

Design and Development of Augmented Reality Advertisement Visual Production Through Multi-Method Approach

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ABSTRACT

The emergence of immersive new media in advertising, such as augmented reality (AR), has accelerated since the Industrial Revolution 4.0. Companies use different tools to shape a brand by providing a higher level of interaction in AR for their new marketing. However, influencing consumer decisions despite consumers' lack of attention is also a critical task in measuring the effectiveness of advertising. Thus, this research aims to design and develop different approaches to advertisement prototypes as stimuli for experiments to measure AR ads' effectiveness on consumers. This research design consisted of a multi-method to produce three ideations of AR advertisement prototypes. The respondent selection is based on convenient sampling, and n=44 respondents participated. Firstly, the researcher conducted a visual analysis to extract the elements used in the ads based on ethos, pathos, and logos by Aristotle's concept. Secondly, the study adopted inter-rater reliability measurement to analyze the degree to which the judgments of the several judges were consistent. Lastly, a descriptive AR advertisement's design and development of the AR ads process framework are described. The results show that respondents' degree of agreement leads to a mutual understanding of the subject and appeals categorized as creative ads, endorsement ads, and argument quality ads. The process also helps to speed up the application development. The apps use marker-based AR to display 3D models or video commercials and provide information on product design that gives users control of the interface. Finally, a plan for future research in AR advertising is specified, beta testing for the usability of the apps is recommended for future research, and the implications are discussed.

Keywords: *Augmented Reality, Advertising, Visual Persuasion, Consumer.*

INTRODUCTION

Advertising is an important communication method for advertisers to deliver product or service messages (Hackley & Hackley, 2018). It can influence consumers to make purchases (Samarasinghe, 2018). However, the advertising industry has reached a tipping point, posing challenges to business models and marketing structures as the traditional advertising revolution applies to digital advertising (Pfeiffer and Zinnbauer, 2010). Based on findings by GroupM (2020), as cited in Anthony. J (N.D), the overall ad spending is predicted to fall by 11.8% globally, while traditional ad forms such as newspaper, television, and outdoor advertising will suffer the most, with a 20.7% drop. The shift in mobile devices and social media use has contributed to the drastic decline in traditional media advertising (Moorhouse et al., 2017).

Industrial revolution 4.0 has become an essential agenda for every country, contributing to the application of technology by advertisers in marketing and advertising (Ahn, 2020). Core technologies in the industrial revolution 4.0 consist of "artificial intelligence", "internet of things", big data, and virtual imaging technologies such as virtual reality (VR), "augmented reality" (AR), mixed reality (MR), holograms, etc. The concepts of reality and virtual are the main drivers of innovation and change in the economic sector (Kagermann, 2015). Furthermore, innovation is vital in technology development (Huang and Liao, 2015). In advertising, digital transformation makes media interactive, experience-based, personalized, data-driven, and more responsible (Truong, McColl, and Kitchen, 2010). Past researchers agreed that immersive new media profoundly impacted the practice of advertising. Therefore, many researchers have attracted attention to understanding the phenomenon (Wedel et al., 2019).

So, to be in line with marketing 4.0 in the era of the fourth revolution, according to Choon Ching Ng and Chandrashekar Ramasamy (2018), a new approach that marketers should use to integrate the world of reality and the virtual world, such as "augmented reality" (AR) technology, into marketing strategies. AR technology advertising can stimulate consumer interest in products to increase purchase opportunities (Zulkifli et al., 2016, Huang and Hsu Liu, 2014). In addition, traditional advertising and marketing in the current digital age may be unexciting for new-generation consumers (Ng and Ramasamy, 2018). Therefore, immersive new media, such as AR, is projected to play an essential role in the future and a viable source of media technology in marketing (Seeling 2015). AR is also easier to be accepted because it does not require additional equipment to view the augmented content, which only uses smartphones as scanning devices. AR visualizes sources of information such as sounds, objects, avatars, graphics, and labels in the real world (Carmigniani et al., 2011). It provides contextual information that enhances performance, usability, and enjoyment in experiencing interactive experiences (Wedel et al., 2019).

