repetitive message effects with Planned Behavior Theory is tested in some topics such as using condoms to avoid AIDS [24], traffic safety [17, 25-28], smoking and drug prevention [29-31] improved health promotion [32, 33], and increase morality, and environmental behavior [17, 19, 34-35]. This study verifies relationships among attitude, subjective norm; perceive behavioral control, and behavioral intention of Planned Behavior Theory and the relationship between repetitive message effects with Planned Behavior Theory in social marketing communication where recycling attitude, recycling subjective norm, recycling perceive behavioral control,

and recycling behavioral intention as environmental behaviors.

### 1. Planned behavior theory

The Planned Behavior Theory [20] is developed from the Theory of Reasoned Action [36] and the Theory of Planned Behavior [1]. The Theory of Reasoned Action is a theory of attitude-behavior relationships which linked attitudes, subjective norms, and perceived behavioral control to behavioral intentions, and actual behavior in a fixed causal relationship [20, 37-38]. According to the theory, looking at people's intentions is the effective way to predict their behavior because the intentions or cognitions are their attitudes toward the specific behaviors, and also because behavior could be considered and planned [1, 18, 20, 37-41]. Theory of Planned Behavior could explain relationship between behavioral intention and actual behavior [18, 20, 41]. Behavioral intention is a good method to predict the individual's behavior because of a highly correlated relationship between behavioral intention and behavior [27-28, 38, 42-49]. Thus, the Planned Behavior Theory is a very powerful and predictive model for explaining human behavior. Behavioral intentions involve three factors: attitude toward behavior, subjective norms, and perceived behavior control [1, 18, 20, 28, 38, 41, 46-49].

Attitude toward a behavior (AB) is the degree to which the individual indicates positive or negative feeling towards the behavior. The attitude toward behavior means the individual components that argue an individuals' positive and negative feeling or response toward the behavior [20, 27-28, 33, 38, 41, 43-51]. The strength of attitude toward a behavior (AB) is measured by the total set of behavioral beliefs (bi) link up the behavior to expected outcomes and the evaluations (ei) of these expected outcomes:  $AB = \sum bi ei$  [1]. Subjective norms are the social pressures on an individual's behaviors are performed or not performed [20]. Subjective norms illustrate that the individual perceives the importance that other individuals or groups have. Thus, the individuals' behaviors are up to the subjects where their "belief power" [20] for the issues is strong. The subjective norms score,  $SN = \sum ni mi$  [52] is defined by summing the results of the normative beliefs (ni) and motivation to comply (mi). The normative belief (ni) is the performance of the indirect behavior and the indirect motivation. This indicates an individual may succumb to the pressure to do that behavior. Motivation to comply (mi) is that one individual's behavior is affected significantly by the behavior of other individuals or groups [36]. The perceived behavioral control (PBC) is defined by the sum of control beliefs (ci) and belief power (bi):  $PBC = \sum ci pi$  [52]. Control beliefs mean the individuals can control a specific behavior that they adopt from the received ideas. Belief power is influenced by outside factors such as information, opportunities or barriers to

the behavioral level [52]. In sum, people's behavior is a result of behavioral intention, which is a combination three set: set of attitude towards behavior performance with behavioral beliefs, set of normative beliefs with subjective norm, and set of control beliefs with perceive behavioral control [18, 20, 36, 41, 52].

The relationships between attitude toward the behavior, subjective norm, and perceived behavioral control with behavioral intention are significant and correlated to each other [18, 27-28, 33, 38, 42-49, 51, 53-54]. These studies show that behavioral intention and perceived behavioral control are indeed predictive of behavior [27-28, 33, 38, 43-51, 55-57]. The Planned Behavior Theory's framework helps to better understand the most influential components that affect on individual's decision through behavior. Furthermore, the Planned Behavior Theory could be used to explain recycling behavior as many researchers that are successful in social marketing [16-19, 44, 48, 50-51]. The important finding is that recycling behavior is indirectly determined by personal psychological features [13, 15, 27-28, 38, 43-51]. The set of attitude toward the behavior, subjective norm, and perceived behavioral control has shaped a behavioral intention [58]. Following this idea, the greater the set of the attitude toward behavior, subjective norm, and the perceived behavioral control, the stronger the person's tendency to perform the behavior and then people will show their intentions when the opportunity arises [27-28, 33, 38, 43-49, 51, 58]. The above concepts can be stated as follow:

H<sub>1</sub>: Attitude significantly affect to behavioral intention toward recycling.

