

Confirmatory factor analysis of green advertising and its impact on green awareness

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ABSTRACT

This study aims to review the factors which influence the form of green advertising and their impacts on green awareness improvement. The study is conducted with 200 students from Indonesia and Malaysia as respondents. Data from respondents is obtained through a questionnaire, and it is analyzed by two stages, which are confirmatory factor analysis and structural equation model. It emphasizes the results conducted two research hypotheses based on the t-value. The research results state that respondents' point of view associated with the media of green advertising was different between Indonesia and Malaysia, but the issue used in green advertising had similarities. It has known that green advertising is advertising media, which is formed from three dimensions; namely green theme, green impact, and green message. Furthermore, it is found that green advertising had an impact on green awareness improvement. The finding of this research is useful for a company that uses green marketing strategy, considering the factors assumed to be important from green advertising to improve customer green awareness on environmentally friendly products.

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1. Introduction

In a green marketing strategy known as green advertising (Wei et al., 2012), one of the efforts is environmental-based marketing strategies as part of the stated issues (Hartmann & Apaolaza-Ibáñez, 2009). Green advertising is used by today's companies since customers have started to care about the environment with the various movements, such as "green consumerism" (Finisterra do Paço & Raposo, 2010), the movement promotes customer behavior in consuming and recommending environmentally friendly products. The issue of "green" is a global issue; every country is trying to change the behavior of products consumed that are friendly to the environment (Abd Rahim et al., 2012). This is performed to reduce products that are produced by using hazardous chemicals or minimize the use of products that have the potential to damage the environment (Finisterra do Paço & Raposo, 2010; Sekerka & Stimel, 2011). The concept of green living is an effort to provide awareness to the community as customers in using products that are environmentally friendly in a long period (Abd Rahim et al., 2012; Whitmarsh, & O'Neill, 2010). There is an effort to educate customers; green advertising is certainly needed, with the hope that the issues of green life can be understood, and it becomes a part of people's lives. Examining the phenomenon of green living issues, it appears the importance of green advertising in changing customer's behavior who care about the environment. Malaysia has revealed the concept of "Green Malaysia" through Green Technology Policy, which began in 2009 (Abd Rahim et al., 2012). In Indonesia the concept of Green began to be socialized in 2012 through local regulations on Green Building in Jakarta (Brondizio et al., 2016). Concerning for environment is a part of green advertising by the government, such as public service announcements on the issue of global warming. The regulations issued by the government have certainly an impact on marketing strategies developed by companies with taking environmental issues through the concept of green advertising

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(Wei et al., 2012; Kao & Du, 2020). Green advertising is advertising delivered explicitly or implicitly about products that are connected to the environment (D'souza & Taghian, 2005). Green advertising has different characteristics from the concept of advertising in general, considering the company has another goal of green advertising, namely the image of social responsibility (Banerjee & McKeage, 1994). The government is implementing a green advertising campaign besides educating the concept of green living or green environment, as well as the effort to improve the good image of a government in society (Abd Rahim et al., 2012). The two other objectives of the green advertising concept provide opportunities for the company's image of corporate or government, which is concerned with environmental responsibility for the community (Finisterra do Paço & Raposo, 2010). It emphasizes the importance of green advertising, not only the education of environmentally friendly products, but also for strengthening the image of companies and governments.

The essence of the problem phenomenon about the concept of green advertising focuses on the current research objective of factor analysis of green advertising and its impact on green awareness. The study was conducted by evaluating the views on green advertising among students categorized as Generation Y or Gen Y. Gen Y plays an important role in the marketplace as they have high purchasing power (Ansar et al., 2019) and exerted a huge influence over the power of spending across a growing number of product categories (Muda et al., 2016). Campaigns through green advertising are not limited to companies, but those have been carried out by the government. This research puts forward to the concept of green advertising so that it can be used as a reference in campaigns that use environmental issues and evaluate their impact on green awareness.

