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Determinants of Consumer Attitudes toward Mobile Advertising: A Cross-border Study between Malaysia and Indonesia using PLS-MGA

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ABSTRACT

Technological advancement has led to new models of marketing strategies which is mobile advertising to better reach consumers. However, despite the prevalence of mobile advertising and the ubiquitous use of mobile devices to develop markets, little has been done to examine the perceived value and attitude towards mobile advertising. The purpose of this study was to understand and compare the factors that influence perceived value and attitude towards mobile advertising between two countries in Southeast Asia, namely, Malaysia and Indonesia. A total of 300 questionnaires were evenly distributed among university students in Malaysia (150 samples) and Indonesia (150 samples). PLS-SEM based software (Smart PLS 3.0) was used to perform the path modelling and multi-group analyses. The findings showed that while information and entertainment are what Malaysians look for in mobile advertising, information was significantly more important to Indonesians. Although both agreed on the credibility and irritation part of advertisement, Malaysians seemed to value mobile advertising more than Indonesians. The implications of research are provided.

JEL Classification: M16, M31
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INTRODUCTION

In recent years, the advancement of technology has created new opportunities for various organisations to enhance their marketing plans. According to Funk (2004), mobile devices has become tools for entertainment, navigation, socialising, and transaction. More importantly, they also serve as new marketing tools for organisations to exploit business opportunities. Evidently, the easy accessibility of the Internet has opened up huge avenues for organisations to stay in touch with consumers at all times (Sinkovics et al., 2012). Therefore, mobile marketing – which is also known as m-marketing – is expected to make ground-breaking changes in the marketing industry because it allows organisations to stay connected with their consumers in an effective way (Fritz et al., 2017; Shankar et al., 2016; Ström et al., 2014). Mobile advertising is expected to lead the advertising market as evidenced by the global mobile advertising revenue which was found to approximate USD 108.9 billion in 2016 and is anticipated to achieve USD 247.4 billion in 2022 (Statista, 2018).

According to a press release by the Market Research and User Experience Research Expert – GfK in 2015, the demand for smartphones in the Southeast Asia region is continually rising. About 40 million smartphones were sold in the first half of 2015 in Southeast Asia alone (GfK, 2015). In fact, Indonesia has the fastest growing market in terms of the sales of smartphones (Primanto et al., 2018). A survey conducted by Asosiasi Penyelenggara Jasa Internet Indonesia (APJII, 2016) states that mobile phones are the most widely used devices by Indonesian to access the Internet. Meanwhile, eMarketer reports that, as compare to their counterparts in the Southeast Asia region, Malaysian smartphone users spend the most time with their mobile devices (Anon, 2016). Relatively, the mobile platform presents a vast opportunity for marketers to advertise their goods and services. Given the rapid growth of smartphone use, it has become necessary for organisations to revise their marketing strategies by being more innovative and spontaneous when communicating with their customers through mobile advertising.

The recent fast growth of communication technology as well as the consumers' rapid acceptance of mobile phones has prompted marketing organisations to spend more on developing mobile advertising strategies (Sinkovics et al., 2012). Consequently, there is a need to examine the determinants of consumer intention vis-a-vis mobile advertising in the developing markets of Southeast Asia (Kuo & Yen, 2009; Tsang et al., 2004). In addition, Malaysia and Indonesia are both considered to be leading developing countries and they make up a substantial market segment in this region. Notwithstanding their rapid development in recent years, little attention has been paid to their consumers' perceptions towards mobile advertising and the determinants of attitude towards mobile advertising (Choi et al., 2008).

Particularly, perceived value is defined as a trade-off between perceived benefits and perceived costs (Lovelock, 2001) whereby perceived value increases as an individual perceives that benefits outweigh the costs. In order to investigate perceived value in mobile advertising, this study has adopted the approach as proposed by Ducoffe (1995) by focusing on four determinants, namely, information, entertainment, credibility and irritation; and subsequently, assess the relationship between perceived value towards mobile advertising and attitude towards mobile advertising.

Ducoffe's (1995) model has been acknowledged as the most effective model in investigating attitudes towards web-advertising and advertising value. Prior studies have mentioned that the cultural aspect is significantly important in advertising because communication is highly tied with cultural norms (Hong, Muderrisoglu, & Zinkhan, 1987). Next, the moderation effect of nationality was included in all the postulated relationships in the model, in order to examine the differences between the two nations (i.e., Malaysia and Indonesia). Henceforth, this study contributes knowledge pertaining to consumer behaviour in the context of mobile advertising by comparing on two different countries (i.e., Malaysia vs. Indonesia). Besides, it would also enable organisations to come out with effective mobile advertising strategies to communicate with their consumers, not only in Malaysia and Indonesia in isolation, but also across these two countries in any cross-border business.

LITERATURE REVIEW

Mobile Advertising

Mobile devices have clearly provided an easier and faster way to communicate and disseminate information (Barutçu, 2008). With the emergence of smart phones devices, consumer not only can obtain advertisement

information through the push-type delivery medium, they also can proactively retrieve advertisement information via the pull-type approach which allows consumers to have great involvement (Izquierdo-Yusta et al., 2015). Today, by utilising this technological development, organisations can execute their marketing strategies online and at minimal costs (Kocabaş, 2005). This improves and intensifies the manner marketing strategies are carried out, thus culminating in the emergence of mobile advertising.