H<sub>2</sub>: Subjective norm significantly affect to behavioral intention toward recycling.

H<sub>3</sub>: Perceived behavioral control significantly affect to behavioral intention toward recycling.

## 2. Repetition effect

Everyone is bombarded with hundreds of messages every day, many of which are trying to influence behavior. A practitioner must have knowledge of the target audience's beliefs and attitudes in order to select tools for communication effect. Moreover, to be successful, a message must be received and correctly interpreted by the intended audience. So the characteristics of the message must be attention-getting, understood, believed, remembered, and able to induce the audiences to take action [2]. A series of messages needs to be created communicate to audience. While it is difficult to determine if the public is actually getting the continuing-repeated message, the best approach is to repeat it over and over again. It is a repetitive message. The repetition effect is based upon the specific cognitive elements, specifically, beliefs, attitudes, and behavioral intentions. Repetition affects to cognitive response leads to attitude and behavioral intention [59, 60]. Repetition tended to increase belief strength,

attitude and intention [60-63]. Repetition of message would lead audiences' attitudes and behavior toward the message when the message is more familiar to them [61, 64]. Repetition increases agreement with opinion in the statements [8, 59]. With continued repetition, the audience learned about the message, understood the message and then tended to believe the statement in the message. Repetition related the attitude responses includes positive or negative attitude that judges the truth of the messages which they are recognized more than one time in a given period of time.

However, many studies show that there is a positive relationship between the frequencies of exposure and affect. An inverted-U relationship between exposure and affect are found in studies of [65, 66]. Besides, Janiszewski and Meyvis [67] applies a Two-Factor Model [68, 69] and Dual-Process Theory [70] to test and compare the results at different levels of exposure (the zero, one, two, three, five, eight, twelve, and sixteen repetition) to show that the repetition effect causes variety of predicted and observed results. Two-Factor Model predicts a different pattern (a negative/positive response curve and an inverted-U response curve occurred) of different levels of exposure, and Dual-Process Theory predicts that the response should increase at higher levels of exposure. Most studies show that messages increase in affect for a few exposures but that further exposures begin to have a negative effect [71]. Therefore, some studies and theoretical perspectives would suggest that, in general, intermediate levels of message exposure (two or three) should provide higher message effects than either very low or very high levels [61].

## 3. The effectiveness of three times repeated message frequency

According to many previous advertising repetition studies, this study tries to review how repeated exposures affect audiences' responses. A repeated message could increase a positive effect or a better response [59]. Claypool *et al.* [59] proposes the first repeated-viewing just caused a few or low cognitive responses and the continuing repeated-viewing could push the cognitive responses increase and even led to a stimulus. Nordheim [72] also demonstrates that people would react emotively to the repeated exposures. In the study of [73], attitudes are measured by asking subjects to indicate their general attitude on two semantic differential scales marked favorable/unfavorable and positive/negative ratings are then summed. If the responses are generally favorable, increased repeated-viewing leads to more positive motivation, but the responses are generally negative, increased repeated-viewing causes less favorable or negative motivation.

Low exposure or as few as five times of repeated-viewing can increase agreement or attitude change [62, 74]. Nordheim [72] explains that repeated exposures increase as affective responses decrease. Affective response to the repeated message is positive and

negative thoughts toward the message [72]. Based on the findings of previous studies which support three exposures, the suitable repeated times in affect fall in three repetitions [75-80]. The experiment of [81] shows that with three exposures, the advertisement usually represents higher effectiveness. Positive cognitive responses decrease and negative ones increase after three exposures. Beyond the third exposure, cognitive response becomes negative that causes advertising viewers' attitude negatively [79-80, 82-84]. Therefore, the audiences' affectively responded toward the presented message increases and reaches a peak after three repeated exposures then decreases after some more repeated exposures [72]. A good illustration for this description is the inverted-U shaped relationship between repeated exposure and its affection [72, 85-87]. In sum, many the message repetitions positively and effectively affects the receivers' attitude toward the message and the three exposures level of message repetition affects the receivers' attitude toward the message is much effective level.

There are two methods to conduct the repetition message; zero-exposure and non-zero exposure. Zero-exposure is usually used for analyzing brand purchase intentions, attitudes, and familiarity, and non-zero exposure is usually used for recalling advertising messages. In addition, the zero-exposure served as the control to evaluate the initial responses [88]. For illustration, Campbell and Keller [61] examines the two studies for an ad repetition with one, two, and three exposures and one, two, three, and five exposures. Martini and Maljkovic [89] presents pictures one, three, five, eight, and fifteen times in their research. In sum, the three exposures level is usually used in repetition execution.

