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The effect of visual communication in creating public awareness of sustainable living: A case study in Malaysia

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ABSTRACT

This study explores the effect of visual communication amongst the public in Malaysia towards integrating sustainable living. It is suggested that a proper communication strategy needs to be executed toward public awareness of sustainability. With the current pollution, unmanageable waste, and degradation issues, it is essential to evaluate further and strategise the most efficient way to impact individual perception in integrating sustainable living as part of their lifestyle. Visual communication is considered a powerful tool to distribute information, which needs further evaluation and development to comprehend sustainable living adaptation successfully. This study applied explanatory research by providing quantitative data emphasising the PLS-SEM algorithm to evaluate types of visual communication impact on public attitudes and beliefs. A total of 213 respondents around Malaysia took part in this study, and 188 data were accepted for analysis. The analysis executed bootstrapping methods to allocate the suitable variables that interact with the publics' intentions. The study found an empirical difference between perceptual and sensual visual communication toward public attitudes and ethical beliefs in integrating sustainable living. This study further discussed the impact of visual communication, the identification of limitations in the analysis, and suggestions for future research in sustainable communication.

Contribution/ Originality: This study is explanatory research combining visual communication and management studies in sustainable development and awareness. The scope of the study focuses on developing and introducing a new Theoretical framework in sustainable communication for a better understanding of managing public lifestyle.

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1. INTRODUCTION

Generally, daily human activities have an impact on the environment. These activities were influenced by the human lifestyle, which directly and indirectly affected the earth's physical atmosphere. Human lifestyles determine the living pattern of humans and could change with increased income, but a lifestyle without control could potentially cause damage to the environment. To avoid eventual damage, humans need to adapt to a sustainable living lifestyle in the long run. Sustainable living practitioners often try to reduce their carbon footprint by adjusting their lifestyles. However, awareness of sustainable living needs to be nurtured among the public and society. It could be done by using the appropriate communication.

Communication can be divided into different types of categories. Many studies pointed out the need to strategise each category to impact the message differently (Hussein, 2020). These communication characteristics depend on many factors (culture, society, community, environment) of a specific target audience. Successful communication will transverse the message it conveys throughout the community (Hussein, 2020; Tölkes, 2020). By managing a particular communication strategy in terms of setting up the tone and language of the message, individuals can be directed to perform a specific idea, task, or directive (Tölkes, 2020). As part of the communication strategy, visual linguistics has been a part of the most effective language to develop understanding in the public and community upon interpreting the intended message (Zhang, 2012). Government, Non-Government Organisations (NGOs), agencies, universities, and research institutions continuously and relentlessly conducted research and projects to build public awareness regarding sustainability (Dardak & Adham, 2014; Pino, Felzensztein, Zwerg-Villegas, & Arias-Bolzmann, 2016). Any endeavour towards diversifying communication strategy by integrating creativity, innovation, and understanding can reflect economic growth, community lifestyle, and environment (Oliveira & Martins, 2011; Pino et al., 2016). Undoubtedly, an adequately planned communication strategy will incite a certain degree of acceptance that will impact the community's lifestyle (Luo, Olechowski, & Magee, 2014; Luo, Warkentin, & Li, 2013).

However, it must be accepted that there will always be resistance to integrating sustainable living as it could become a significant challenge for many individuals. A shift in individuals' lifestyles is not an easy matter to procure. Furthermore, a drastic shift cannot be enforced towards the public as it could be rejected and thus create a negative impact (Luo et al., 2014; Luo et al., 2013). To execute successful sustainable living, each individual must be adequately aware of their role and responsibility. Without the cooperation of each party, investment toward sustainability will only be a waste of effort (Tölkes, 2020). Although the traditional communication approach to engaging the public in sustainable issues is insufficient, fewer studies emphasised using visual communication to educate the public in practising sustainable living. Therefore, this study aims to determine the most appropriate visual communication strategy that could influence individuals and the public to practice sustainable lifestyles.