2. Literature Survey

2.1 *The Concept of Green Advertising*

Companies do not use advertising campaigns through traditional media to improve their image (Wu et al., 2008). They began to look for ways to campaign through unusual advertising such as unexpected places, unconventional methods, or unusual communication delivery (Choi & Gray, 2008). The main purpose of advertising is to provide meaning and value, which is easy for customers to remember (Davies et al., 1995). Green advertising has a concept that is not much different from advertising in general. Relating to marketing strategies carried out through media, to educate products or services to customers (Maniu & Zaharie, 2014). In green advertising, environmental issues are used in educating customers (Finisterra do Paço & Raposo, 2010). The intended media is delivered online, such as social media or the internet and offline, such as newspapers or billboards. The previous concept was said that "green advertising are advertisements which promote products, services, ideas or organizations' ability to help or reduce environmental harm" (Abd Rahim et al., 2012). There are two things discussed in green advertising, namely the education of products or services and the impact on the environment. Green advertising is needed as successful if it can provide an environment of the company's image, while customers are evaluated through understanding and practicing green living (Hartmann & Apaolaza-Ibáñez, 2009). The view on green advertising has been known since the 1990s (Scammon & Mayer, 1993) That concept is used to build a company's image through the company's concerns issue to the environment.

Green advertising has another goal, namely, to increase customer awareness of the environment (Alamsyah et al., 2019). Customer concern is reflected in a consistent attitude that looks at good or bad of a product in the environment until they recommend it to others. So the concept of green advertising is considered effective if it can influence customer's perception and behavior to the environment (Wei et al., 2012). The previous studies have known the impact of green advertising on customer behavior, such as concerns (Abd Rahim et al., 2012), perception (Wei et al., 2012), attitude (D'souza & Taghian, 2005) until the company's image (Alamsyah et al., 2018). However, the most important of the concept of green advertising is the growth consequence of customer awareness to the environment (Alamsyah et al., 2018). Because in principle, many types of research on green marketing strategy show the impact of knowledge and environmental awareness on customer behavior on the environment (Alamsyah & Mohammed, 2019).

2.2 *Green Advertising Preferences and Green Awareness*

The concept of green advertising is based on three main criteria, such as explicit or implicit about the relationship of products with the environment (D'souza & Taghian, 2005), promoting green lifestyle with or without products (Alamsyah et al., 2018), and explains the company's image which is concerning about the environment (Maniu & Zaharie, 2014). However, customers' views on green advertising by companies or government are different; all of them start at the level of preferences held by customers (Alamsyah & Mohammed, 2019). The values of green advertising ultimately have an impact on customer awareness of green products (Abd Rahim et al., 2012). As stated, green advertising is successful if it can provide understanding for customers, and it is carried out in its activities (Hartmann & Apaolaza-Ibáñez, 2009). It means that there are preferences that have previously been able to change customer behavior on environmentally friendly products. Several media become customers' references examining the concept of green advertising, including television, websites, social media, radio, newspaper or magazines, billboards, banners, and brochures (Abd Rahim et al., 2012). Each media provides a different level of preference, depending on the level of persuasion given. Preference is the knowledge level understood by customers for information about products or services (Zinkhan & Carlson, 1995). Customer preferences for companies that use green advertising is a view on the progress of product innovation (Rizwan et al., 2014). It means that customer assesses for environmentally friendly products as part of product innovation offered by the company. In assessing green advertising, there are several categories such as campaigns on earth hour, no plastic day, 3R (reduce, reuse, recycle), low carbon, etc. (Abd Rahim et al., 2012). It explains

that it is needed to pay attention to the categories of campaigns carried out to be able to increase the level of customer preferences on the concept of green advertising. Besides, the concept of green advertising can have a positive impact on customers' green awareness (Suki, 2013). Customer preferences ultimately become important; remember the preference as a prelude on growing customer intention to green products (Hooper et al., 2008).