4. Repetition lag

A potentially important parameter for repetition effects is "lag" -- the interval or space between each

presentation [90-93]. There are variety of lags in time interval, such as five seconds, twenty five seconds, two minutes, ten minutes, one hour, five hours, twenty four hour, one day, three days, five days, twenty five days, two weeks, four months, two years [85, 94-100].

The effects of repetition depend on the time of exposure and the length of the time interval between exposures. Many researches prove that the shorter the time interval between repetitions, the greater the opportunity for recalling and the greater the total exposure time, the greater the recall [67, 90, 92, 101]. The above concepts can be stated as follows:

- H4: Repetitive communicating of a message has a significant effect on attitude toward recycling.
- H5: Repetitive communicating of a message has a significant effect on subjective norm toward recycling.
- H6: Repetitive communicating of a message has a significant effect on perceived behavioral control toward recycling.
- H7: Repetitive communicating of a message has a significant effect on behavioral intention toward recycling.

This study concentrates on message receivers to exam the effect of repetitive message exposure (one time exposure for each round within three rounds) on Planned Behavior (Attitude, subjective norm, and perceived behavioral control). The framework of this study is described in Fig. 1.

III. RESEARCH METHOD

1. Research Design

This study focuses on two variables: repetitive message (three times) and Planned Behavior (attitude, subjective norms, perceived behavioral control, and behavioral intention). This research attempts to find out whether or not the repetitive message leads to change in

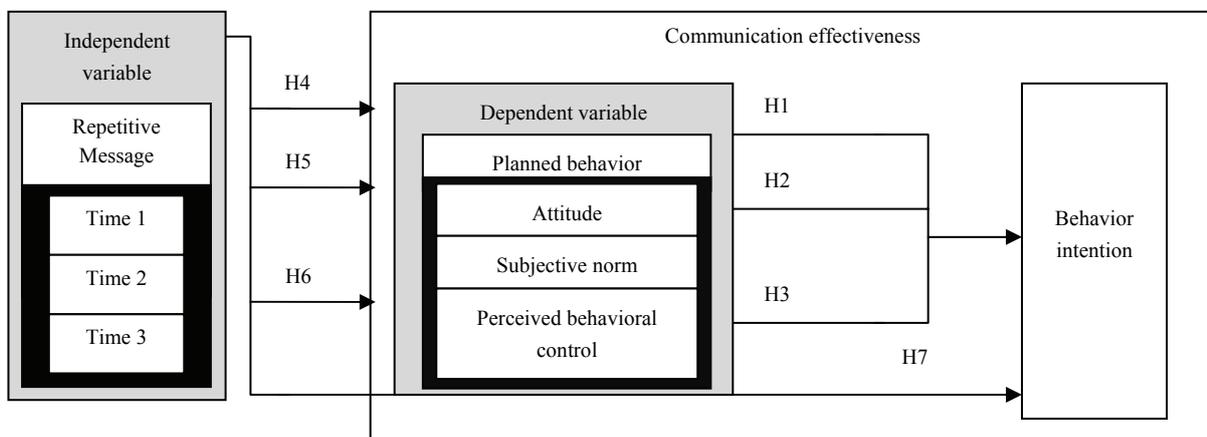


Fig. 1 The research framework

attitude, subjective norm, perceived behavioral control, and behavioral intention. The design is to use a one sample, one repetition message with three levels of message exposure. The participants are all college students in the same class for each round. The same message is presented once at the start of each survey round. This study designs to conduct an experiment that collects data from sixty five volunteer Taiwanese students who have been studying in Hospitality and Tourism Department in International College of I-Shou University. The students are asked to fill the questionnaire forms about recycling which contain five groups of five variables of planned behavior, namely (1) attitude toward recycling (Q1-5), (2) subjective norm (Q6-10), (3) perceived behavioral control (Q11-14), (4) behavior intention (Q15-17), and (5) actual behavior (Q18-19). The group of items for actual behavior is relevant to the participants' present and past actual behavior toward recycling. The participants are gifted with souvenir for participate the survey. At the first round, before doing the survey, the participants read the color picture-word message about recycling in Taiwan. The same process is repeated at the second and the third round with the same presented message and the same questionnaires. The messages about recycling are shown to the participants once on a projector in the classroom in the form of one power point slide before they complete the questionnaire. The objective of this research is to examine whether repetitive message led to behavior intention changes.