2. LITERATURE REVIEWS

Public education is considered essential as it is one of the proper tools to implement a policy. A proper sustainable communication strategy must be developed to ensure maximum effects for educating sustainability among the public. Tölkes (2020) mentioned that the communication needs to clearly state the benefits offered to create public awareness, which could meet the public demands that align with sustainability criteria. The message needs to be transparent for the public to fully grasp the concept of sustainability (Luo et al., 2014). Nonetheless, strategising sustainable communication is not "a walk in the park" kind of effort. The broad and vague concept of sustainability is already hard enough for the public to understand and recognise fully. The public already had difficulty grasping their role and responsibility to fully utilise the concept of sustainability. It is hard to imagine the benefits they could gain from practising sustainable living, which was ultimately meant for future generations (Nicholson-Cole, 2005). The public needs to fully understand four significant areas (resources, lifestyle, process, and product). Each category requires different kinds of efforts from the public to adopt sustainable living. Thus,

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communication has proven to be difficult as it needs a different strategy set that aligns with each category of sustainable living. A communication that disregards these differences would be established to be fatal, which causes a waste of efforts and investments as it would not be fully utilised. Thus, respective concern needs to deliberate steps to communicate sustainable living efforts to the public (Line, Hanks, & Zhang, 2016). In this study, sustainable communication strategies for communication with the public were divided into two main categories: Perceptual Communication and Sensual Communication.

2.1. Perceptual Communications

Perceptual communication is crucially related to the core of perception towards individuals' actions. As the main core of the communication strategy, the added attention creates a spark to draw the viewers (Kimchi, Yeshurun, Spehar, & Pirkner, 2016). It uses a robust approach using different direct and straight-to-the-point messages to constrain the viewer's attention. Thus, the viewer will process the information faster, and the quality of information will be received at maximum output (Bartolucci & Smith, 2011; Im, Lennon, & Stoel, 2010). Constructing perceptual communication requires multiple components that must be layered into a single concept. Barry (2002) suggested that perceptual communication needs to have real-life phenomenon elements so that the information will become more effective. Zhang and Zheng (2016) mentioned that the current understanding of communication does not have any particular systematic process of approaches. Thus, there is no definite concept in expressing a real-life phenomenon to strategise this concept properly. Chen et al. (2015) emphasised the downside of perceptual communication as it only triggers behavioural changes in the early stages and will decline as time goes by. Further, some individuals late in accepting and understanding sustainable living will not tolerate perceptual communications.

2.2. Sensual Communications

In contrast with perceptual communication, sensual communication affects individuals' emotional components that raise ethical and practical matters. It can manipulate and alter individuals' interpretation of a complex concept of sustainable living. It can trigger by integrating individuals' experience and knowledge of certain topics and/or issues, thus, triggering their positive and negative emotions towards a particular action (Nicholson-Cole, 2005). Parkhurst and Jeevendrampillai (2020) suggested that sensual communication is most effective when individuals are most vulnerable, as their body condition is more agile to trigger their emotions to the fullest. Therefore, the visual message needs to be properly aligned with individuals' needs when it is needed the most. Rossetti, Pisella, and McIntosh (2017) pointed out that sensual communication is more related to individuals' past and present actions. Sensual communication reacts towards individual sensorimotor that cannot respond to illusionary, which lacks its memory, indicating that sensual communication is a message needed to trigger personal emotion. The visual images are prone to create happiness, sadness, anger etc., that reminiscence their experience (Dassonville & Bala, 2004).

2.3. Application of Visuals in Communications

Communication in providing direction on a task, information or rules are needed to be as precise to ensure that it can be conducted and executed correctly to increase the performance outcome. Such communication needs to be simple to understand but detailed at the same time. Compared to visual and verbal elements, visual elements are recognised as faster, easier and more accurate (Pryshchenko, Antonovych, & Petrushevskyi, 2021). Visual communication significantly increases public knowledge (Kumoratih, Anindita, Ariesta, & Tholkhah, 2020). People now live in a visual society that incorporates visual communication, which is always used for public relations and strategic communication to create specific meaning that supports the goals (Wiesenberg & Verčič, 2021). Visual media could shape individuals' perceptions and intentions as visual media communication could lead to audience involvement and attitude formation.

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Furthermore, individuals can access numerous communication channels with visual content using current technological advancements such as smartphones and other web-based media (John & De'Villiers, 2020). As a result, there are opportunities for using visual media to disseminate information effectively. In addition, visuals can be used for various strategic purposes, such as stimulating culture and public relations. Visual elements are becoming a predominant part of individuals' daily lives through the internet and media access via smartphones and other wearable technologies (Wiesenberg & Verčič, 2021).