Nonetheless, AR technology usage in Malaysian society still needs to improve (Sharifah Nurleyana Wafa & Ellyna Hashim, 2016). Therefore, it contributes to the need for more literature on the use of AR technology in Malaysian scope. According to Ng and Ramasamy (2018), Malaysia will be left behind from an economic point of view if the industry is unwilling to accept the 4.0 industrial revolution, where AR is part of the nine benefits of industry 4.0. There are efforts to realize the state policy 4.0 (MITI, 2018) towards industry 4.0 by integrating immersive human-computer interaction in marketing and advertising systems in Malaysia, such as Toyota (Malaysia), Pos Malaysia, Didi & Friends, and 100 plus (Malaysia). However, in the Malaysian context, the acceptance and effectiveness of AR technology advertising still need to be clarified, and it is reasonable to research AR further. Thus, this research aims to design and develop different approaches to advertisement prototypes for AR as experiment stimuli to measure AR ads' effectiveness for Malaysian consumers. The research objectives are to evaluate the production of a visual approach for AR advertisement prototypes and to develop a prototype framework for AR advertisement based on actual clients. This study will make a substantial contribution to the corpus of knowledge on communication design and as guidance for the business community in adopting AR for marketing strategy.

LITERATURE REVIEW

New Age Advertising in Marketing Strategy

Technological developments in the era of the industrial revolution 4.0 have changed the marketing structure globally, causing communication through advertising to be more competitive. Therefore, it has contributed to the evolution of marketing from marketing 1.0 to marketing 4.0. Initially, marketing 1.0 was a product release activity carried out on a bulk basis and was motivated solely by product sales. However, there is an awareness to increase product branding oriented to consumer needs. Thus, marketing 2.0 was introduced, namely customer-centric marketing (Antonio et al., 2002; Kotler et al., 2017). In this regard, communication through advertising has become more precise in targeting consumers than in the first marketing phase, which only focuses on products. Then, technology and new media developments involve social networks in which the emergence of marketing 3.0, namely human-centric marketing added social values such as involving consumers in marketing campaigns. Now, the era of the industrial revolution 4.0 has become a global agenda. In relation to that matter, marketing 4.0 in which the human interaction with computer systems (human-computer interaction marketing) online and offline, has become the latest marketing strategy (Antonio et al., 2002; Kotler et al., 2017). As a result, marketers are increasingly using innovative methods such as augmented reality to attract and deliver product messages. The research in this area is expanding due to global demand.

Augmented Reality as Recent Technology

Augmented reality (AR) technology is one of the components of the fourth industrial revolution, where interactions occur between humans and computer systems (Hofmann and Rusch, 2017; Ministry of International Trade and Industry (MITI, 2018). AR is a combination of the real and virtual worlds generated by a 2D or 3D computer graphic image that is interactive in real-time (Azuma, 1997; Faust et al., 2012). It also creates a virtual illusion that impresses the user in the virtual world. The first AR was developed and created in 1960 for application in medicine, flight simulation, or information systems (Sutherland, 1968). However, since the increasing use of smartphones and digital devices, the function of AR has been extended to several new areas, such as advertising, games, and learning. The Mini Cooper brand initiated the first use of AR technology advertising in 2008 by producing 3D train models that appear on smartphone screens when advertisements containing AR content are placed in front of the camera (Carmigniani et al., 2011). AR content can be presented using devices such as PCs, smartphones, tablets, and smart glasses that come in various forms, such as text, photos, videos, and animations. In addition, AR content is available in Blippar applications, Junaio, screen, Vuforia, and other AR custom settings. Three markers commonly used in AR are marker-based AR, markerless, and location-marking. Marker-based AR requires a specially labeled image to sense the position of the 3D object on the real-world image (Imberta et al. 2013), while markerless AR uses the real environment as input displays the AR content. Unlike location-marking-based AR communicates data using a global positioning system (GPS) and electronic gadgets (Baratali et al., 2016). Marketers typically utilize AR product packagings and print advertisements such as newspapers, magazines, transit, or digital boards (Sharifah Nurleyana Wafa & Ellyna Hashim, 2015). Augmented reality technology in various media expands the chances for customers to communicate. According to Joachim and Andrew (2016), AR technology offers enormous potential for integrated marketing communication to provide product messages. As a result, AR technology advertising has the potential to impact customers (Yaoyuneyong et al., 2016) positively.