Mobile advertising is described as the usage of mobile devices to transmit marketing messages that are usually personalised to a specific target group (Shankar et al., 2016; Ström et al., 2014). Generally, mobile advertising can be categorized into permission-based advertising, incentive-based advertising and location-based advertising (Tsang et al., 2004; Wong et al., 2015). Consumers could either give their permissions to accept or decline to view the advertisements, or be provided incentives to accept the advertisements based on where they are and where they plan to go. One obvious advantage of mobile advertising is that it enables organisations to customize their advertisement, making it more relevant, persuasive, informative, and evocative to the consumers based on the location, time, and interests (Barutçu, 2008). Nevertheless, it is necessary that the mobile advertisement reach the right target market because irrelevant advertisements may be ignored or even regarded as irritating (Verlegh et al., 2015).

Determinants of Perceived Value of Mobile Advertising

The information content in mobile advertisement is one of the main factors that may affect consumers' satisfaction and buying behaviour (Ducoffe, 1996). Moreover, a mobile advertisement's success is measured by its capability to provide useful, helpful, timely, and especially updated information to consumers (Altuna & Konuk, 2009; Ducoffe, 1996). In the uses and gratifications theory, Katz, Haas, and Gurevitch (1973) have posited that consumers need to have understanding before making the decision to purchase. This theory has been applied successfully for a number of times in the study of consumer behaviour on the usage of mobile devices and the internet (Luo, 2002; Okazaki, 2004). In fact, this theory proposes that an informative advertisement might prevent negative attitudes and perceptions (Taghipoorreyneh & De Run, 2016). Therefore, it is important to ensure that consumer have positive perceptions and attitudes towards any products/services, including mobile advertising (Aitken et al., 2008).

In addition to providing information, the entertainment aspect in advertising attracts consumers' attention. It is particular useful for introducing products and services (Hashim et al., 2018; Lehmkuhl, 2003). An advertisement that is entertaining is likely to receive more positive responses from consumers (Sinkovics et al., 2012). Being entertained helps create a deeper involvement, thus familiarising consumers with the products or services. Hence, mobile advertising that offers entertainment can likely fulfil consumers' emotional and pleasure needs, thus creating positive perceptions towards the product (Gao & Zang, 2016). Furthermore, credibility has also been found to be an important feature in advertising (Zha et al., 2015). This is due to the fact that consumers often look at the advertisement for truthful and believable messages (Yoon & Kim, 2016). In particular, the Uses and Gratifications Theory demonstrated that credibility would strengthen confidence, stability, and status (Katz et al., 1973). In fact, credibility in mobile advertising is expected to produce perceived value towards the advertisement, and trust, thus strengthening its relationship with consumers, which in turn would result in loyalty and competitive advantage (Lynch & de Chernatony, 2004). As such, credibility is pivotal to the success of mobile advertising because it convinces consumers to regard the advertisement to be truthful, which in turn would lead to favourable decision making and outcome (Yoon & Kim, 2016).

On the contrary, irritation may reduce consumers' attention toward mobile advertising. Some consumers may not like the idea of mobile advertising because they perceive it to be an invasion of privacy (Ünal, Erciş, & Keser, 2011). As a result, such perception can lead to the reduction of the advertisement's effectiveness (Wu & Hsiao, 2017). In other words, unfavourable and unsolicited advertising will likely create displeasure and dissonance in consumers' perception and attitude (Craig et al., 2012). This can be further explained by the Theory of Psychological Reactance. This theory explains that individuals will react negatively when their freedom is impeded (Chang & Wong, 2018). Psychological reactance has been explained as "a set of motivational consequences that can be expected to occur whenever freedoms are threatened or lost" (Brehm, 1981, pp. 93). It is of no surprise that irritation has been found to be negatively correlated with attitude towards advertising (Tsang et al., 2004; Van der Waldt et al., 2009). Hence, irritation

is a critical factor that has adverse effects on consumers' perceived value and their subsequent attitude towards mobile advertising.

As stated earlier, Uses and Gratifications Theory has been applied a number of times in studying consumer behaviour on the usage of mobile devices and the Internet (Luo, 2002; Okazaki, 2004). Moreover, this theory also explains that individuals have a need for information, knowledge, and understanding (Katz et al., 1973). Obtaining information is a part of the need-satisfying factor for consumers (Ducoffe, 1995). In other words, an informative advertisement can most likely satisfy a consumer's need for information, knowledge and understanding about a certain product or service. As such, information that is delivered via mobile devices must also be useful, accurate, and timely (Nasco & Bruner, 2008). Therefore, information is postulated to be strongly related to the perceived value of mobile advertising (Ducoffe, 1996). Accordingly, the following hypothesis is proposed:

H1: Providing information through mobile advertising is positively related to perceived value of mobile advertising.