The visual representation needs to overview the intended message as the audience can immediately get the overall impression of such information (Zhang, 2012). In developing the strategic communication plan, each segment of the visual need to be constructed effectively in the order of its intended message with its production of intended outcomes. The most crucial part is allocating specific visuals for a particular audience, as each audience interprets visuals based on their value. When creating communication for the public, designers should choose appropriate associations rather than trying to gather all feelings and associations (Pryshchenko et al., 2021). It is nearly impossible to execute different visual directions simultaneously; thus, managing the visual strategic plan is needed to ensure the communication can achieve its maximum output and outcomes (Manzini et al., 2018). Through reviews, fewer studies were conducted to fill the missing link between visual communication and managing sustainability. In addition, this study added human attitudes to explain further how visual communication could support the execution of sustainable living (Bakar & Anak, 2020; Bakar, Talukder, Quazi, & Khan, 2020). By focusing on the elements of visual communication, this study added new information by explaining the relationship of visual communication and human attitudes towards sustainability. The new theoretical research model was developed at the end of the study that could be used as a guideline for strategies for proper sustainable communication using visuals. Proper and meaningful visualisations depicting sustainable living could help bridge the relationship gap between the concept of sustainability and individuals' daily experience; to make clear its local and individual relevance (Nicholson-Cole, 2005).

3. DEVELOPMENT OF HYPOTHESIS

Prior to developing the hypotheses, the variables were separated into three categories of independent and dependent variables, as shown in Figure 1. The variables were introduced based on the reviewed literature on visual communication, sensual communication, perceptual communication, individuals' attitudes, ethical belief, and sustainable living.

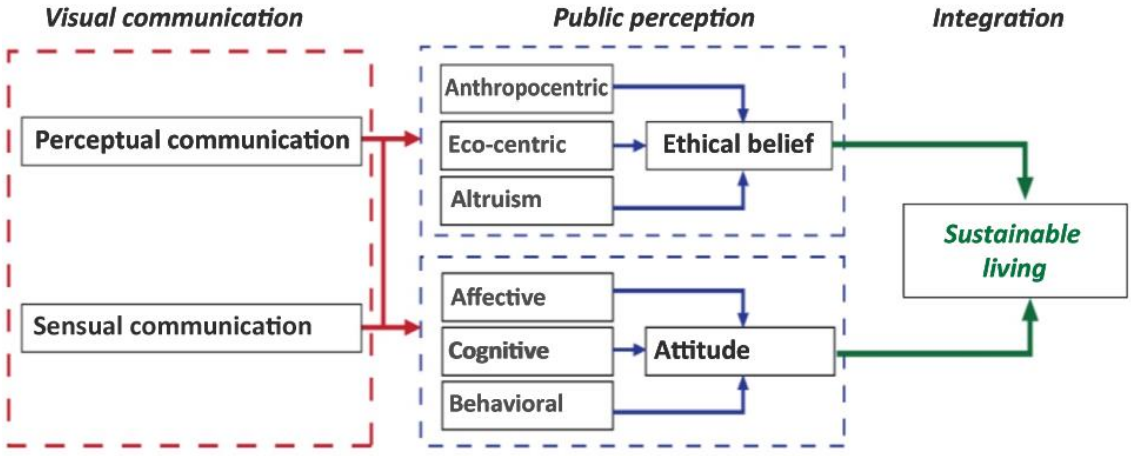

Figure 1. The Theoretical framework for sustainable visual communication.

3.1. Individual's Attitudes

A positive attitude is not the only contributor to sustainable living success. Individuals with a negative attitude

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would still consider managing their lifestyle to benefit their needs. Increasing individuals' awareness will affect decision-making by triggering emotions, beliefs, and actions. When the public change their beliefs and emotions, they will re-evaluate their responsibilities and roles to create a sustainable lifestyle (Bakar et al., 2020). Individuals' emotions could lead to a sense of attachment, respect, responsibility, and joy towards improving their daily routine. Sometimes these feelings are not built up within individuals but are more apparent in the opposite reaction that causes the decisions (i.e., worried about climate change and deciding to accept sustainability). According to Sarabia-Sánchez, Rodríguez-Sánchez, and Hyder (2014), people's attitudes and behaviours regarding the environment have remained unchanged because they think there are no problems that directly affect how they live their daily lives.. Their low awareness of managing a sustainable lifestyle is caused by their disbelieving in the claims of environmental problems and climate change. Individuals' behaviour plays an essential role as their action determines the outcome of the environment. Social and personal norms could leave an impact on individuals' behaviour. Sustainability has evolved from something individuals can do to something that individuals are obligated to do (Bakar & Anak, 2020). Strategic communication planning is essential to properly align this intended objective in creating public awareness regarding an individual's lifestyle. Therefore, based on the individuals' attitudes, three hypotheses were developed as the following:

Hypothesis 1 (H1): Perceptual Communication has a significant relationship with Human Attitudes.