The positive attitude is defined such that the behavior intention happens stronger than as usual [14, 40]. Explanation for this argument is after viewing the recycling message. The viewers have intensity behavior toward recycling much more than before. Expectedly, repetitive message can affect attitude and increase the intensity of behavior. We conduct one experiment. The message is repeated at the next two times after the first exposure. At round two, the same experiment is started with the same message and stayed the same way. In turn, round three is likely done as round two. Particularly, the message is viewed only one time to the participants before they complete the survey form. The experiment is conducted in the class-room. A projector is used to show the message (one slide power point with context that contained words and picture in color, and green color is a main color). Power point is used to reduce pages and it easily shows the message to the participants. The questionnaire takes about fifteen minutes to complete. An exposure interval is two week for each time.

Before formal administration of the questionnaire, a pilot test is conducted to make sure the questionnaires are suitable and amended if required. The pilot test also considers comprehension and language issues before being distributed to the participants. Questionnaires are distributed to one class (forty students in the class) of participants at the school with questionnaire in English language for one class and questionnaire in Chinese language for another class. After the pilot tests are

conducted, the item 10 "The people in my life whose opinion I value recycle." is deleted because many participants do not understand its meaning. On the other hand, there are not many students who speak English as the first language on campus. Therefore, the questionnaire forms as well as the message in Chinese language are used in the formal test to ensure the participants can read the instruction and the context can be understood.

## 2. Measures

The contents in the message are about recycling and are taken from trusted sources: "Taiwan has not much natural sources, so that recycling is very important to Taiwan." "Let's recycle" "Recycling is easy... simply put newspapers, aluminum, and glass into separate bags and place at the curb on your regular trash collection day" [102], so that the messages can be remembered and can be believed [2]. The messages with the topic relating to participants' country and with the familiar ideas are more persuasive. Attitudes, Subjective norms, Perceived behavioral control, and Behavioral intention were measured based on the key items with five-point Likert-type scale [103-105], ranging one (strongly disagree), two (disagree), three (fair), four (agree), and five (strongly agree).

## 3. Method of data analysis

The collected data in this study are analyzed using SPSS data analysis software. In the process of data analysis, the statistics method involves means of analysis of frequency (H4-H7), descriptive statistics (experimental structure) and reliability analysis (Cronbach's alpha), and regression (H1-H3). All analyses are made by SPSS software version 16. The level of significance is set to  $p \leq 0.05$  (95% confidence interval). Regression analysis is also helping understand and explore the forms of relationships which among the independent variables (repetitive message) are related to the dependent variable (attitude, subjective norm; perceive behavioral control, and behavioral intention toward recycling) [106].

This study adopts t-test analysis appropriate to compare the means of two groups: repetitive message effect to planned behavior's variables at the first time and repetitive message effect to planned behavior's variables at the third time. Then, we use descriptive statistics to describe the basic features of the data. In addition, this study accesses each decision variable by performing within-scale factor analysis where shows that all measurement items converged on the decision variables, with each factor loading having a value not less than 0.6. All decision variables demonstrate unidimensionality.

Cronbach's alpha ( $\alpha$ ) is used to assess the internal consistency of the proposed decision variables. All  $\alpha$  values of the constructs are greater than 0.7; thus, they are considered reliable constructs. The reliability statistics shows, Cronbach's Alpha = 0.938 > 0.7; thus, five-point Likert-type scale is considered reliable constructs. There are

Table 1 Summary of structural model with hierarchical regression analysis of time one and time three (n = 48)

Time	Path	Hypotheses	R <sup>2</sup>	Adjusted R <sup>2</sup>	Path coefficient <sup>a</sup>	t-value	p	Results
1	ATT-BI	H1	0.419	0.379	0.281	1.713	0.094	Rejected
	SN-BI	H2			0.220	1.273	0.210	Rejected
	PBC-BI	H3			0.260	1.842	0.072	Rejected
3	ATT-BI	H1	0.683	0.661	0.363	2.794*	0.008	Supported
	SN-BI	H2			0.130	1.120	0.269	Rejected
	PBC-BI	H3			0.429	3.392*	0.001	Supported

Note: <sup>a</sup> dependent variable: behavior intention toward recycling; \* p<0.05

no items deleted because they are all greater than 0.7. Up to the results, the effects of the respondents' attitude toward recycling, subjective norm toward recycling, perceived behavioral control toward recycling, behavior intention toward recycling, and actual behavior toward recycling are all significant.