2.2 Hypotheses Development

This research uses Confirmatory Factor Analysis (CFA) to establish the theory of green advertising. Furthermore, it is a study of the correlation between green advertising with green awareness. To provide the CFA process, the study determines the dimensions and indicators of green advertising regarding the previous research. Green advertising has two main demands which are assessed, and it needs to be submitted, relating to informational claims and affective claims (Hartmann & Apaolaza-Ibáñez, 2009). Informational claims are persuasive information stated, which relates to the use of environmentally friendly products, while valid claims are persuasive related to the experiences toward the environment. These two demands provide a perspective for customers, and it changes customer's views directly to the product's image (D'souza & Taghian, 2005) and customer concern for green products (Abd Rahim et al., 2012). The previous studies have revealed that there are three main things in assessing the formation of green advertising. The first is related to the biophysical environment, the second is associated with education for a green lifestyle, and the third is related to the image obtained on environmental responsibility (Banerjee & McKeage, 1994). All three measurements require a positive impact on green advertising for customers as well as for marketers. In presenting the theme of green advertising, there are three important things to consider when they are ecological, environmental sustainability, or nature-friendly messages (Schumacker & Lomax, 2004). Whereas in conveying information, it is assumed to explain the message of green advertising, which explains several themes, namely pleasant, convincing, believable, favorable, and good (D'souza & Taghian, 2005). The study of three previous theories seems to have a different purpose from green advertising, which is assessed from three points of view, are impact, message, and theme. The essence of survey literature is known to have factors that can form green advertising that is divided into three dimensions, including green impact, green message, and green theme; this is the hypothesis study in this study. The following is a research hypothesis design for the CFA process of green advertising.

Hypothesis 1 Green impact is a dimension that can form green advertising.

Hypothesis 2 Green message is a dimension that can form green advertising.

Hypothesis 3 Green theme is a dimension that can form green advertising.

Examining the previous research has revealed that green advertising has a positive impact on company green customer awareness. Green awareness is assessed from many behaviors, including customer's effort, customer's understanding of eco-labels, customer's understanding of green slogans, customer's knowledge of green symbols, customer's knowledge of company's green image, and customer concern to the environment. Based on a study of green advertising and green customer awareness on environmentally friendly products, the next hypothesis design is presented.

Hypothesis 4 Green advertising has an impact on the improvement of green awareness.

3. Methodology

The study conducted was focused on green advertising, and it was in line with research objectives and also its impact on the improvement of green awareness. Based on the literature survey, three dimensions formed green advertising, namely, impact, message, and theme. The measurement of impact was taken from several indicator assessments, such as biophysical environment, green lifestyle, and environmental responsibility (Banerjee & McKeage, 1994). In message consisted of some indicators that were pleasant, convincing, believable, favorable, and good (D'souza & Taghian, 2005). Then, the theme consisted of some indicators, like ecological, environmental sustainability, and nature-friendly messages. In green awareness, indicators used such as effort, label, slogan, symbol, brand, concerns from customers. The study conducted with a research object was students from two countries like Indonesia and Malaysia, where it had known about green advertising. Data from students collect with stratified random sampling; there were 200 students as a sample, 100 students from Indonesia, and 100 students from Malaysia. As for respondents' selection were students who were also part of customers who accepted information related to green advertising; moreover, students have educated customers who understood the strategy of advertising. The number of respondents who were limited to remember this study was experimental research to study the analysis factor from green advertising. Data and information from respondents were obtained from a questionnaire that had been determined the answer was the lowest value "1" and the highest value "10" with a Likert scale approach. The analysis was carried out through Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) with Lisrel assistance tool. Meanwhile, to confirm the results of the research hypothesis test carried out by comparing t-values. The design of the research model, as shown in Fig. 1.