Hypothesis 2 (H2): Sensual communication has a significant relationship with Human Attitudes.

Hypothesis 3 (H3): Human Attitudes have a significant relationship with Sustainable Communication.

3.2. Individual's Ethical Beliefs

Individuals can have two different perspectives on the environment: anthropocentrism and ecocentrism. People who subscribe to anthropocentrism believe that the environment should be maintained because it is important for enhancing human quality of life. Contrarily, eco-centric people believe that because of nature's inherent value, which is unrelated to human demands, it should be protected (Thompson & Barton, 1994). Different techniques and appeals may be offered by diverse environmental perspectives. According to research, the attitudes of the current generation tend to be more anthropocentric, where people see the environment as something that might bring them benefits. People who are highly concerned about climate change and environmental issues tend to be more eco-centric and wish to keep the environment as it is (Bakar & Anak, 2020). Therefore, based on the individuals' ethical beliefs, another three hypotheses were developed as the following:

Hypothesis 4 (H4): Perceptual Communication has a significant relationship with Human Ethical beliefs.

Hypothesis 5 (H5): Sensual communication has a significant relationship with Human Ethical beliefs.

Hypothesis 6 (H6): Human Ethical Belief has a significant relationship with Sustainable Communication.

4. METHODOLOGY

This study applied explanatory research to describe the possible phenomenon in explaining the relationship between visual communication and individuals' attitudes. This type of research is the most appropriate for collecting information to present the general idea of the discussed topics due to presenting actual and apparent facts based on the presented statistical data. With the hypotheses established in the previous section, this study has analytically evaluated and tested the potential explanations for the observed relationship. A quantitative approach was executed to collect numerical information and generate statistics for analysis to explain the relationship. A quantitative approach is typically hypothetic-deductive. Furthermore, this study evaluates both positive-negative relationships in the form of non-normal data as a factor to consider both the impact of the positive and negative relationship of the variables to understand and fully grasp the correct phenomenon. The measurements used in this study were based on previous research to measure attitudes and communication (Bakar & Anak, 2020; Bakar et al., 2020; Bartolucci & Smith, 2011; Im et al., 2010; Rossetti et al., 2017). The questions were modified to cater for the

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specific target of the study. The questionnaires established consisted of 7 measured Likert-Scales, which are appropriate for a multi-variance study to ensure higher validity and reliability (Sarstedt, Ringle, Smith, Reams, & Hair, 2014). This study executed a Partial Least Square-Structural Equation Model (PLS-SEM) algorithm to analyse the collected data. PLS-SEM algorithms are specialised in analysing non-normal data distribution. Therefore, it only requires a small size of 15 samples for each predictor (15 participants x 11 variables = 165 samples). A total of 213 data sets from the participants have been compiled, and 188 data sets were finalised, with 25 data sets deemed inconclusive for testing. The participants were reached via email and social media. Because the government's movement control order (MCO) was enforced due to the COVID-19 pandemic, the participants were asked to assist by distributing the survey through snowball or chain-referral sampling. With these techniques, the participants could provide referrals to recruit new target respondents for the study. It allows for the study to be conducted when there is a lack of participants (Everitt & Skrondal, 2010; Levine & Stephan, 2014). As this study utilised multiple theories that have been expanded and modified through reviewed literature, using PLS-SEM is essential to accurately measure the data collected (Sarstedt et al., 2014). Variables with a high level of path coefficient of 0.2 and above are considered to have a significant relationship if the T value (>1.65) and P-Value (P<0.15) show a high value towards the samples. A composite reliability, convergent and discriminant validity were executed, and any values of >0.7 Composite Reliability (CR) and >0.5 (AVE) were considered satisfactory for further evaluation to ensure the accuracy of the data samples.