IV. RESULTS

1. Descriptive analyses

There are 60.4% female respondents and 39.6% male respondents in the sample with 10.4% aged from 21-25 and 89.6% aged from 15-20. As this is a convenience sample, there is no attempt to survey equal number of males and females. The study does not compare the difference between genders. As for respondents' education, they are the freshman and sophomore students of Hospitality & Tourism Management Department of I-Shou University in Kaohsiung City, Taiwan, R.O.C.

2. Results of the hypotheses

Table 1 shows the results of the hypotheses testing of the structuring relationships between Planned Behavior Theory's variables. That is a hierarchical regression analysis with values of R<sup>2</sup> and ΔR<sup>2</sup>. ΔR<sup>2</sup> is the change in R<sup>2</sup>, which represents the values contributing to the final R<sup>2</sup> when a corresponding decision variable is adopted. There is a difference between time one and time three of

Table 2 Summary of the structural model repetitive message affect to attitude, subjective norm, and perceived behavioral control

Path	Hypothesis	p	Results
RE-ATT	H4	0.488	Rejected
RE-SN	H5	0.012*	Supported
RE-PBC	H6	0.009*	Supported
RE-BI	H7	0.012*	Supported

Note: \* p < 0.05

repetitive communicating of a message. There are no relationships between attitude with intention behavior; and perceived behavioral control with intention behavior in time one but there are relationships between attitude with intention behavior; and perceived behavioral control with intention behavior in time three of repetitive communicating of a message. It means the repetitive communicating of a message three times is more effective than the repetitive communicating of a message one time (Fig. 2).

Looking at the analyses (see Table 2), we find attitude toward recycling is p = 0.488 > 0.05; that is, H<sub>0</sub> is not rejected. There is no significant difference between round one and round three. However, the results of subjective norm toward recycling (p = 0.012 < 0.05), perceived behavioral control toward recycling (p = 0.009 < 0.05), and behavior intention toward recycling (p = 0.012 < 0.05) reject H<sub>0</sub> and mean there are significant

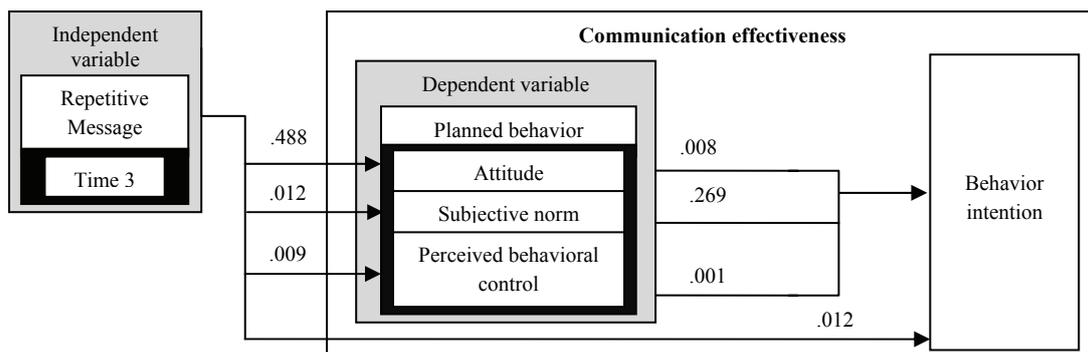


Fig. 2 Path diagram of factors determine recycling intention

differences between round one and round three or one time and three times. In sum, repetitive communicating of a message has a significant effect on subjective norm (RE-SN), perceived behavioral control (RE-PBC) and behavioral intention toward recycling (RE-BI), but has not a significant effect on attitude toward recycling (RE-ATT).