Uses and Gratification Theory has also been adapted to assess the entertainment aspect of advertising, which consists of enjoyment, pleasure, and emotional experience of an advertisement (Katz et al., 1973; Gvili & Levy, 2016). Past studies have suggested that entertainment is one of the main factors that shape consumers' attitudes towards an advertisement (Verhellen et al., 2015; Chowdhury et al., 2006). It is also used to create situations in which the consumers can be involved in a deeper understanding with the advertisement, and be familiar with the content or message (Margalit et al., 2017). Furthermore, entertainment is predominantly found to have a positive relationship with attitude towards advertisements (Moorman et al., 2002). Thus, the following hypothesis is proposed:

H2: The entertainment provided by mobile advertising is positively related to perceived value towards mobile advertising.

Furthermore, the Uses and Gratification Theory advocates that consumers' cognitive and affective elements are linked to their need for credibility, confidence, stability, and status (Katz et al., 1973). In the same vein, Lim et al. (2017) have explained that attitude and behaviour are formed by consumers' perceived credibility. Therefore, credibility has been observed to have a positive influence on advertising perception (Thoo et al., 2018; Lin et al., 2017). In addition, there are studies suggesting that credibility has a positive association with consumers' attitude towards advertising value (Tsang et al., 2004). Therefore, the following hypothesis is proposed:

H3: The credibility of mobile advertising is positively related to perceived value of mobile advertising.

The Theory of Psychological Reactance has also been used to explain irritation. Irritation may affect consumers' perceived value towards advertising, and thus have a detrimental effect on advertising effectiveness (Aaker & Bruzzone, 1985; Luo, 2002). Hence, consumers are expected to have reactance that seek to restore the freedoms which are lost. Consequently, when a mobile advertisement is felt to be an intrusion of privacy (Grant & O'Donohoe, 2007), irritation will likely happen which in turn, will resulted in reactance, such as diminishing acceptance of the said advertisement. Moreover, Tsang and colleagues (2004) have suggested that the relationship between irritation caused by advertisement and perceived value towards advertising is negatively related. Thus, the following hypothesis is proposed:

H4: The irritation caused by mobile advertising is negatively related to perceived value of mobile advertising.

Perceived Value and Attitude towards Mobile Advertising

Value is understood to be the desirability that surpasses particular situations and may determine the behavioural decision (Schwartz & Bilsky, 1987). Hence, the perceived value towards advertising can have

significant effects on attitude towards advertising (Al-Debei et al., 2015; Izquierdo-Yusta et al., 2015). Ducoffe (1995) has expressed perceived value to be the consumers' personal assessment of the worth of the advertising to themselves. As such, it is entirely reasonable to postulate that the perceived value of mobile advertising would also affect the attitude towards mobile advertising.

Attitude has been described by Fishbein (1967) as "a learned predisposition of human beings" (p. 14). The key components of attitude are emotive, cognitive, and conative processes, which animate people's behaviour and reaction (Aaker et al., 1998; Jung et al., 2016). As such, attitude can be defined as the inclination of an individual to show a certain reaction towards different advertisement (Jung et al., 2016). The emergence of the Internet as a new channel of communication has captured the interest of organisations all around the world and they have sought to utilize it to track and mould consumer attitudes. As such, mobile devices are perceived to be one of the most crucial communication mediums (Ene & Özkaya, 2015). In the context of advertising, Tsang et al. (2004) have found that attitude is dependent on certain perspectives related to mobile advertising, such as information, entertainment, credibility, and irritation.

These factors are important in mobile marketing because they create and thus determine positive and negative reaction of consumer attitudes towards mobile advertisement (Aitken et al., 2008). An informative advertisement which is entertaining and contains other favourable elements is more likely to capture consumers' interest, attitude and subsequent behavioural intention (Scharl et al., 2005). However, an advertisement that lacks value may cause negative establishment of consumers' attitude (Ducoffe, 1996). Thus, the effect of perceived value of mobile advertising on consumers' attitude towards mobile advertising is also examined. Accordingly, the following hypothesis is proposed:

H5: Perceived value of mobile advertising is positively related to attitude towards mobile advertising.

Moderating Effect of Nationality

It is critical for marketers to account for how nationality may influence the direction and strength between the four determinants (i.e., Information, Entertainment, Credibility, and Irritation) on perceived value of advertising, and attitude towards mobile advertising. Ting et al. (2016) claimed that nationality provides a useful theoretical basis for many researchers to explore and understand cross-cultural differences in consumer behaviour. In the context of mobile advertising, this is particularly crucial because the use of the Internet and mobile devices has brought people, as well as their values and cultures, from different countries together. Although it has been claimed that countries in Southeast Asia (Malaysian and Indonesia in this case) may share similar traditions and practices, they have distinct beliefs and do not necessarily share identical societal values (Sinkovics et al., 2015). Similarly, Hofstede (1984) also explained the same logic that everything about nationality is different and there is simply no country that is exactly like another country; the same applies to consumer behaviour across different countries. Therefore, the comparison of nationality between Malaysians and Indonesians is much needed to enrich the understanding of mobile advertising and the relationships hypothesized in this study. As such, the following hypotheses are proposed, with nationality as the moderator:

H6a: Nationality moderates the relationship between information and perceived value of mobile advertising.