Augmented Reality Advertising in Industry 4.0

Advertisers have utilized augmented reality to boost immersive or feel-real experiences to win consumers' hearts (Vidal, 2014). It also empowers consumers regarding flexibility and control over the time, place, and way they choose things (Niemeier et al., 2013; Piotrowicz and Cuthbertson, 2014). In recent years, many researchers have begun to pay attention to AR technology due to its potential and

implications for the industry. Although most customers are less aware of AR technology in this revolution, the research study by Kim et al. (2017) found that the respondents support its use because of its revolutionary characteristics that draw attention. More studies are increasing on augmented reality in marketing or advertising. For example, an experimental study by Yang et al. (2020) showed that AR improves attitudes toward advertising through increased curiosity and attention to advertising. In addition, AR technology novelty features such as interactivity give a natural feeling to seeing information on the surface of reality (Schlosser, 2003).

Moreover, interactivity is an element that seeks to extend the function of promoting products that do not exist in the characteristics of traditional media advertising (Li & Leckenby, 2007; Miles, 2007). Advertising designs characterized by interactivity make consumers look carefully at specific advertising messages and better understand product messages (Mauroner et al., 2016). In addition, Baek et al. (2018) found that respondents who spend time on AR content will have positive feelings toward the ad. According to Hopp & Gangadharbatla (2016), in a consumer interview session on AR advertising, respondents stated that the content of relevant messages and advertising elements was a factor in using AR technology in advertising. In addition, the novel impression and fun show positive feelings and attitudes in AR advertising. Thus, a study to evaluate how visual communication persuades the message through AR advertising is relevant.

Theoretical Foundation

i) Visual Persuasion Element in The Advertisement

Visual communication delivers information through images, photographs, and other human representations, with the design or layout enhanced for attention-grabbing purposes (Jain, 2018). Persuasive pictures have the primary purpose of persuading the audience that aims to have an emotional appeal to touch the consumers' emotions. It also tends to influence audience beliefs, desires, and actions. According to Jain (2018), the audience's presumption of the image is that a picture conveys a credible message compared to a verbal message. In addition, the classic philosopher Aristotle (1984) defines persuasion as using personal influence as 'ethos', emotional appeals as 'pathos', and logical arguments as 'logos' (Aristotle, 1984). Specifically, ethos refers to a communicator's persona or projected character, including their credibility and trustworthiness in the image (Hartelius and Browning, 2008). Pathos refers to the audience's emotions elicited by the argument for persuasive effect (Aho, 1985) to forge a common bond or establish a connection. Even though the audience is unfamiliar with the original object depicted in the image, they may still experience emotion when viewing it (LaGrandeur, 2003). Danesi (2017) reaffirms that visual images are processed through feeling and emotion before cognitive comprehension. Developing a solid emotional connection with the audience demonstrates goodwill and establishes the communicator's credibility. This emotional appeal also contributes to the persuasive power of ethos (Toye, 2013).