There is no significant change on the respondents' attitude toward recycling. However, there are significant changes on subjective norm, perceived behavioral control, and behavioral intention toward recycling after the message being repeated three times. Besides, repetitive message has not a significant effect on behavioral intention through the path repetitive message-attitude toward recycling-behavioral intention toward recycling (RE-ATT-BI). Repetitive message has a significant effect on behavioral intention through the path repetitive message-subjective norm-behavioral intention toward recycling (RE-SN-BI); and repetitive message has a significant effect on behavioral intention through the path repetitive message-perceived behavioral control-behavioral intention toward recycling (RE-PBC-BI). Nevertheless, there is no change in higher attitude and behavior intention for audiences. In fact, from the analytical results, the initially attitude toward recycling and the initially behavioral intention toward recycling are unchanged after three rounds. Their answer is "agree" both in round one and round three. Unexpectedly, there is no increasing trend regarding "strongly agree" in the third round. In short, repetitive communicating of a message has a significant effect on attitude but it does not become higher in attitude toward recycling. Likely, repetitive communicating of a message has a significant effect on behavioral intention toward recycling but it does not become higher in behavioral intention toward recycling. On the other hand, repetitive communicating of a message has a significant effect on subjective norm toward recycling, as well as it also results in higher subjective norm toward recycling. Therefore, it has a significant effect on behavioral intention toward recycling but it does not result in higher behavioral intention toward recycling. Likewise, repetitive communicating of a message has a significant effect on perceived behavioral control toward recycling; meanwhile it results in higher perceived behavioral control toward recycling. In addition, repetitive communicating of a message has a significant effect on behavioral intention toward recycling but it does not result in higher behavioral intention toward recycling.

## V. DISCUSSIONS

### 1. Research summary

The effect of repeated message exposure to three times on Planned Behavior Theory's dimensions is conducted in this paper. The research aims to verify the effects of one message exposure of three levels of

message repetition as a possible way to influence the respondents' attitude, subjective norm, perceived behavioral control, and behavior intention toward recycling. The repetitive communicating of message is expected having a significant effect on and resulting in change attitude, subjective norm, perceived behavioral control, and behavioral intention toward recycling at the third time of message repetition. However, recycling attitude is not influenced differently by the repetitive message effect. The finding results are different from some previous researchers which have succeeded in showing a difference after repeating the message three times.

### 2. Theoretical implications

This study tests the effect of repetitive communicating of message three times based on the Planned Behavior Theory. This study typically approaches to communication research that mediates changes in attitudes and behavioral intentions. This approach has its theoretical roots in learning theory and concentrates on information in the form of beliefs for attitudes [1, 20] and possibly intention behavior. However, surprisingly, the repetitive message effect has a significant effect on in subjective norm, perceived behavioral control, and behavioral intention. Especially, it results in higher subjective norm, perceived behavioral control, but has no effect on attitude and does not result in higher behavioral intention. It should be important determinants of differences in repetition effects. Therefore, this research proposes some guidelines that may be considered in future communication designed to promote recycling participation, so that the study suggests a potential social marketing strategy to stimulate recycling behavior goals.

Although several methodologies have been used to study repetition, within a behavioral science framework, laboratory experimentation as the most promising methodological approach for its generally perspective and failure to consider the process of creating or changing attitudes, the typical dependent variable. However, as a result of this basically descriptive approach to communication research, results have not yet produced a theory of communication effects on human behavior.

### 3. Research limitations

Two limitations of the study are the time and control. This questionnaires survey has permission to be conducted in the classes. The length of the interval between exposures is fortnightly. However, because the participants have familiar with the topic recycling, there is no interference for the message to remind them. Furthermore, due to the study conducted the questionnaires in voluntary way, there is unpredictable situation such as the participants do not attend three rounds or do not seriously give the responses. In this case, the message context calls for recycling. The topic is very

familiar to them or they have already known and done the recycling action. So, the repetition is associated with boredom and leads to a negative assessment of the message. Therefore, these messages do not deserve their attitude.

#### 4. Suggestions for future research

The repetition results for the repetitive messages suggest serious messages because the students are familiar with recycling. Thus, it may be important for using a campaign to maintain a pool of recycling attitude and recycling intention which can be used rather than be used the same traditional message over and over. Specifically, the content and the presented way of the messages have significant effects on the formation of attitude and intention behavior states. Furthermore, we suggest the repetition levels ought to combine with different stronger elements.

Additionally, the future research needs advisably in applying the present conceptual framework to more realistic repetition situations in which the messages are more serious, the time distance between exposures is shorter, and the framework should be applied for recipients who have no high awareness, low attitude or do not have actual behavior toward the topic. According to the results in higher subjective norm and perceived behavioral control toward recycling of the respondents, this study suggests that two factors -- subjective norm and perceived behavioral control -- should be exploited.

In conclusion, the data produced by this study suggest the direction of future research on repetition effects that should carefully consider the context of message and the construction of conducting questionnaires, in an attempt to more fully understand the effects of message repetition on people's attitudes and intentions. The findings of the study on effects of message repetition also provide some implications of the issue to other researchers to examine the repetitive communicating of message.

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