H6b: Nationality moderates the relationship between entertainment and perceived value of mobile advertising.

H6c: Nationality moderates the relationship between credibility and perceived value of mobile advertising.

H6d: Nationality moderates the relationship between irritation and perceived value of mobile advertising.

H6e: Nationality moderates the relationship between perceived value of mobile advertising and attitude towards mobile advertising.

A research framework (Figure 1) was developed to illustrate the determining factors that affect perceived value of mobile advertising which in turn influence attitude towards mobile advertising. Additionally, nationality (Malaysian and Indonesian samples) were incorporated into the entire model to test its moderation effect on every path relationship in the framework.

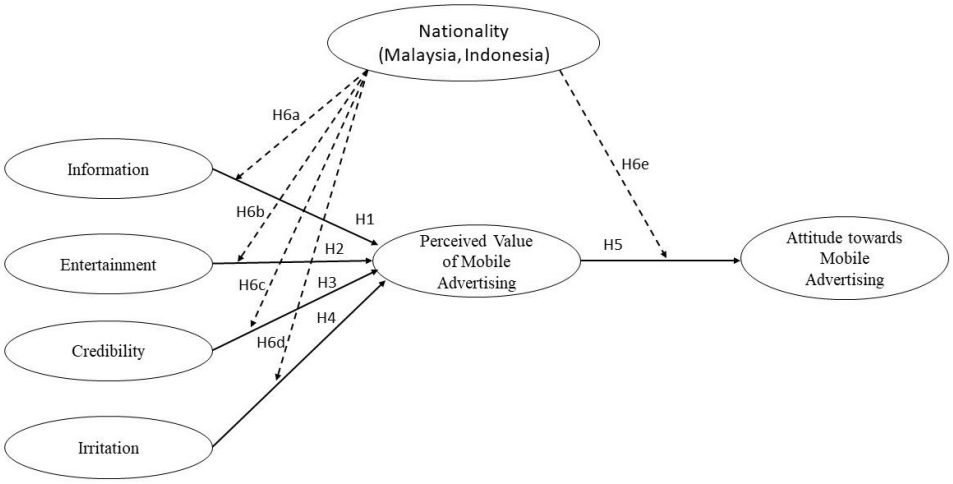

Figure 1 Research framework

METHODOLOGY

This study adopts a quantitative research approach where the focus is on the quantification of data collection and analysis as well as for theory testing (Bryman & Bell, 2007). As such, the main focus to examine the effects of the determinants of consumers' perception of mobile advertising, namely information, entertainment, credibility, and irritation, towards perceived value, and subsequently attitude towards mobile advertising.

The sample size decision was made based on a set of factors related to the model complexity, expected rate of missing data, and the estimation procedures used (Hair et al., 2012). For this reason, sample size was determined using power analysis (Chin & Newsted, 1999). Power analysis is necessary because the stability of the estimates is contingent on the sample size. In other words, power (1-β) is the probability of obtaining a statistically significant result (H1), thus rejecting the null hypothesis (H0) (Cohen, 1988). Power analysis depends on three parameters, namely the sample size (N) of the study, the significance level (α) of the test and the effect size (ES) of the population (Cohen, 1988). Using two viewpoints on sample size requirements, namely, 200 (Hair et al., 2012) and 166 based on power analysis, a sample size of 300 respondents (150 Malaysian and 150 Indonesians) who use mobile devices (e.g., tablet, computers, e-readers, and smartphones) was set for the study in order to accommodate omissions, legibility, missing values, inconsistent response and non-responses.

In order to achieve a high response rate, the data were collected using the face to face questionnaire survey approach in order to achieve a high response rate. Non-probability approach using judgmental sampling (Rowley, 2014; Sarstedt et al., 2017) was adopted in selecting appropriate samples where university students in Malaysia and Indonesia were identified to be the target population of this study. According to Chowdhury et al. (2006), university students are categorized as heavy users of mobile phones; hence, they represent an appropriate target group of respondents that are relevant to mobile advertising. The questionnaire had three major parts. The first part focused on the demographic profile of the respondents; the second part centred on the determinants (entertainment, information, credibility, and irritation) of consumers' perceptions toward mobile advertising; and the third part assessed perceived value of mobile advertising and attitude towards mobile advertising.

Both constructs of Information and Entertainment were adapted from Wang and Sun (2010) and Yang et al. (2013), using 4 items and 3 items respectively. Next, 3 items of irritation and credibility were adapted from Varnali et al. (2012) and Yang et al. (2013).

Followed by Martí Parreño et al. (2013), 4 items of attitude towards advertising were adapted; meanwhile advertising value was adapted from Ducoffee (1995). All the items for exogenous variables (i.e., Information, Entertainment, Credibility and Irritation) adopted a five-point Likert scale while endogenous variables (i.e., Perceived Value of Mobile Advertising and Attitude towards Mobile Advertising) were used the seven-point Likert scale. This was to minimize any potential errors associated with data collected from a single source (McKenzie & Podsakoff, 2012) (refer appendix for full measurement scale).