Moreover, to persuade the audience, logos uses facts and figures to justify claims. LaGrandeur (2003) suggests that photographs accompanied by words constitute the argument's logos. However, the effectiveness of the visual persuasion element in the advertisement is assessed by the depth of message processing by the audience.

ii) Concept Elaboration Likelihood Model in Advertising

The elaboration likelihood model (ELM) is a persuasion theory developed by psychologists Richard Petty and John Cacioppo (1986) (Kitchen et al., 2014). Typically, the impression of the persuasion process is determined by the impact of attitudes and behavior (Kitchen et al., 2014). Suppose the depth of information processing is high. In that case, ELM assumes that elaboration occurs through a central route

to promote attitude change, where individuals pay attention to the logical and pertinent processes in the message's content. It is also known as a high-elaboration stage in the inclusion of the intended message by the individual. Alternatively, suppose the processing depth is shallow. In that case, ELM believes that the elaboration applies through a peripheral route to attract individual attention and change attitudes, where individuals process information based on other principles without cognitive thought. Therefore, it is necessary to understand the persuasive effect of immersive new media to determine the route consumers take through AR advertising.

RESEARCH METHODOLOGY

The researcher built the research framework for the design and development of the production of augmented reality visuals in three phases which involve a multi-method of research design. Laying the conceptual groundwork, the first phase uses Aristotle's (1984) and Petty dan Cacioppo's (1986); concepts for visual analysis to categorize six advertisements of the existing brand into three themes. In the second phase, the researcher used a survey as a research instrument for reliability testing of the three themes using the inter-rater kappa statistic for the analysis. According to Emam (1999), the interrater agreement is an additional form of reliability. The degree of agreement between the evaluations on the same criteria but different coders. The employment of raters or observers as a measurement method is used in various areas, including medicine, psychology, education, anthropology, and marketing (Chaturvedi & Shweta, 2015). The survey was distributed online using a google form sheet. Then, after the reliability test analysis, A descriptive analysis summarizes the character of the three themes for designing and producing visuals for AR advertisements in phase 3. The client selection was a real-based client that sells beauty products.

Phase One - The Visual Analysis

The compilation of health and beauty product advertisements was coded based on construct ethos, pathos, and logos by Aristotle (1984). The researcher then determines which cues the image corresponds to using the ELM assumption. The amendment has been made to the fictitious advertisements by omitting the actual brand name of a product to 'brand X' (Figure 1-3). It ensures that the preferred brand does not influence respondents and avoids bias. According to Hermiyenti & Wardi (2019), brand image is anticipated to affect purchasing decisions.



Figure 1. The primary subject of the famous endorser is to deliver the product message.

(Source:

<https://shopee.com.my/HIMALAYA-Men-Pimple-Clear-Neem-Face-Wash-%2850ml-100ml%29-i.44875869.3909126176> &

<https://myproductreview.blogspot.com/2018/03/pengenalan-review-nutox-skincare.html>)

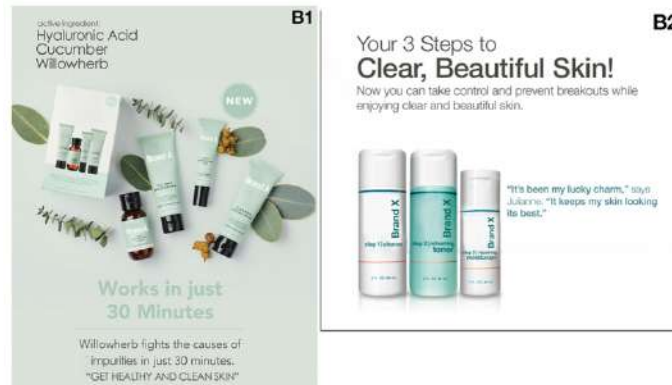


Figure 2. The primary subject of the product and text to deliver the product message.
(Source: <https://sukinnaturals.com.au/blogs/journal/how-to-care-for-teenage-skin-naturally#close> & <https://lombardo.agency/portfolio/proactiv-skincare/>)



Figure 3. The primary subject of the product and text to deliver the product message.
(Source: <https://www.brandinginasia.com/acne-pimples-advertising/> & <https://www.nytimes.com/2010/11/09/business/media/09adco.html>)

Phase 2 - The Survey

Instruments

The survey has three sections and takes 10-15 minutes to complete. Part A: Respondent information, Part B: Public perception of advertising appeal. It consists of multiple-choice, five ratings Likert scale, and an open-ended question for respondents to give their opinion on ads' attraction to purchase the product.