5. ANALYSIS AND FINDINGS

Analyses including PLS-SEM Algorithm and Bootstrapping from the acquired data sets, were conducted to define the data findings. The composite and discriminant validity results are presented in Table 1 and Table 2. Data with high values and positive indicate an accurate prediction of the relationship. In Table 1, all variables have shown values of >0.7 for the composite reliability test. It indicated that the variables (predictors) in this study are internally consistent with each other. The average variance extracted (AVE) values also show satisfactory results to demonstrate the commonality of each predictor in the study. The AVE results are a form of convergent validity for the predictors. The AVE for all variables has shown a satisfactory value at >0.5. Adoption shows a value of 0.630, indicating the lowest score among all variables. However, the value is still deemed acceptable as it is higher than 0.5. The results indicate that this study has high levels of convergent validity. Meanwhile, to test the theoretical research framework for its discriminant validity, the Fornell-Larcker Criterion analysis was used to differentiate each variable, as shown in Table 2. This analysis was used to show the uniqueness of each variable not presented by other variables in the theoretical research framework. The Fornell-Larcker criterion calculates the square root of all the AVE values. These values need to be greater than their highest correlation with other variables. The analysis of the results in Table 2 indicated high discriminant values for all the variables. All the evaluated values concluded that all the criteria were met and satisfied to support the analysis further.

Table 1. Composite reliability test.

Parameter	Composite reliability (CR)	Average variance extracted (AVE)
Adoption	0.895	0.630
Affective	0.954	0.806
Altruistic	0.966	0.851
Anthropocentric	0.946	0.780
Behaviour	0.940	0.757
Cognitive	0.967	0.854
Eco-centric	0.960	0.826
Perceptual comm	0.933	0.737
Sensual comm	0.951	0.796

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Table 2. Fornell-larcker criterion.

Antecedents	Adoption	Affective	Altruistic	Anthro	Behaviour	Cognitive	Eco-centric	Perceptual comm	Sensual comm
Adoption	0.794								
Affective	0.258	0.898							
Altruistic	0.386	0.597	0.923						
Anthropocentric	0.232	0.677	0.642	0.883					
Behaviour	0.382	0.517	0.592	0.601	0.870				
Cognitive	0.204	0.599	0.623	0.728	0.685	0.924			
Eco-centric	0.329	0.511	0.572	0.675	0.671	0.579	0.909		
Perceptual comm	0.089	0.668	0.382	0.528	0.335	0.414	0.404	0.858	
Sensual comm	0.081	0.568	0.390	0.477	0.322	0.337	0.356	0.697	0.892

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The study applied the PLS-SEM algorithm to calculate the path coefficient between each independent and dependent variable. The results from this analysis provided empirical data to support the proposed theoretical research framework to explain the current phenomenon of public acceptance of sustainable living through visual communication. Through the running of the PLS-SEM algorithm, path coefficient results are shown in Table 3. The results have produced several variables that could be considered significant to the study. The data shows that Perceptual Communication -> Affective attitude has the highest path coefficient value. Perceptual communication also significantly correlates to all dependent variables such as Altruistic Belief, Anthropocentric Belief, Behavioural, Cognitive Attitude, and Eco-centric Belief.

On the other hand, TWO dependent variables have shown a non-significant relationship for Sensual communication. The other variables that have a significant relationship with Sensual communication are Affective Attitudes, Altruistic Beliefs, Anthropocentric Beliefs, and Behavioural Attitudes. Furthermore, TWO variables triggered individuals to integrate sustainable living into their daily lifestyles Altruistic and Behavioural Attitudes. The analysis further presents the p values to calculate the probability of an error to reject the null hypothesis. As suggested by Ringle, Wende, and Becker (2015) and Hair, Hult, Ringle, and Sarstedt (2014) p values are considered significant when $p<0.01$ for the highest significant relationship, followed by $p<0.05$ and $p<0.10$. As demonstrated in Table 3, all variables with a significant t-value have shown a significant p-value.

Table 3. Results of the structural model path coefficient.

