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Determining banner advertisement effectiveness in mobile games: A study from South Africa

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ABSTRACT

This study aimed to identify the impact of advertising values, gameplay conditions and social influence on attitude toward in-game banner advertisements (IGBAs) in mobile games. In addition, the study tested intention to click IGBAs and preference toward the advertised brand. Banner advertisements in mobile games are one of the most popular formats in mobile marketing, but research on their effectiveness is still limited. Survey research was conducted in South Africa on 426 participants. The results showed that irritation has a negative impact on the gamer's attitude, while other values—entertainment, credibility, gameplay conditions, and social influence—have a significant positive impact on the gamer's attitudes. In turn, attitude had significant influences on intention to click on the IGBA and preference toward the advertised brand. Contrary to earlier research, informativeness had an insignificant impact on the gamer's attitude. This study provides a new framework that combines the study of the gamer's attitude toward IGBAs and its impact on both intention to click and the preference of brands featured in IGBAs

Keywords: Mobile marketing, in-game advertisements, in-game banner ads, mobile games, gamer's attitude, behavioral intention, IGBAs

This study sought to test the impact of advertising values, gameplay conditions and social influence on attitude toward in-game banner advertisements (IGBAs) in mobile games. In addition, the study tested intention to click IGBAs, and preference toward the advertised brand. Newzoo (2018) predicted that the mobile gaming industry will hit USD100 billion by 2021. Although research on mobile marketing has emerged quickly (Shankar & Balasubramanian 2009; Varnali & Toker 2010; Persaud & Azhar 2012), literature on mobile game advertising is still at an early stage (Komulainen et al. 2013; Terlutter & Capella 2013). The shift from desktop to mobile platforms (Gamasutra 2016a) has created many new opportunities in the digital media economy. Today, more than half of consumers have moved from the big screen to mobile devices and are spending more than half of their digital time online (Fulgoni & Lipsman 2014). Over a decade ago, in-game marketing was seen as a vanity play. Today, however, in-game advertising (IGA) has become a vital channel to engage with youthful audiences who are watching less television, have a lower interest in printed media, and are playing more digital games (Precourt 2013). Among the different types of mobile display advertisements, in-game banner ads (IGBAs) are one of the most popular formats, and are used by mobile game giants like Supercell and Rovio.

While measuring consumer attitudes has long been an interest to marketers (Nakanishi & Bettman 1974; Hawkins & Mothersbaugh 2013; Kotler & Armstrong 2015; Schiffman & Kanuk 2014), there is still limited research on the attitudes of mobile gamers to IGA. This omission is significant, since gaming with mobile devices has grown in popularity. Consequently, this study aims to fill the research gap by studying gamers' attitudes to the in-game banner

ad (IGBA), which is a theme of growing importance in digital advertising (Yoo, Kim & Stout 2004; Yoo & Peña 2011; Resnick & Albert 2014; Li, Huang & Bente 2016). In addition, the study identifies preferences shown toward the advertised brand in mobile banner ads. IGBAs coupled with the right playing conditions, can be a very powerful in providing cost-effective, interactive solutions that target young adult consumers.

Specific calls have been made to deepen our understanding of the effect of in-game advertising on behaviours like purchase intention (Hwang et al. 2017), as well as brand-related issues such as the level of brand familiarity, brand attitudes and contextual advertising (Sparks & Chung 2016; Yoo & Eastin 2017). In addition, calls have long been made to improve our understanding of the consequences of advertisement placements for consumer behaviour (Yang et al. 2006) and mobile games (Yeu et al. 2013). While there are many gaps that are yet to be filled in our understanding of IGA, Lewis & Porter (2010) emphatically stated that more research is needed regarding perceived and intended interaction between users and ads, and this was amplified by Turlutter & Capella (2013), who specifically called for more research on behavioural intentions. This study was conducted in South Africa, which was listed by Harvard Business Review as one of the fastest-moving digital economies (Chakravorti et al. 2015; Osiakwan 2017). A report by GSMA (2015)—a leading source of global mobile operating data—indicated that South Africa has the largest mobile market of the Southern African Development Community (SADC), and accounts for nearly one-third of total subscribers in the subregion. Of significance is the trend that mobile gaming growth has tracked the growth in smartphone sales, which was expected to double from 22.8 million (2014) to 52.3 million by 2019 (GSMA, 2015). The smartphone and digital boom's direct impact on mobile gaming was further illustrated when Smith and Blignaut (2012) conducted an extensive review of mobile gaming in South Africa, and projected 6.9% growth in mobile gaming (2011–2016). When the study was last repeated in 2015, the forecasts were not only realised, but mobile gaming revenue was set to hit USD175 million by the end of 2019 (PricewaterhouseCoopers 2015). In a developing economy like South Africa, with a population of almost 60 million people, the opportunity for growth is strong (Simpson & Lappeman 2017; Lappeman et al. 2019).