The demographic profile was analysed using Frequency in SPSS version 23. Then, Structural Equation Modelling (SEM) was employed to analyse the model using the Partial Least Square (PLS-SEM) method. PLS-SEM was used because it was suitable for exploring and determining the moderating role of nationality on all the path relationships in the framework. In addition, PLS-SEM has a predictive relevance capability to assess the effect of each relationship (Hair et al., 2014; Henseler et al., 2009). Subsequently, the assessment of Common Method Variance and Goodness of Fit was firstly performed, followed by the assessment of the measurement model and the structural model. Such assessment was used not only to test the validity and reliability of the data, but also the hypotheses in the study. Finally, measurement invariance and multi-group analysis (PLS-MGA) was performed to examine the moderating effect of nationality (Malaysians vs. Indonesians) on the entire framework.

RESULT AND DISCUSSION

Demographic Profile

Table 1 illustrates the profile of the respondents. Particularly, given the objective of the study, 150 Malaysians and 150 Indonesians were sampled to facilitate assessment using measurement invariance and PLS-MGA. The majority of the respondents were undergraduates (97%), female (65.3%) and in the age range of 21-30years (58.3%).

Table 1 Respondent Profile

Demography	Classification	Frequency	Percent (%)
Gender	Male	104	34.70
	Female	196	65.30
Age	20 years and below	121	40.30
	21-30 years	175	58.30
	31 years and above	4	1.30
Education	Undergraduate	291	97.00
	Postgraduate	9	3.00
Nationality	Malaysian	150	50.00
	Indonesian	150	50.00
	Total	***300***	***100.00***

Common Method Variance

As the data for all the scales were collected from single visit of measure, this study might contain potential common method variance. In addition to the procedural control prior to data collection, such as using different point scales, the study also used Harman's Single Factor technique to determine the presence of common method variance (Podsakoff et al., 2003). The study examines the unrotated factor solution and found that one factor solution accounted for only 45.9% explained variance which is significantly lesser than 50% (i.e., the minimum threshold to test for Common Method Variance as per Harman's one factor test) (Babin, Griffin, & Hair, 2016). Thus, this suggested that Common Method Bias was not an issue in this data set.

Assessing Goodness-of-Fit Indices

The result of Standardized Root Means Square Error (SRMR) of composite factor model is part of the assessment of goodness of fit (GOF) measure for PLS-SEM. The sample size of 300 exhibited a good fit with SRMR of 0.037, which is well below the benchmark of 0.08 as suggested by Hu and Bentler (1999).

Assessment of Measurement Model

As per standard procedure, the measurement model is assessed before the structural model. The measurement model analysis includes the assessment of construct reliability, convergent validity, and discriminant validity. In terms of construct reliability, Hair et al. (2014) suggest the use of Composite Reliability to assess the internal consistency of the study and the threshold value should achieve the value of 0.7. Based on Table 2, the composite reliability values of 0.949 (Attitudes towards Mobile Advertising), 0.913 (Credibility), 0.956 (Entertainment), 0.923 (Irritation), and 0.942 (Perceived Value of Mobile Advertising) demonstrate that these five constructs have high levels of internal consistency.

Convergent validity is a measure of the indicators in the reflective relationship with a construct, where several indicators are used to measure the same construct. These indicators should share a high proportion of variance or converge with each other. Hair and his colleagues (2014) state that the measure to assess convergent validity is Average Variance Extracted (AVE) and Factor Loadings. Based on Table 2, all the constructs have AVE of more than 0.5, which means each of them explains more than half of the variance of its respective indicators. This is due to loading which is higher than 0.708 for all the indicators. Therefore, the convergent validity of the constructs is established.

Table 2 Assessment of Composite Reliability and Convergent Validity (N=300)

Construct	Item	Loading	Composite Reliability	Convergent Validity (AVE)
Attitudes towards Mobile Advertising	ATT1	0.905	0.949	0.823
	ATT2	0.930		
	ATT3	0.890		
	ATT4	0.903		
Credibility	CRE1	0.822	0.913	0.779
	CRE2	0.905		
	CRE3	0.918		
	CRE2	0.905		
Entertainment	ENT1	0.940	0.956	0.878
	ENT2	0.955		
	ENT3	0.916		
Information	INF1	0.836	0.923	0.749
	INF2	0.871		
	INF3	0.911		
	INF4	0.843		
Irritation	IRR1	0.933	0.955	0.876
	IRR2	0.957		
	IRR3	0.918		
Perceived Value of Mobile Advertising	VAL1	0.908	0.942	0.844
	VAL2	0.937		
	VAL3	0.911		

As suggested by Henseler et al. (2015), discriminant validity is assessed using the Heterotrait-Monotrait (HTMT) ratio of correlations. As shown in Table 3, all the discriminant values exceed the threshold value of HTMT.85 (Kline, 2015); thus, discriminant validity is established. This indicates that all of the constructs manifest discriminant validity and are thus distinctive from each other.