Variable	Path coefficient	Significance level	t values	P values	Comments
Affective -> Adoption	0.063	NS	0.596	0.551	Not supported
Altruistic -> Adoption	0.309	***	3.761	0.000	Supported
Anthropocentric -> Adoption	-0.110	NS	0.703	0.482	Not supported
Behaviour -> Adoption	0.308	***	3.081	0.002	Supported
Cognitive -> Adoption	-0.225	*	1.851	0.064	Supported
Eco-centric -> Adoption	0.118	NS	1.447	0.148	Not supported
Perceptual comm -> Affective	0.528	***	5.957	0.000	Supported
Perceptual comm -> Altruistic	0.215	*	1.819	0.069	Supported
Perceptual comm -> Anthropocentric	0.381	***	3.074	0.002	Supported
Perceptual comm -> Behaviour	0.214	*	1.759	0.079	Supported
Perceptual comm -> Cognitive	0.349	***	2.834	0.005	Supported
Perceptual comm -> Eco-centric	0.304	**	2.467	0.014	Supported
Sensual comm -> Affective	0.200	***	2.587	0.010	Supported
Sensual comm -> Altruistic	0.240	***	2.921	0.003	Supported
Sensual comm -> Anthropocentric	0.211	*	1.889	0.059	Supported
Sensual comm -> Behaviour	0.173	*	1.904	0.057	Supported
Sensual comm -> Cognitive	0.094	NS	0.939	0.348	Not supported
Sensual comm -> Eco-centric	0.144	NS	1.290	0.197	Not supported

Note: *** Correlation is significant at the $p<0.01$ level (2-tailed).
** Correlation is significant at the $p<0.05$ level (2-tailed).
* Correlation is significant at the $p<0.10$ level (2-tailed).
Abbreviations: Comm; Communication, NS; Not supported.

6. DISCUSSIONS

The PLS-SEM path coefficient analysis has indicated that perceptual and sensual visual communication significantly affect individuals' attitudes and ethical beliefs. The result of the PLS-SEM algorithm for perceptual communication and sensual communication is illustrated in Figure 2 and Figure 3, respectively. Table 3 reported all the possible significant relationships between the independent and dependent variables to approve and/or disapprove of the suggested hypothesis. Based on the data analysis, perceptual visual communication is more significant as it reflects all attitudes and ethical beliefs. In contrast, sensual visual communication only triggers four of the public perception variables. The results from the analysis also show the prediction of public integration of sustainable living through the implication of positive Altruistic and Behavioural attitudes contained within the

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communication strategy. In contrast, the less effective the communication strategy's implementation of cognitive attitudes, the more effective the communication will become. It is attributed to the significant result in negative value.

6.1. Summary of Hypothesis 1 and 4

Table 3 demonstrated that perceptual visual communication indicated significant and positive effects on public perceptions. The highest relationship amongst the variables are affective (*** p<0.01), cognitive (*** p<0.01), and anthropocentric (*** p<0.01). The researchers summarised that in trategizing a perceptual communication concept, it is commendable to implement these three contents to communicate with the public effectively. Otherwise, eco-centric (** p<0.05) content also could be suggested as a secondary content of the perceptual communication. It could become supportive content that elaborates the communication strategy. On the contrary, altruistic (* p<0.10) and behavioural (* p<0.10) content may not be the best option for creating perceptual communication. Even though both variables are significant, the level of relationship is too low to be considered an effective content strategy.

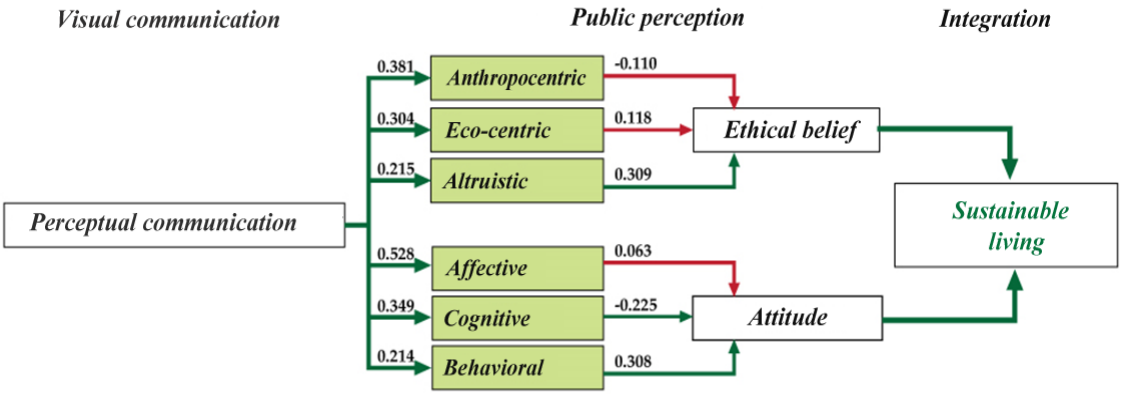

Figure 2. PLS-SEM algorithm result for perceptual communication.