The purpose of the paper is to identify the factors that impact attitudes toward IGBAs, and to further assess the intention to click IGBAs and preference toward the advertised brand. This research measured each of the known attitudinal constructs in marketing literature, in order to test the hypotheses described in the following section.

LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESES

Measuring the Effectiveness of Banner Advertising

Since the early days of Internet commerce, there has been much discussion about how the effectiveness or impact of banner advertising should be measured (Manchanda et al. 2006; Robinson, Wysocka & Hand 2007; Park & Ohm 2014; De Haan, Wiesel & Pauwels, 2016). The measures include brand awareness and brand recall after being exposed to the banner, intention to click on the ad, and consumer attitudes toward different aspects of advertising (Moore et al. 2005; Manchanda et al. 2006; Gao et al. 2009; Rosenkrans 2010; Nasir et al. 2011; Kireyev et al. 2016). In prior research, attitude has been measured toward the brand advertised, toward the website the ads were placed on, toward different online advertising formats, and toward different kinds of banner advertisements regarding content and design (Lohtia et al. 2003; Burns & Lutz 2006; Moore et al. 2005; Manchanda et al. 2006; Gao et al. 2009; Rosenkrans 2010; Nasir et al. 2011; Wojdynski & Evans 2016; Ansari & Riasi 2016).

Attitude Toward Advertising

The Theory of Reasoned Action (TRA) defines the links between beliefs, attitudes, norms, intentions, and behaviours of individuals. Attitude is expressed by a person's psychological evaluative response showing some degree of favourability or unfavourability (Ajzen & Fishbein 2005; Schiffman & Kanuk 2014), which triggers a positive or negative response (Durvasula et al. 2001). In the case of a positive attitude, consumers are twice as likely to be persuaded (Biel & Bridwater 1990). Some studies have shown the link between consumer attitudes toward advertising and their behavioural responses (Karson et al. 2006; Edwards et al. 2002; Shaouf, Lü & Li 2016). Past studies have shown there are positive associations between attitude toward the ads and brand attitude, brand choice, and purchase

intention (MacKenzie & Lutz 1989; MacKenzie, Lutz & Belch, 1986; Brown & Stayman 1992; Lin 2014; Van-Tien Dao et al. 2014). Bill (1999) found that consumers who had clicked on specific banner ads had more favourable attitudes toward the banner ad and higher purchase intentions than they did for unclicked banner ads. With the emergence of new advertising platforms—such as those embedded within mobile games, social media, and mixed reality—together with the constant change in consumer behaviour and attitudes, there have been demands that research evaluates how these have impacted the effectiveness of advertisements. As such, the efficacy and optimisation of new advertising platforms and formats need to be researched (Stipp, 2016).

Measurement of Effectiveness

Despite the popularity of mobile games, only five percent of players are spending money (Dmasper 2017). According to statistics produced by BigFishGames (2017), 48% of gamers play social games, 36% of games are played on smartphones, 54% of gamers play with others and they spent an average of 6.5 hours per week playing online with others, mainly friends (40%) and 4.5 hours physically with another person. These statistics inspired the authors to develop a model that measures the effectiveness of an IGBA in two aspects:

- Intention to Click an IGBA
- Brand Preference

Intention to Click on an IGBA

For assessing the effectiveness of banner ads in an Internet context, one of the most commonly used metrics is the click-through rate (Manchanda et al. 2006; Kireyev et al. 2016; Shan et al. 2016). Fulgoni and Lipsman (2014) found that despite only a 0.1% click rate, display ads could successfully increase retailer sales. Thus, the click-through rate is a good measurement for the effectiveness of IGBAs (Zhang & Mao, 2016).

According to the theory of reasoned actions developed by Fishbein and Ajzen (1975), favourable attitudes may lead to strong intentions to engage in the behaviour in question. Numerous prior studies have confirmed the linkage between attitudes and intentions. Tsang et al. (2004) found that attitude toward mobile advertisements is positively related to the intention to receive mobile ads such as Short Messaging Services (SMS). Several other studies also concluded that positive attitudes affect the intention to use the contents in mobile advertisements (Lee et al. 2006; Xu 2006; Altuna & Konuk 2009). Thus, we suggest that if a consumer has a favourable attitude toward the IGBA in the mobile game, it can influence his or her intention to click on the IGBA. As such, the following hypothesis was developed:

H_1 : A gamer's favourable attitude toward an IGBA leads to a positive intention to click on a mobile IGBA.