Table 3 Assessment of Discriminant Validity using HTMT

Construct	1	2	3	4	5	6
1. Perceived Value of Mobile Ads						
2. Attitudes toward Mobile Ads	0.843					
3. Credibility	0.711	0.649				
4. Entertainment	0.809	0.828	0.621			
5. Information	0.817	0.790	0.620	0.798		
6. Irritation	0.423	0.510	0.171	0.499	0.352	

Note: Discriminant Validity is established at HTMT< .85 (Kline, 2016)

Assessment of Structural Model

As followed the guideline proposed by Hair et al. (2014), assessment of structural model comprise of five-step procedure.

Step 1: Assessing the structural model for collinearity

Table 4 shows the outcome of the lateral collinearity test. The variance inflation factor (VIF) score for each individual construct is lower than the offending value of 3.3 (Diamantopoulos & Siguaw, 2006), indicating that collinearity is not an issue in the model.

Table 4 Collinearity Assessment

	Variance Inflation Factor (Perceived Value)	Variance Inflation Factor (Attitude)
VAL	-	1.000
CRE	1.568	-
ENT	2.682	-
INF	2.254	-
IRR	1.302	-

Note: VIF <3.33; VAL (Perceived Value of mobile advertising), ATT (Attitude towards mobile advertising), CRE (Credibility), ENT (Entertainment), INF (Information), IRR (Irritation),

Step 2: Assessing the path coefficients

Table 5 presents the results of path co-efficient assessment for each hypothesized relationship. All hypothesized relationships are significant at 99% and 95% confidence interval (p value < 0.01 and < 0.05) with t-value ranging from 2.142 to 59.979, indicating that the postulated hypotheses on the relationships between the constructs are supported.

Table 5 Assessment of Path Coefficient (N=300)

	Std Beta	Std Error	T Value	P Value	Result
VAL→ATT	0.886	0.014	59.979	0.000**	Significant
CRE →VAL	0.258	0.046	5.640	0.000**	Significant
ENT →VAL	0.304	0.059	5.133	0.000**	Significant
INF →VAL	0.345	0.052	6.614	0.000**	Significant
IRR → VAL	-0.096	0.045	2.142	0.016*	Significant

Note: **p<0.01, *p<0.05; VAL (Perceived Value of mobile advertising), ATT (Attitude towards mobile advertising), CRE (Credibility), ENT (Entertainment), INF (Information), IRR (Irritation),

Step 3: Assessing the variance explained in the model

Table 6 presents the variance explained (R2) for the endogenous constructs of perceived value of mobile advertising and attitudes towards mobile advertising. The R2 value of 0.681 shows that the exogenous constructs: Information, Entertainment, Credibility, and Irritation explain 68.1% of the variance for perceived value of mobile advertising; and in turn, the R2 of 0.75 suggests that perceived value explains 75% of variance in attitudes towards mobile advertising. Overall, it shows the relationships between the constructs under investigation are substantial (Hair et al., 2014).

Step 4: Assessing the effect size (f2)

Based on the results in Table 6, Credibility (0.133), Entertainment (0.108), and Irritation (0.022) have a small effect size (f2) on perceived value of mobile advertising (Cohen, 1988). However, information (0.166) has a medium effect size on advertising value, meanwhile, perceived value (2.999) exhibits a large effect size on attitude towards mobile advertising (Cohen, 1988), indicating that the perceived value towards mobile advertising is pivotal to explaining consumers' attitude towards mobile advertising.

Step 5: Assessing the predictive relevance

Table 6 shows the predictive relevance (Q2) value of 0.569 for perceived value of mobile advertising. A value higher than 0 is an indication that Information, Entertainment, Credibility, and Irritation are capable of predicting perceived value towards mobile advertising. In the same manner, the Q2 of 0.616 (> 0) shows that perceived value is capable of predicting attitudes towards mobile advertising.

Table 6 The Assessment of Determination of Coefficient (R^2), Effect Size (f^2), and Predictive Relevance (Q^2) (N=300)

	R^2	Q^2	Effect Size, f^2			
			VAL	F^2	ATT	f^2
VAL	0.681	0.569			2.999	Large
ATT	0.750	0.616				
CRE			0.133	Small		
ENT			0.108	Small		
INF			0.166	Medium		
IRR			0.022	Small		

Note: VAL (Perceived Value of mobile advertising), ATT (Attitude towards mobile advertising), CRE (Credibility), ENT (Entertainment), INF (Information), IRR (Irritation)

Assessment of the Moderation Effect

As suggested by Hair et al. (2014), measurement invariance is tested to ensure the construct measures are invariant across the two groups (Malaysians and Indonesians), while comparing the path coefficients across the groups using PLS-MGA parametric. Bootstrapping was concluded according to the number of the observation in the dataset for each group. Through outer weights and standard errors using the Levene's test for each group, invariance test was checked for all indicators.

$$S_{1\,2} = \left(\sqrt{\frac{(N_1 - 1)^2}{(N_1 + N_2 - 2)} . S_1^2 + \frac{(N_2 - 1)^2}{(N_1 + N_2 - 2)} . S_2^2} \right) . \left(\sqrt{\frac{1}{N_1} + \frac{1}{N_2}} \right) \quad (1)$$