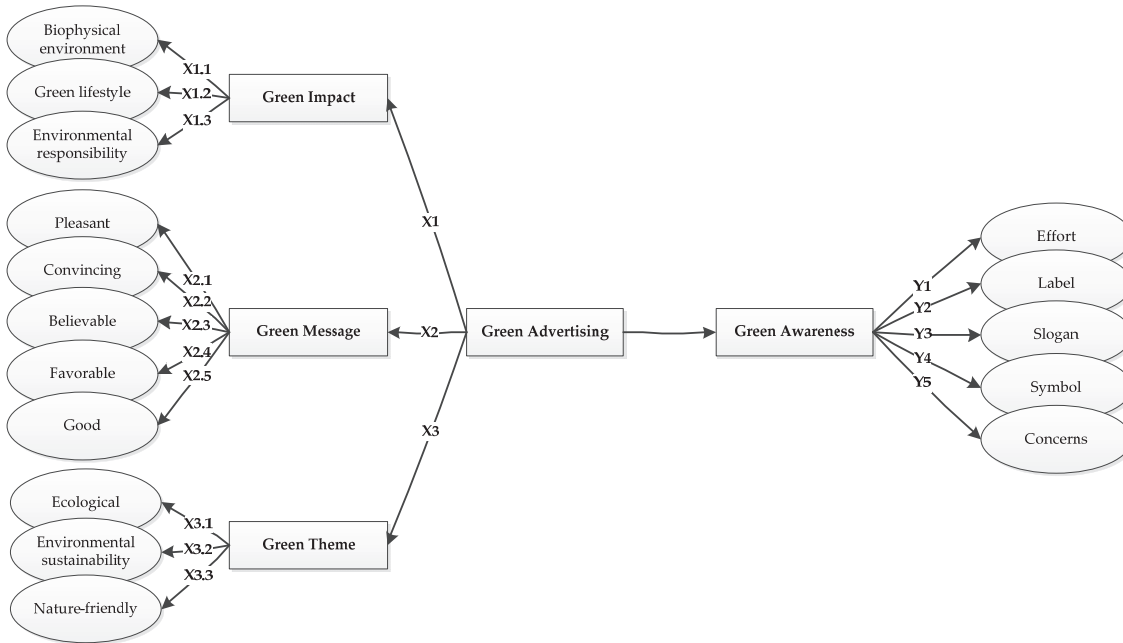


Fig. 1. Research Model

4. Result and Discussions

4.1 Perception of Media and Category of Green Advertising

Data from valid respondents in its filling was obtained 194, where it is divided by 100 from Indonesia students and 94 from Malaysian students. The distribution results of the questionnaire found that the gender of female respondents was 56%, and for male was 44%. There are two questions related to green advertising at the beginning of the questionnaire, namely students' knowledge related to media and the category of green advertising. Generally, it is known that the media of green advertising known by students is mostly sourced from social media, tv, websites, and posters (Fig. 1). As for the category of green advertising, students know most about 3R (reduce, reuse, recycle), no plastic day, earth hour, green product, and green lifestyle (Fig. 1). When it is examined, it is known that media from green advertising is not recommended through newspapers, billboards, or banners, considering that it is not the main criteria assessed by respondents. On the other hand, for the category of green advertising, it is not recommended to use the issue of low carbon or no pesticide, because it is not an important concern.