Brand Preference

In addition to clicking on the IGBA, the mobile gamer may develop preferences toward the brand advertised. Such behaviour can also be used as a metric to measure the effectiveness of the IGBA. Thus, we add the construct of brand preference to this research framework, as a measurement of effectiveness, in addition to intention to click. Brand advertising has been in existence since the birth of motion pictures in the mid-1890s (Newell & Salmon 2003). Briggs & Hollis (1997) indicated that banner advertisements might affect intention to use, attitudes, and brand preference. With the development of technologies and new media, these ads are no longer limited to the big screen or television, and also appear in video and digital games (Nelson et al. 2004; Glass 2007; Marchanda & Hennig-Thurau 2013). It was also found that consumers who accept mobile ads and have positive attitudes toward the mobile ad itself, would also have a positive preference toward the brand and products (Yu 2013). Gupta et al. (2010) suggest that a positive attitude toward a brand generates a positive response from customers. Cho et al. (2014) also found that a favourable attitude toward the ad's content increased the favourable attitude toward the brand. As such, we hypothesise that:

H_2 : A gamer's favourable attitude to an IGBA leads to a positive preference for the brand advertised in the IGBA.

Advertising Values and Mobile Gamers' Attitudes

Advertisement value refers to the overall representation of the worth of advertising to consumers (Ducoffe, 1995). There are three perceived advertising values suggested by Ducoffe (1996) that shape the attitudes of consumers toward advertisements: informativeness, entertainment, and irritation. These values have been found to be important in affecting attitudes in many prior research studies. For example, Burns and Lutz (2006) found positive relations between attitudes toward various online advertising formats—such as banner ads, pop-up ads, and floating ads—and click-through. Other earlier research has also found that credibility has a significant impact on the perceived values of online advertising and attitudes toward it (Cho & Cheon 2004; Nasir et al. 2011; Van-Tien Dao et al. 2014). Consequently, we use irritation, entertainment, informativeness, and credibility to conceptualise perceived values in this paper.

Irritation refers to the extent of displeasure an ad causes if it distracts the attention of a person or increases his or her anxiety (Bauer & Greyser 1968; Ducoffe 1996). According to Ducoffe (1995 1996), irritation has a negative relationship with attitude toward ads. In other words, the level of an ad's effectiveness will reduce with an increasing level of irritation. Gao et al. (2004) found that the level of irritation had a strong negative correlation with the attitudes to the website it was on. In addition, ads that interfere with the tasks that a consumer is performing are irritating and they are unlikely to click on them (Cho & Cheon 2004). In the online environment, advertisements that are unexpected and interrupt the user, such as pop-ups and floating advertisements, are perceived to be the worst type (Burns & Lutz 2006; Cho & Cheon 2004). Mobile gamers usually appreciate advertisements that add realism to the game, do not interrupt game play, and which are subtle (Nelson et al. 2004; Tangmanee & Rustanavibul 2012; Winkler & Buckner 2006). However, banner advertising, which usually occupies a large part of the screen on a mobile device, might be seen to be interrupting a mobile game and consequently irritate the gamer. As a result, we hypothesise that:

H₃: The gamer's attitude to a mobile IGBA is negatively affected by irritation caused by it.

Entertainment refers to the extent to which consumers perceive viewing an ad as being enjoyable, pleasurable, and entertaining (Ducoffe 1996). Bauer et al. (2005) found that consumers perceived that the entertainment utility of mobile marketing has a positive influence on their perceptions of the overall utility of mobile marketing, which in turn has a positive impact on their attitude toward mobile marketing. Many researchers have found that entertainment value has a vital impact on attitudes toward mobile and online advertising (Altuna & Konuk 2009; Bauer et al. 2005; Burns & Lutz 2006; Ducoffe 1996; Choi et al. 2008). Rosenkrans (2009) found that click-through rates for various online rich-media advertisements increased if the advertisements were distinctive and creative. Tsang et al. (2004) and Choi et al. (2008) found that entertainment is the most significant factor affecting attitudes toward mobile marketing messages. As such, we hypothesise that:

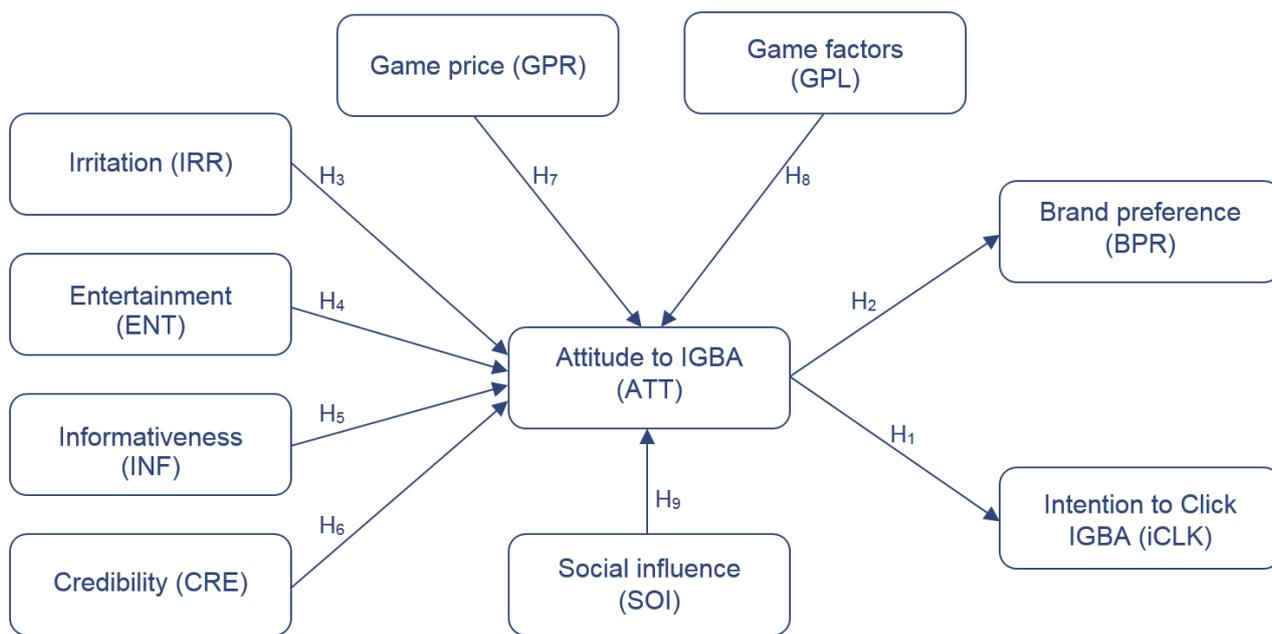
H₄: The gamer's attitude to a mobile IGBA is positively affected by its entertainment value.

Informativeness refers to the extent to which consumers perceive an ad as providing useful and relevant information to them (Ducoffe 1996). Informative advertisements are known to engender a positive view (Goodrich et al. 2015) and are affected by factors like accuracy, timelines (Bloom & Krips 1982; Rubin 2002), and automatic access to information (Zabadi et al. 2012; Kaasinen 2003). It has also been shown that information-seeking behavior acts as a positive predictor for the formation of the consumer's attitude toward online advertising (Ducoffe 1996; Wang et al. 2009). Chi et al. (2012) state that if a banner advertisement provides detailed product information, the advertising effectiveness will be higher than that of non-informative banners. The same issue about the importance of informativeness applies to mobile advertising. Tsang et al. (2004) found informativeness to be the second most significant factor in the acceptance of permission-based mobile marketing. Thus, we proposed the following hypothesis:

H₅: The gamer's attitude to a mobile IGBA is positively affected by the perceived informativeness of the IGBA.

Existing research has also identified credibility as having a significant influence on producing more favourable attitudes to online advertising (Nasir et al., 2011). In the context of advertising, this refers to the consumer's general perception of the truthfulness, reliability, trustworthiness, and believability of an advertisement (MacKenzie & Lutz

FIGURE 1
THE DEVELOPED CONCEPTUAL FRAMEWORK



1989). Credibility has been found to be an important factor affecting consumer attitudes to mobile marketing messages (Choi et al. 2008; Tsang et al. 2004). Thus, delivering credible messages and establishing consumer trust are vital in mobile marketing. When an ad is received from an advertiser with a good reputation, the recipient is more likely to believe that the advertiser has high expertise in a product category, as otherwise they would not show such opportunistic behaviour toward consumers (Rousseau et al. 1998; Cho et al. 2014). Moreover, consumers are more comfortable engaging in mobile marketing with a brand they already have prior (positive) experience of and that they trust (Persaud & Azhar 2012). Therefore, we hypothesise that:

H₆: The gamer’s attitude to a mobile IGBA is positively affected by the credibility of its source.