Respondents

Respondents ($n=44$) were given online questionnaires using a google form sheet, and the convenient sampling method was chosen for the sampling procedure (Table 01). Since the power (80.0%

or 90.0%) and alpha less than 0.05) have already been fixed, the Cohen's kappa agreement test's minimum necessary sample size will range from 2 to 927 when the genuine marginal rating frequencies are the same, so $n=44$ is acceptable. According to Priporas (2017), various generations will respond to new technologies in different ways. Furthermore, age influences one's ability to access information technology resources and desire to use new tools and services (Lee, 2009). Thus, this study has set limitations on the generation Z cohort.

Table 1: Socio-Demographics Characteristics of the participant (n=44)

Variables		n (%)
Gender	Male	20 (45.5)
	Female	24 (54.5)
Age	18 -19	23 (52.3)
	20 - 21	18 (6.8)
	22-23	0
	24	3 (6.8)

Phase 3 - The design & development of Augmented reality Ads

The visual is confirmed through rigorous research to be perceived as source endorsement, argument quality, and creative ads. The design process development was made through sketching, pre-production, and production/digital comprehensive (figure 4). The product brand is Daflab Skincare, and the researcher has mutual understanding and approval to use the brand. A local brand is selected since it is still new in the industry, which could avoid biasedness.

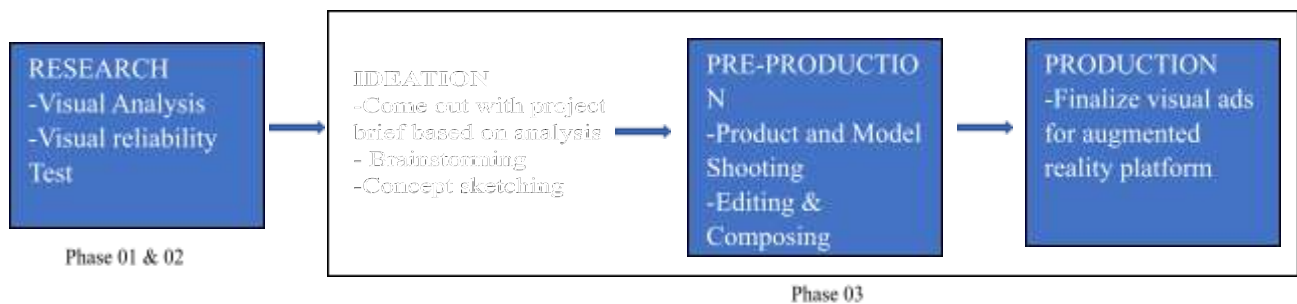


Figure 4. Design & Development Process

FINDINGS

Initially, drawing on the theoretical constructs of Aristotle's (1984) persuasive appeals to ethos, pathos, and logos, as well as ELM persuasion theory that provides explicit step-by-step guidance to evaluate the production of a visual approach for AR advertisement prototypes. The Aristotelian elements of ethos, pathos, and logos appeal to the communicator's character, credibility, and trustworthiness. Walker (1994) says these three pieces are not "distinct proofs" but concurrent arguments.

Table 2: Ethos Direction


Identifying main subject for ads categorization

	Ethos Personal Influence	Phatos- Emotional	Logos-Argument
Primary Subject	/		
Secondary Subject			/
Tertiary Subject		/	

Based on the advertisement above can be formulated as an endorsement-type advertisement because the first impression is more in line with the definition of ethos (Table 2). According to Hartelius and Browning (2008), ethos refers to a communicator's perceived identity or character, including his or her credibility and trustworthiness. The ads are separated into primary, secondary, and tertiary subject-matter. The advertisements are organized by importance, beginning with the most important and working their way to the least important. The primary subject matter is the ad's focus, drawing attention to the essential aspect of the product or service being promoted; the secondary subject is the element that helps readers understand the primary subject matter, and the tertiary subject matter is the element that encourages viewers to keep looking at the image. A model or celebrity chosen to represent the brand is the defining characteristic of believability advertisements. Typically, the subject occupies half or the entire page of an ad. Source credibility is seen as a subject with positive features or elements or credibility in delivering information (Amelina and Zhu, 2016).