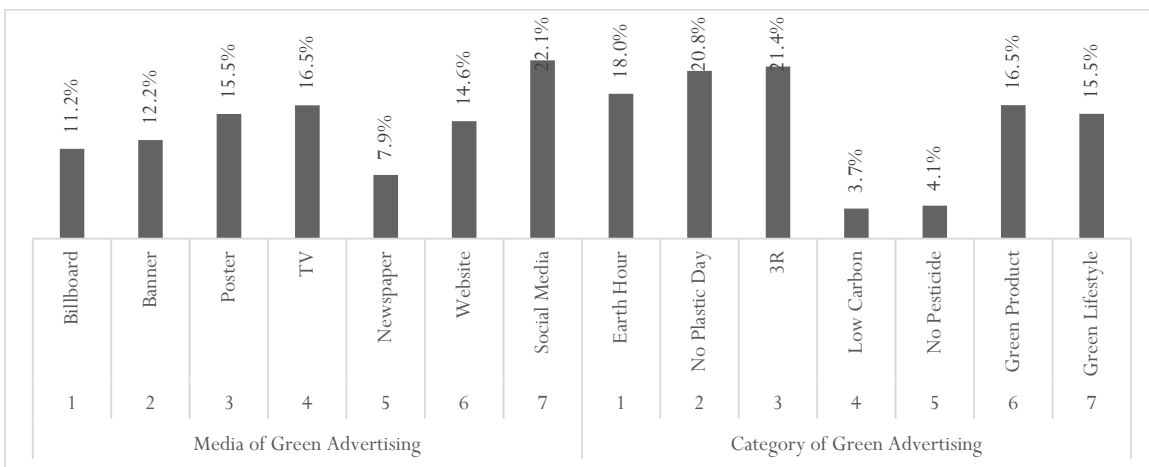


Fig. 1. Media and Category of Green Advertising

Because respondents are divided from two countries, namely Indonesia students, respondents were grouped to find out the differences of opinion on media questions and the categories of green advertising. First, the media of green advertising which

are important by Indonesian students such as social media, billboards, posters, and banners (Fig. 2). While for Malaysian students, the things that are important like social media, tv, websites, and posters (Fig. 2). Based on two results, there are differences of opinion wherein Indonesia billboards, posters, and banners are still the preferred media. While Malaysia focuses on online media such as social media, tv, and websites, surely, this difference in recommendations is based on green advertising, which is often accepted by respondents, for the impact of green marketing strategies submitted by companies or governments. The following results relate to the category of green advertising assessed by students, where for Indonesia, the categories of no plastic day, 3R, green product, earth hour, and green lifestyle are more considered. These results are not much different from the opinions of Malaysian students, where the categories of green advertising are assessed by starting from 3R, no plastic day, earth hour, green product, and green advertising (Fig. 2). It seems clear that the categories of green advertising in both Indonesia and Malaysia have the same view. The result is explained that the environmental issues concerning today have similarities; this finding is surely important to pay attention to both companies and governments relating to green advertising.