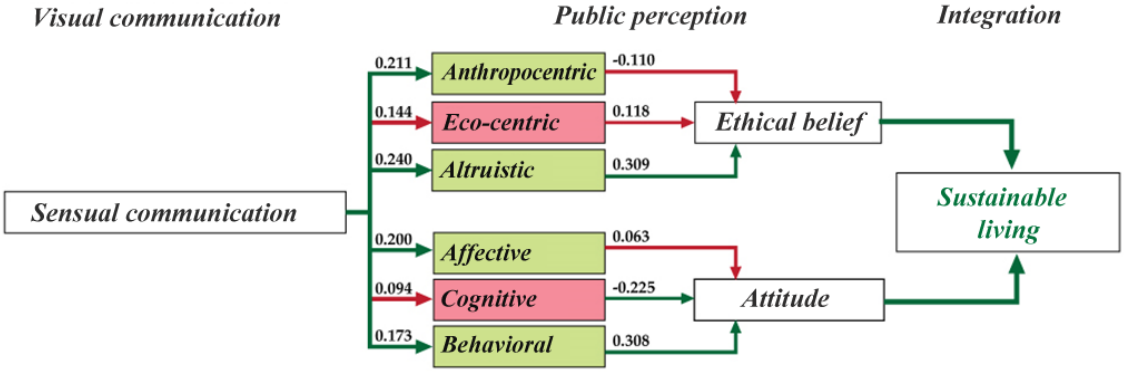

Figure 3. PLS-SEM algorithm result for sensual communication.

6.2. Summary of Hypothesis 2 and 5

As for sensual visual communication, Table 3 indicates that the significant relationship only appears for two types of attitudes and two types of ethical beliefs. The Highest significant relationship was found between altruistic belief (*** p<0.01) and affective attitudes (*** p<0.01). It illustrates that implicating affective and altruistic content in sensual visual communication will make communication in Malaysia more effective for a public audience. Although anthropocentric belief (* P<0.10) and behavioural attitudes (* p<0.10) are significant in the context of sensual visual communication, it is indicated that the variables have not achieved their full potential as part of the content strategy. Therefore, both variables may not have fulfilled their role for a definite impact on the public

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audience. Still, as sensual visual communication is a soft-sell approach to communication, the variables could be integrated as part of the exploration to create a slow impact on the audience. On the contrary, both cognitive attitudes are not supported (NS) (NS p>0.10) and eco-centric (NS p>0.10) have shown a non-significance relationship. Thus, the study rejected the hypotheses between sensual visual communication, cognitive attitudes, and eco-centric belief.

6.3. Summary of Hypothesis 3 and 6

Referring to Table 3 only two variables of public perception (attitudes and ethical belief) have a highly significant relationship with the integration of sustainable living. The variables consist of altruistic belief (*** p<0.01) and behavioural attitudes (*** p<0.01). In understanding the role of altruistic belief for individuals, it is essential to properly focus on their actions towards the family, community, and country. As altruistic individuals are considered selfless, they would not become attracted to messages that impact themselves; to match with behavioural attitudes, visual communication is suggested to demonstrate individuals' actions towards integrating sustainable living into their lifestyle. Further, this paper considers the possibility of cognitive attitudes (* p<0.10), as this variable has shown a significant relationship to the integration of sustainable living. Although low and significant in value, it can still be applied as part of the communication strategy to encourage the public to integrate sustainable living. However, the study has rejected anthropocentric belief (NS, p>0.10), eco-centric belief (NS, p>0.10), and affective attitudes (NS, p>0.10) as the variables have shown a non-significant relationship with the integration of sustainable living.

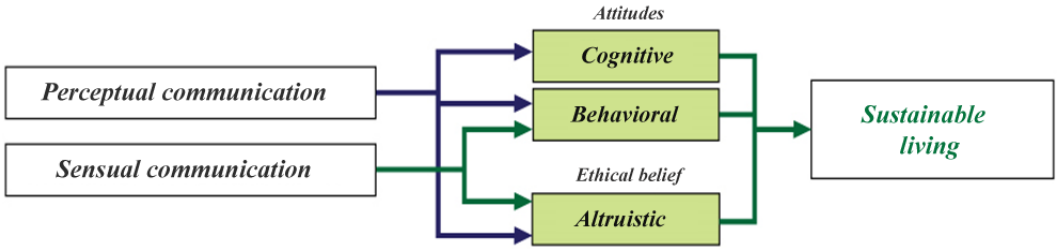

Figure 4. PLS-SEM theoretical research model path for sustainable visual communication.