Moreover, the change in individual attitude expressed in the ELM model is based on the amount of information processing or the individual's cognitive rationale whether through the central route, the peripheral route" (Petty and Cacioppo 1986) or both (Petty et al., 1997; Bhattacharjee and Sanford, 2006). When the depth of processing is negligible, ELM considers the elaboration that takes place through the peripheral route to attract the individual's attention to change the attitude, where the individual processes information based on other principles without going through cognitive thinking. Thus, the endorsement ads hypothesized that the route taken is the peripheral route in which the ability to understand the message of a subject becomes secondary.

Table 3: Pathos Direction



☐ Identifying main subject for ads categorization

	Ethos Personal Influence	Phatos- Emotional	Logos-Argument
Primary Subject		/	
Secondary Subject			/
Tertiary Subject			

Based on the advertising above, it may be classified as a creative advertisement since the visual approach provides a symbolic means to deliver a message by displaying emotion as the main subject, also known as pathos (Table 3). Past researchers agreed that advertising and marketing communication techniques might be classified as informational or transformational (Golan & Zaidner, 2008). In this regard, informational communications target customers' logic and sensibility, whereas transformational messaging focuses more on the target consumers' emotions or senses. Danesi (2017) also says that pathos or emotions are used to process images before they can be understood cognitively. Even though the audience may not be familiar with the original object in the picture, they could still feel something when they see it (La Grandeur, 2003). The secondary subject in the ad is the argument that supports the visual, giving it considerable significance. In the ELM component, attractiveness that falls under the motivation dimension may persuade the consumers. According to Kapitan and Silvera (2015), attractiveness can inspire consumers to buy a product. After using the product, the consumer believes he will appear as an influential individual in the ads. This may pique consumers' curiosity, causing them to purchase the goods even if they do not require them.

In contrast, Morissan & Crane (2007) argues that advertising attractions should be something that moves people, talks to people, pertains to their desires, and piques their interest. Therefore, creative ads are an attractive approach that the peripheral route is taken to persuade the consumer. Typically, the main subject occupies half or the entire page of an advertisement.

Table 4: Logos Direction

	Ethos Personal Influence	Phatos- Emotional	Logos-Argument
Primary Subject			/
Secondary Subject		/	
Tertiary Subject			

Argument-quality advertising is the type of advertising described above (Table 4). This is because an ad's text or textual messages are thought to be vital in influencing the audience. The wording and more information emphasize the message's text, followed by the emotions as a secondary subject conveyed through narration. The primary text subject usually uses a quarter page but repeatedly in other spaces. These features correspond to the definition of logos, in which facts and data are used to back up arguments to persuade the audience. According to Holt and MacPherson (2010), the term logos refers to the clarity and coherence of the argument. In addition, the quality of an argument is determined by an individual's judgment of the content's rationale and the quality of the material (Petty and Cacioppo, 1986). However, ELM has explained that attitude change built through the central route is more permanent, while the peripheral route is temporary and difficult to predict (Petty and Cacioppo 1986). Thus, the argument had hypothesized that the route taken is the central route in which the motivation and ability to understand the message of a subject are primary. The effect of the persuasion process is usually measured by the influence of attitude and behavior (Kitchen et al., 2014). Suppose the depth of information processing is excellent. In that case, the ELM assumes that elaboration is taking place through a central pathway to induce attitude change, where individuals pay attention to the logical and relevant processes of the message content. It is also known as a high level of elaboration in individual participation in conveying the message.