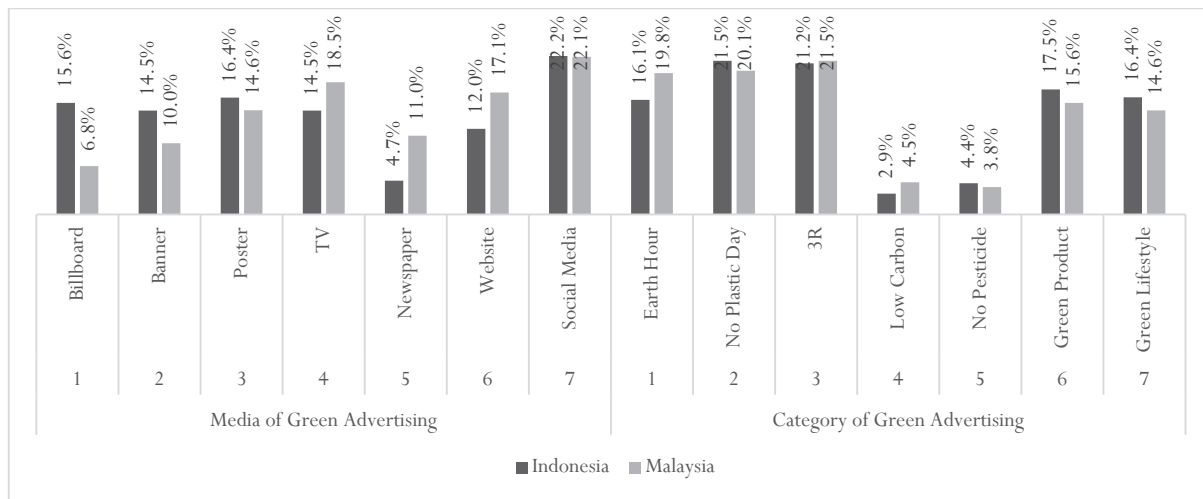


Fig. 2. Green Advertising Perception in Indonesia and Malaysia

4.2 The goodness of Fit Statistics Research Model

This study aims to examine two variables, namely green advertising through confirmatory factor analysis, and its impact on green awareness through the research model tested on Lisrel. Before analyzing the study results, a goodness of fit test of the research model was carried out by considering several criteria of fit statistics, as for testing goodness of fit statistics through consideration of Chi-Square, GFI (Goodness Fit Index), RMSEA (Root Mean Square Error of Approximation), CFI (Comparatif Fit Index), AGFI (Adjusted Goodness of Fit), and NFI (Normed Fit Index). The results of the fit statistics are summarized in Table 1, where all criteria are known to be good except Chi-Square with accepted results. Based on the results in Table 1, the subsequent analysis is the Confirmatory Factor Analysis Model (Fig. 3) and the analysis of the relationship between variables (Fig. 4).

Table 1

The goodness of Fit Statistics Result

Criteria of Goodness	Cut off Value	Model Test Result	Result
Chi-Square	p-value > 0,05	0,008 > 0,05	Acceptable
GFI	≥ 0,90	0,94 ≥ 0,90	Good
RMSEA	≤ 0,08	0,056 ≤ 0,08	Good
CFI	≥ 0,90	0,99 ≥ 0,90	Good
AGFI	≥ 0,90	0,91 ≥ 0,90	Good
NFI	≥ 0,95	0,98 ≥ 0,95	Good

Based on the results in Fig. 3, it is known that green advertising is determined by eleven indicators, which are divided into three dimensions, namely green impact, green message, and green theme. The results of Confirmatory Factor Analysis are known that all indicators and dimensions can form the creation of green advertising. The priority scale of green advertising dimension, which needs to be considered based on Loading Factors value that is started from a green theme, green impact, and green message (Fig. 3). The following result is connecting to green advertising and green awareness, with the results clearly show a significant relationship (0.68). The results of the model in Fig. 3 and Fig. 4 were tested by t-value validation through the research hypothesis test, with the results for all criteria are significant, and it is summarized in Table 2.