If the test for equality of group variance is not significant, equal standard errors are assumed and the test statistic (*t* value) is computed as follows:

$$S_{1\,2} = \sqrt{S_1^2 + S_2^2} \quad (2)$$

The criterion of measurement invariance can be either ''Partial'' or ''Full''. The term ''Partial' 'explains at least a minimum of two parameters (i.e. factor loadings) per construct are assumed to be equivalent across the groups; whereas, the term ''Full'' explains that all relevant parameters (i.e., factor loadings) are assumed to be invariant (equivalent) across the groups. When either of this "Partial" or "Full" invariance is established, the different scores on the item can be meaningfully compared across groups, that is, observed item differences indicate group differences in the underlying latent construct (Hair et al., 2010; Steenkamp & Baumgartner, 1998). Table 7 shows that, the constructs of Entertainment, Information, and Irritation have achieved full invariance whilst the constructs of attitude towards mobile advertising, perceived value of mobile advertising and credibility have achieved partial invariance. This indicates that the indicators of the outer loadings for the Malaysia and Indonesia samples are somewhat invariant; hence, allowing the further test using PLS-MGA analysis.

Table 7 Measurement Invariance Test

	Loading (I)	Loading (M)	Std Error (I)	Std Error (M)	Difference Loading (I&M)	t-value (I&M)	Invariance Result
ATT1←ATT	0.873	0.904	0.018	0.016	0.031	1.324	Partial
ATT2←ATT	0.901	0.937	0.019	0.011	0.036	1.608	
ATT3←ATT	0.874	0.882	0.024	0.029	0.008	0.213	
ATT4←ATT	0.830	0.935	0.032	0.010	0.105	3.161**	
CRE1←CRE	0.883	0.785	0.025	0.060	0.097	1.502	Partial
CRE2←CRE	0.750	0.943	0.080	0.011	0.194	2.401*	
CRE3←CRE	0.847	0.932	0.052	0.015	0.085	1.578	
ENT1←ENT	0.924	0.933	0.015	0.013	0.009	0.453	Full
ENT2←ENT	0.944	0.947	0.008	0.009	0.004	0.312	
ENT3←ENT	0.902	0.892	0.018	0.027	0.010	0.308	
INF1←INF	0.780	0.817	0.034	0.036	0.038	0.761	Full
INF2←INF	0.817	0.852	0.034	0.036	0.035	0.708	
INF3←INF	0.873	0.905	0.021	0.014	0.032	1.303	
INF4←INF	0.762	0.832	0.046	0.054	0.070	0.986	
IRR1←IRR	0.939	0.931	0.013	0.042	0.008	0.185	Full
IRR2←IRR	0.956	0.966	0.009	0.038	0.010	0.251	
IRR3←IRR	0.930	0.866	0.015	0.083	0.065	0.766	
VAL1←VAL	0.853	0.906	0.028	0.020	0.053	1.540	Partial
VAL2←VAL	0.897	0.941	0.021	0.009	0.044	1.947	
VAL3←VAL	0.832	0.923	0.036	0.011	0.091	2.428*	

Note: **p<0.01, *p<0.05 [Hair's (2010) suggest that the result of measurement invariance should be insignificant in two conditions; full invariance when all t-values for a construct exhibit insignificant and partial invariance when one comparison indicator in a construct is significant]; I: Indonesians and M: Malaysia

Subsequently, the Welch-Satterthwaite test is performed to examine the moderating effect of nationality in the model (Table 8). First, there is a moderating effect on the relationship between information and perceived value of mobile advertising among Malaysians and Indonesians, where Indonesians (β=0.464) regard information more highly than Malaysians (β= 0.180). However, Malaysians (β=0.388) perceive entertainment in advertising to be more important than Indonesians (β=0.180). Finally, despite agreeing on the perceived value of mobile advertising, Malaysians (β=0.884) respond more favourably than Indonesians (β= 0.784).

Table 8 Welch-Satterthwait Test

	Path Coeff (I)	Path Coeff (M)	Standard Error (I)	Standard Error (M)	Path Coeff-Difference (I vs M)	t-Value (I vs M)
VAL → ATT	0.784	0.884	0.032	0.020	0.100	2.679**
INF → VAL	0.464	0.180	0.078	0.073	0.284	2.678**
ENT → VAL	0.158	0.388	0.110	0.080	0.230	1.698*
IRR →VAL	-0.127	-0.144	0.080	0.063	0.017	0.166
CRE → VAL	0.233	0.325	0.063	0.070	0.092	0.980

Note: **p<0.01, *p<0.05; I: Indonesians; M: Malaysians; Path Coeff: Path Coefficient; VAL (Perceived Value of mobile advertising), ATT (Attitude towards mobile advertising), CRE (Credibility), ENT (Entertainment), INF (Information), IRR (Irritation)

The result suggests that the more mobile advertising is perceived to be a provider of information, the more valuable that advertising is perceived. This result is consistent with Liu et al. (2012) who found that providing information is the key function of advertising. Furthermore, the result shows that the link between information and the perceived value of mobile advertising is established in both the Malaysia and Indonesia samples. It implies that Indonesians (β=0.464) value information channelled through advertising more than Malaysians (β=0.180). This result was consistent with Alozie's (2012) logic that in comparison to Malaysian, Indonesians always need more rational reasons (i.e., seeking for more information) because Indonesian have a higher degree of uncertainty avoidance (Hofstede, 1984), i.e., Indonesians are more likely to feel threatened by ambiguity. This applies to advertisements which lack information. Thus, Indonesians prefer advertisements that provide more specific information about a product or service. This inevitably affects their perceived value of mobile advertising.