Phase Two

In the second phase, following the category of visual advertisements in the first phase, the Content validity index (CVI) and Kappa signify agreement of relevance (k^*) of the domain advertising appeal (Table 5). In addition, there are recode values for negative-type questions, which are items 2,3,4,6,7 and 8.

Table 4: CVI and Kappa Interpretation of Ads Appeal

Items	Criteria/ Question	Ne	CVR	CVI	Kappa Values	Interpretation
1	A. In your opinion, what is the best fit for the advertisement appeal of A1 and A2? Endorsement Ads	26	0.182	0.591	0.40-0.75	Good Agreement Beyond chance
2	A. In your opinion, what is the best fit for the advertisement appeal of A1 and A2? Argument Ads (Recode) 1 No 0 Yes	37	0.682	0.841	>0.75	Excellent Agreement Beyond chance
3	A. In your opinion, what is the best fit for advertisement appeal of A1 and A2? Creative Ads (Recode) 1 No 0 Yes	32	0.455	0.727	0.40-0.75	Good Agreement Beyond chance
4	A. In your opinion, what is the best fit for advertisement appeal of B1 and B2? / Endorsement Ads (Recode) 1 No 0 Yes	39	0.773	0.886	>0.75	Excellent Agreement Beyond chance
5	A. In your opinion, what is the best fit for advertisement appeal of B1 and B2? / Argument Ads	33	0.500	0.750	>0.75	Excellent Agreement Beyond chance
6	A. In your opinion, what is the best fit for advertisement appeal of B1 and B2? Creative Ads (Recode) 1 No 0 Yes	38	0.727	0.864	>0.75	Excellent Agreement Beyond chance
7	A. In your opinion, what is the best fit for advertisement appeal of C1 and C2? / Endorsement Ads (Recode) 1 No 0 Yes	39	0.773	0.886	>0.75	Excellent Agreement Beyond chance
8	A. In your opinion, what is the best fit for advertisement appeal of C1 and C2? / Argument Ads (Recode) 1 No 0 Yes	37	0.682	0.841	>0.75	Excellent Agreement Beyond chance
9	A. In your opinion, what is the best fit for advertisement appeal of C1 and C2? / Creative Ads	32	0.455	0.727	0.40-0.75	Good Agreement Beyond chance
				0.826	S-CVI	

Cohen (1960) suggested the Kappa result be interpreted as follows: values ≤ 0 as indicating no agreement and 0.01–0.20 as none to slight, 0.21–0.40 as fair, 0.41– 0.60 as moderate, 0.61–0.80 as substantial, and 0.81–1.00 as almost perfect agreement. The acceptable standard for S-CVI is recommended minimum of 0.81. Thus, the overall items are acceptable, which is S-CVI, 0.826.

Table 5: Table of Percentage for Ads Categorization

Variables	n (%)
Endorsement Ads	26 (56.8%)
Argument Ads	33 (75%)
Creative Ads	30 (68%)

Most respondents, 56.8%, believe that the design of endorsement advertisements, A1-A2, is connected to a personal influence-based ethos. This is corroborated by several responses to the open-ended questions listed below:

- “Your face will be as handsome/pretty as this celebrity if you use our product!”
- “Keberkesanan produk melalui duta atau model yang digunakan”
- “A person can be good looking when using the product”
- “Dengan menggunakan produk yg diiklankan, kita akan dapat keputusan wajah yg kemungkinan sama dgn si pengiklan”

A majority of 75% of respondents believe that design for argument quality advertisements, B1-B2, are related to logos that highlight argument quality. Some of the comments correspond to the ad's purpose, as shown below:

- “The quality and efficiency of the product”
- “Mesej yang ingin disampaikan adalah tentang fungsi serta cara penggunaan sesuatu produk itu”
- “Penyampaian maklumat tentang produk yang dipromosikan”
- “To claim that their product help to achieve healthy skin.”
- “Keberkesanan produk terhadap pelanggan”
- “The benefit or information of the product”

Regarding the C1-C2 images, most respondents indicated that the advertisements are associated with a creative strategy that appeals to the consumer's pathos as a form of emotion. In addition, the keyword mentioned by the respondents demonstrated a shared knowledge of creative advertisements.