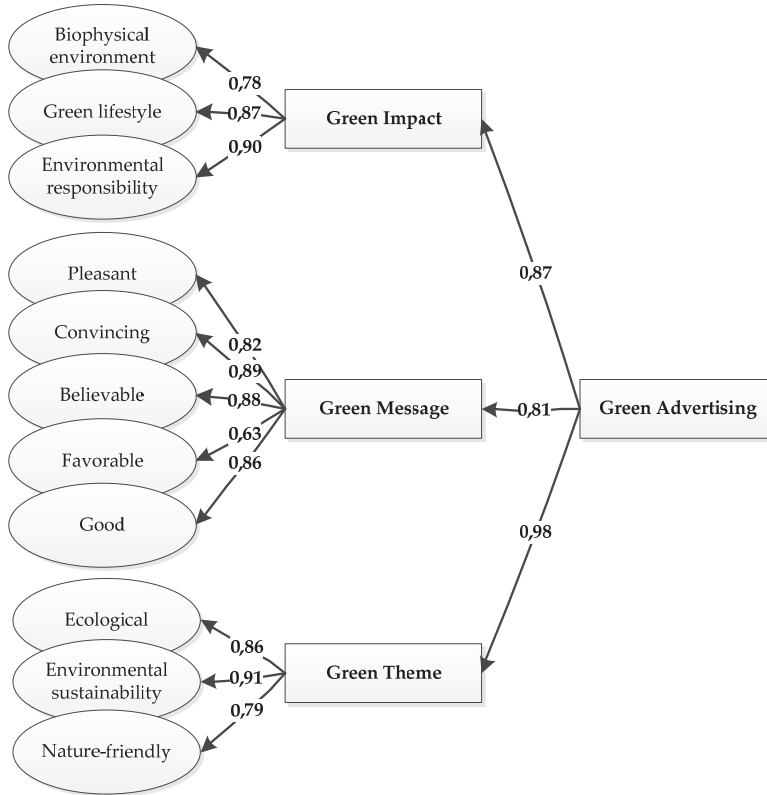


Fig. 3. Confirmatory Factors Analysis of Green Advertising

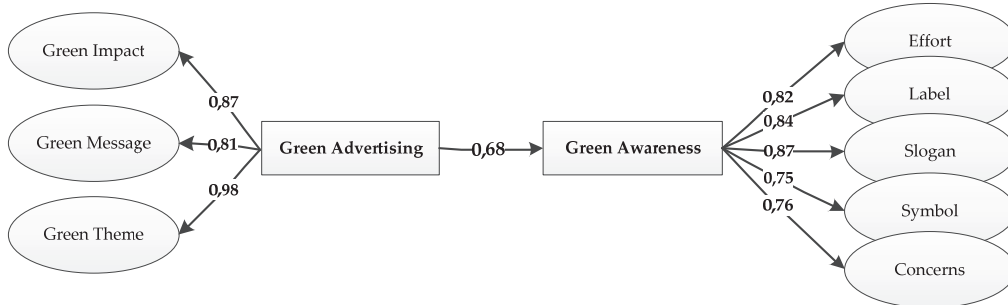


Fig. 4. Correlation Value of Green Advertising and Green Awareness

Table 2
Hypotheses Test

No.	Hypotheses	t-value	Result
H1	Green Impact to Green Advertising	10,72	Significant
H2	Green Message to Green Advertising	10,62	Significant
H3	Green Theme to Green Advertising	13,55	Significant
H4	Green Advertising impact to Green Awareness	8,95	Significant

Green advertising is part of the green marketing strategy used by companies to inform customers of their products or services. Environmental issues become the main thing used in green advertising, with the main aim of improving the company's image, namely as a company that cares about the environment. Based on the study results of Indonesia and Malaysia students, it is generally known that the issue of green advertising which is often used by companies today is related to 3R (reduce, reuse, recycle), no plastic day campaign, appeal for earth hour, green product variants and appeal green lifestyle. 3R is an issue related to the use of products that can be recycled to reduce the waste resulting from the use of products. Today, 3R has become a trend both in Indonesia and Malaysia, as evidenced by appeals issued by the government with proposals to separate waste from product use so that it can be recycled. Similar to the campaign, no plastic day where regulations from the government related to the limitation of plastic materials as shopping bags at supermarkets. The phenomenon relates to the issue of 3R, and no plastic day provides customers with insight into understanding green advertising. The next issue that is also a

concern in green advertising is earth hour, green product, and green lifestyle. In Indonesia, more appeals for earth hour, green products, and green lifestyle are conveyed through billboards and posters. Unlike Malaysia, which is more active through social media, websites, and TV. This information becomes a meaningful input for marketers in understanding the characteristics of customers in accepting green advertising to determine the right target media.