Moreover, the entertainment aspect of mobile advertising is significantly and positively related with perceived value of mobile advertising, for both Malaysians and Indonesians. In general, this result is consistent with the study by Van der Waldt, et al. (2009) where Entertainment, Information, and Credibility are positively correlated with consumers' perception about the value of advertising. Specifically, Malaysians

appear to emphasize the entertaining aspect of mobile advertising more than Indonesians. This can be explained by referring to "indulgence versus restraint" from the Hofstede's Cultural Dimensions (Hofstede, 2011). Malaysians show a high score in indulgence which generally exhibits a willingness to realise their impulses and desires to enjoy life and have fun (Hofstede, 2011). On the contrary, Indonesians score lower which suggests that they are traditionally more restrainted. They seem to have a better control over the gratification of their desires and emphasise less on leisure time (Hofstede, 2011).

There was no difference in how Credibility and Irritation affected the perceived value of mobile advertising, suggesting that both Malaysians and Indonesians largely agree on the contrasting aspects of mobile advertising. Furthermore, the results also show the positive effect of perceived value on attitude towards mobile advertising regardless of nationality, thus supporting past studies on attitude towards advertising (Ducoffee, 1996; Liu et al., 2012; Petrovici & Marinov, 2007; Tsang et al., 2004). Nevertheless, perceived value towards mobile advertising appears to be more important to Malaysians (β=0.884) than Indonesians (β=0.784). This could be due to the fact that, Malaysian are exposed more with various type of mobile advertising (Heryanato & Mandal, 2003), therefore, they tend to be more selective and expect to gain more information as compare to Indonesian.

CONCLUSION

The study has important implications for both theoretical and practical reasons. In particular, Uses and Gratifications Theory is further validated in the context of attitude towards mobile advertising in the developing markets in Southeast Asia. In this study, Information, Entertainment, and Credibility are found to impact consumer attitudes towards mobile advertising. Furthermore, this study also supports the Psychological Reactance Theory. Particularly, irritation caused by mobile advertising can cause disturbance to individual's sense of privacy because they feel that their freedom is violated because of the huge volume of unsolicited or irrelevant advertisement transmitted via the mobile devices.

The use of PLS-MGA provides insights into the differences of effects between the constructs under investigation across Malaysians and Indonesians. From the managerial perspective, the understanding of such differences is of utmost importance. Just because Malaysians and Indonesians are often regarded as homogenous because of their geographic proximity and similar population characteristics, it does not mean that standardized advertising should be adopted in both these countries. Knowing not only the differences of perceptions and attitude towards mobile advertising, but also the relationship between these behavioural constructs is crucial to advertising effectiveness. While both Malaysians and Indonesians welcome the credibility of mobile advertising and reject any irritation associated with it; Malaysian are more likely to appreciate it as provider of information and entertainment, whereas Indonesians are more likely to see it as provider of information. In the contemporary environment which is highly competitive and dynamic, such minor difference might prove to be decisive in determining advertising effectiveness.

This study is limited in several ways which prompt for future investigation. The sample is limited to students, and their potential differences in demographic and psychographic aspects have not been taken into consideration. In addition, the study only looks at the effect of Information, Entertainment, Credibility and Irritation on perceived value; and attitude towards mobile advertising. Other relevant factors, such as materialism and social image, should also be investigated to provide more insights into consumers' attitude towards mobile advertising. Even though the comparison is made between Malaysians and Indonesians, the implication of cultural differences could be delved into. Finally, this study serves as a precursor to future attempts to investigate behaviours pertaining to mobile advertising in the context of Southeast Asia and developing countries.

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APPENDIX

Table of Measurement Items

Variable	**Source**
Information	
Mobile advertising provides timely information on products or services. Mobile advertising supplies relevant information on products or services. Mobile advertising is a good source of information. Mobile advertising is a good source of up to date products or services information	Wang & Sun (2010), Yang et al. (2013)
Entertainment	
I feel that mobile advertising is interesting. I feel that mobile advertising is enjoyable I feel that mobile advertising is pleasant.	Wang and Sun (2010), Yang et al. (2013)
Irritation	
I feel that mobile advertising is irritating. I feel that mobile advertising is annoying. I feel that mobile advertising is intrusive.	Varnali et al. (2012), Yang et al.(2013)
Credibility	
I feel that mobile advertising is convincing. I feel that mobile advertising is believable. I feel that mobile advertising is credible.	Liu et al. (2012), Yang et al. (2013)
Perceived Value of Mobile Advertising	
I feel that mobile advertising is useful. I feel that mobile advertising is valuable. I feel that mobile advertising is important.	Ducoffe (1995), Liu et al. (2012)
Attitudes towards Mobile Advertising	
I like mobile advertising I think mobile advertising is an interesting thing	Parreño et al. (2013)