- “Surrealism in the creativity of the ad to show relatable situations.”
- “Perasaan”
- “The feeling of a person before buying this product”
- “Menyelamatkan kulit menggunakan cara soft sell”
- “Mempromosikan produk yang berkaitan dengan apa yang dialami oleh pelanggan”
- “Emotional manipulation at its finest”

Table 6: Table of Frequency for Ads Inspire Product Purchase Intention

Variables	n (%)
Endorsement Ads	25 (57%)
Argument Ads	11 (25%)
Creative Ads	8 (18%)

Most respondents n=25 said that incorporating endorsements in the advertisements would motivate them to buy, whereas n=11 respondents thought that making the product claim obvious would encourage them to purchase. In addition, they are least favored n=8 by creative advertisements that compel people to buy the advertised product. However, the opinion on purchasing intention based on the ads approach still needs to be verified in a larger sample because the sample selection needs to meet the criteria to represent the population of consumers gen Z in Malaysia.

Finally, the final process involves designing and prototyping AR advertising outlined in the design and development framework based on the three approaches (Figure 5). The features from analysis in phase 01 & phase 02 are applied to phase 03 to create fictitious AR ads that will be assessed for the persuasive visual effect on enhancing purchase intention. The process was done rigorously to ensure the

validity of the prototype for future research or for being used in the industry to meet the actual demand. The process took two years to complete because of the covid-19 outbreak that occurred amid prototyping. After completing the phase 2 analysis, the researcher collaborates with an SME that is still relatively new to the market. After discussion and agreement, the researcher is permitted to examine the brand for the development of augmented reality content. The design process commenced with the ideation phase, which consisted of keyword-driven brainstorming and sketch ideation. The planning and strategy are mapped out and outlined in the project brief during this crucial phase. The subject matter, model, shooting date, time, and location were determined to ensure a smooth pre-production process. Next, the researcher begins to shoot images and videos for the AR content during pre-production. Then, the composition and editing process utilizes Adobe Photoshop, Adobe Illustrator, Adobe Premier, Adobe Audition, and Blender software. During the final stage, production, the researcher uses Unity software to finalize the AR marker's appearance and content. All the elements highlighted in the first phase are implemented to meet the criteria for creative ads, endorsement ads, and argument-quality ads.



Figure 5. Design & Development Based on Design Process Framework
 (Source of Image: Personal Collection 2019-2021)

CONCLUSION

In conclusion, the researcher agrees that studies on the efficacy of technology are crucial to achieving technological civilization. Furthermore, adopting recent technology is expensive and time-consuming without examining its potential consequences. Thus, after thorough research on the design process, the study effectively created various prototypes for AR advertisements to measure the persuasive visual impact of the different ad design approaches. The researcher believes that AR seems to aid the development of new ways of attention-grabbing and innovative communication in advertising. Concurrently, understanding visual persuasion based on ethos, pathos, and logos finds critical components in categorizing advertisements, such as composition, subject matter size in the ad, repetition elements, etc.

Nevertheless, research has limitations that require further study and in-depth understanding to strengthen AR knowledge in marketing advertising. Understanding the persuasive approach in adopting AR is vital by measuring its effectiveness or impact. Future research should continue beta testing AR ads production from this study to ensure the feature is practical and the handling process is efficient. In addition, the study is also focusing on the Gen Z sample; thus, the other cohort should also be examined to see whether the three approaches perceive any different view of AR ads. Probability sampling is recommended so the finding can be generalized to the population. The study brings new contributions to growing domains such as design, advertising, and marketing by interacting with the widespread usage of visual images and technologies.

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