Another thing to consider for marketers regarding green advertising is the determining factor valued by customers. Based on the study results submitted in Fig. 3, three dimensions determine the success of green advertising. Through confirmatory factor analysis, it is known that the green theme is the main thing of implementing green advertising, the next factors are green impact and green message. Green theme is related to the theme of the issues used in green advertising, where respondents consider a classic theme in an environment that has an important concern. The determined green theme is related to three things, namely ecological issues, environmental sustainability issues, and nature-friendly issues. The green theme becomes the main factor in determining green advertising considering the campaign in advertising to prioritize the theme, in line with the theory previously presented that explains the importance of theme in green advertising (D'souza & Taghian, 2005). The second factor of green advertising is green impact, which explains the importance of advertising that has a direct impact on respondents. The issues taken in green impact are related to the biophysical environment, green lifestyle, and environmental responsibility. Green impact becomes pending because what is expected from an advertisement is the impact felt by customers, in line with previous theories that explain the importance of the green impact of green advertising (Banerjee & McKeage, 1994). The last factor can control; green advertising is a green message where it is associated with indicators like pleasant, convincing, believable, favorable, and good. It means that the message contained in green advertising is considered important when giving an impression to customers as ad recipients. Surely, this theory is in line with previous studies that explain the importance of an implied and unimplied message from an advertisement (D'souza & Taghian, 2005). This research finding explains the importance of green themes, green impact, and green message informing green advertising, which can be accepted by customers. Part of the research relates to Confirmatory factor analysis of green advertising is confirmed through the research hypothesis test previously presented (Table 2). Where all dimensions, namely green theme, green impact, and green message, are stated to be significantly able to be the building blocks of green advertising. Furthermore, this finding becomes a recommendation for companies that use green marketing strategy through green advertising to understand the determinants of green themes, green impacts, and green messages because the implementation of green advertising provides opportunities for developing the company's image.

4.3 The Influence of Green Advertising to Green Awareness

The implementation of green advertising has the goal, it is not only the education of products or services offered, but also it has an impact on green customer behavior. Based on the results in Fig. 4, it is known that green advertising has a positive correlation with green awareness, with a correlation value of 0.68. If it is improved, it can be interpreted as influencing the development of green awareness was about 46%. This result is emphasized by the hypothesis test presented in Table 2, which states that green advertising can control green awareness significantly. In green advertising, there are three factors controlled and known by society, such as green theme, green impact, and green message. Whereas in green awareness, there are several things assessed from society, like effort, label, slogan, symbol, brand, and concerns. The impact of green advertising on green awareness is actually in line with some previous research, where it is stated that everything was done in advertising which takes to environmental issues to pay attention to green awareness behavior. Part of this research provides important information for companies and governments where they need to pay attention to green advertising with its determinants in order to be able to control green customer behavior.

5. Conclusions

Green advertising is part of a green marketing strategy; it is commonly used by companies or governments concerning advertising that takes environmental issues. The main purpose of green advertising was to improve the company's image as an effort to concern for the environment. Regarding green advertising, the views of Indonesia and Malaysia respondents are surely different. The difference has lied on the delivery of green advertising media, where Indonesia prioritizes billboards and posters, while Malaysia emphasizes on social media, TV, and websites. However, the issues raised in green awareness have similarities, which are related to 3R, no plastic days, earth hour, green products, and green lifestyle. In building green advertising, several determinants are needed, starting with a green theme related to the theme of advertising, the green impact, which is the impact of advertising and green message related to the message to be delivered. These three factors provide opportunities for implementing green awareness, which is acceptable to customers. Further research from the study results stated that green advertising has a positive impact on green customer behavior, namely green awareness. So, it is highly recommended to use green advertising in controlling green awareness. The finding of this research is useful to companies as it has demonstrated the importance of green advertising in influencing customers. It can be a guideline for companies to comply with the government's green policy. However, this study has limitations, which only focus on studying from the side of students as respondents, with prior experience receiving green advertising. So, it is recommended in further research to extend the research object to customers who have received information related to green advertising. Besides that, there are only three discussions of factors of green advertising, namely green theme, green impact, and green message. It is recommended for further research to examine other factors that are closely related to green advertising because there are still several factors that can measure good advertising, such as emotional levels and the visualization of advertisements.

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