7. CONCLUSIONS

This study has proposed a possible theoretical research model with visual communication variables, as shown in Figure 4. The research area of sustainable communication in public has expanded upon integrating sustainable living. With the expansion, a new path has opened to visual communication in transferring information, policy, message, awareness and alerting the public regarding sustainable living in their everyday lifestyle. The most crucial aspect of this paper is that it has addressed an apparent gap in the literature on sustainable visual communication and sustainable public living. Perceptual and sensual visual communication is considered the most crucial element and approach to trategizing communication towards the public. Explaining its relationship with public attitudes and ethical beliefs, it had shown the best approach in conducting a relevant communication strategy planning when the information was meant for the masses. As suggested in Figure 4 well-planned strategy structures will make the process effortless to apply in other circumstances in the context of sustainability. Future research could be explored many applications of perceptual and sensual visual communication's components, including community and culture. The theoretical research framework suggested in this paper could assist the Malaysian government, NGOs, and Private Agencies in creating relevant and constructive communication strategies regarding sustainable communication. It is suggested that the relevant agencies implement perceptual visual concepts to properly convey sustainable living to the public. The content of the communication could focus more on the altruistic belief perspective. There are many ways to communicate altruistically, such as by visually exhibiting the effects of climate

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change on the community, the reflections of the future generation on today's choices and actions and providing clinical data on the degradation of social problems for the community.

Additionally, it is favourable to include certain behavioural attitudes that reflect how public actions could make a change for a better future. Each action they take will create domino effects impacting their surroundings and the community. These variables could help the strategy planners to plan their communication strategy effectively and efficiently. Through effective and impactful communications, the public may realise and become aware more of their everyday actions. Even the smallest decision, without awareness, can create changes and improvement of their surroundings. The public needs to realise that their uncontrollable lukewarm attitude may bite them back, either to themselves, their family members, or even their communities. Managing the public lifestyle is an individual's responsibility. Every person has a role to play as part of the community to create a sustainable livelihood. Integrating a sustainable lifestyle is challenging and requires much effort, as individuals must sacrifice their everyday activities and shift towards sustainable living. It is crucial to ensure that the public knows the impact and effect of each of their actions on the people, environment, and economy. The government, organisations, and agencies need to organise their communication strategy; otherwise, a project may be wasted in efforts and detrimental if it fails. Each future sustainability project intended for the public and masses in Malaysia could be built up properly through the suggested theoretical framework. Promoting a sustainable lifestyle by invoking the public's altruistic ethical beliefs may be an important aspect of communication in Malaysia towards creating a sustainable country for the future. It is on the country's agenda to create a better future that can be considered the demand of future generations. Thus, the public needs to align their attitudes, mindset, and lifestyle with the aspiration of becoming a sustainable country.

8. LIMITATION AND FUTURE RESEARCH

This study analysed the relationship between perceptual and sensual visual communication in integrating a sustainable lifestyle by triggering public attitudes and ethical beliefs in Malaysia. A different analysis result might be generated if it was conducted in other settings based on geographical, cultural, and social-economic factors. The study has also approached a logical extension of the previous research in visual communication, sustainable communication, and sustainable living, for which the variables in this study are deemed appropriate. The study has integrated two types of visual communication variables, two sets of public perceptions, six mediating variables and one dependent variable. Each mediating variable is equally important to underline public perceptions by understanding their attitudes and ethical belief. Some of the effects of the independent and mediating variables may produce different results if the analysis is separated into different types of smaller clusters. Future research may demonstrate a detailed explanation if the analysis is conducted by applying the moderator variables to the study. A different set of communication may also apply in future research as the independent variables with other mediating variables to reflect and understand an individual's acceptance level of sustainable living. For future case studies, the theoretical research framework could also be conducted in different environments, such as developing and developed countries. Thus, the study could be extended into a more extensive scope to enable researchers to fully understand the capabilities of communication toward sustainability. The samples chosen in the study could represent the public perception of sustainable living. It is essential to fully understand the phenomenon to investigate the masses that have already implemented a sustainable lifestyle. Finally, the theoretical research model in the study could be applied to any sustainable approach, including manufacturing, production, servicing, and distribution, based on the required settings. Different results may occur if the target's environment contrasts with the research's scope of the study. Future research may seek to identify related topics in sustainability and communication, benefiting from the theoretical research model developed from this study.

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