Mobile game factors

The price of the mobile games can have an influence on whether advertisements in games are accepted or not, and thus the attitude of the gamers toward IGBAs. One of the most common reasons for supporting in-game ads is that they lower the costs of the game or support better game development (Chambers 2005; Nelson et al. 2004.) Advergaming is often seen positively for similar reasons. In return for watching an ad before the game or allowing brand product placement within a game, consumers can download the mobile game for free or play it free online (Choi et al. 2008; Redondo 2012). A gamer’s most common concern is the congruency of the ads with the gaming context. It was found that gamers might reject the advertised brand if it is advertised in an irrelevant context to the game or their needs (Chambers 2005). As such, we hypothesise that:

H₇: The gamer’s attitude to a mobile IGBA is positively affected by the lower price of the mobile game.

Game involvement refers to the amount of attention that is given to IGA. The immersion of the mobile gamers in the tasks and activities involved in the games’ environment may captivate their attention, which in turn affects their ability to recall the content or brand advertised. According to the “limited capacity model of motivated mediated message processing” (Lang 2009), an individual has a limited capacity to process information when they are oversaturated with the stimulus. As a result, their ability to recall (Lee & Faber 2007) and intention to act (Lin 2014) will decrease. This limitation may be observed when the mobile gamer’s main concentration during the gameplay session is focused on playing the game. As a result, they may face difficulties in recalling the contents or the brand advertised in the IGBAs.

Lee & Faber (2007) found that advertised brands in games with moderate involvement played by gamers with high gaming experience, are better recognised than games that require deep involvement. As such, we hypothesise that:

H₈: The gamer's attitude to a mobile IGBA is positively affected by his or her involvement in the mobile game.

Social Influence

Social norms are the foundation of culture and social interaction. They act as a powerful and influential pressure on an individual belonging to or seeking acceptance within a group. Social influence refers to the perceived social pressure to perform or not to perform certain behaviour. A social norm is an expectation about appropriate behaviour in a social context (Sherif & Sherif 1953) and reflects the "group standards" in one or more groups (e.g. family, friends, colleagues) (McDonald & Crandall 2015). With the possibility to connect to the Internet at much lower costs today, there is an increasing number of gamers playing multi-player games using mobile devices (Gamasutra 2016b). In addition, it is common for gamers to share information with other gamers or social groups, even if they are playing a single-player mobile game. As such, the attitude of the gamer toward IGBAs and their intention to click or their intention to use the advertised brand, may be influenced by the expectations or perceptions of their peers, gaming companions, or significant others who are perceived as being important in the gaming environment and culture. As a result, we hypothesise that:

H₉: The gamer's attitude to a mobile IGBA is positively affected by the perception of significant others.

METHODOLOGY

Sample and Procedure

Since young adults are growing significantly as mobile gamers, the survey was primarily conducted among respondents under the age of thirty. To encourage responses, small lucky draw prizes were offered. The scale items (Appendix A) used to measure the proposed constructs (irritation, entertainment, informativeness, credibility, and attitude) were adapted from the literature (Ducoffe 1996; Tsang et al. 2004; Altuna & Konuk 2009; Komulainen et al. 2013) to fit the context of IGBAs. All items related to the constructs other than demographic information were measured on a seven-point Likert-type scale. Respondents were asked to rate their opinion – ranging from strongly agree (7) to strongly disagree (1).

A total of 610 questionnaires were distributed and 556 responses were collected; 130 responses were removed from our analysis because the respondents indicated they did not play mobile games. Of the 426 respondents who played mobile games, 235 were male and 191 were female. Of those, 84.7% (361 respondents) were aged 16 to 35. A smartphone was the most popular device for mobile games, with 380 respondents (89.2%) responding that they play mobile games using a smartphone. One hundred eighty three respondents (43%) indicated that they play mobile games with a tablet, and 21 said that they play with a classic phone. Note that this question allowed a respondent to select more than one device with which to play mobile games. Three hundred and nine respondents (72.5%) replied that they play mobile games to kill or pass time, and 275 respondents (64.6%) see mobile games as a form of entertainment. Two hundred forty four respondents (57.4%) responded that they play when taking a break and 155 (36.4%) said that they play as a way to relax. There are also responses indicating that mobile games are used for socialising with friends (32), bonding with children and family (23), and advancing to other levels in the games (86). Again, this question allowed the respondents to pick more than one answer.

The analysis used the partial least squares (PLS) approach using SmartPLS software (Ringle et al. 2005). A rule of thumb for the required sample size in PLS is that the sample should be at least ten times that of the most complicated multiple regressions in the model (Barclay et al. 1995; Hair et al. 2011). The sample size here fulfills this criterion well.

We followed Gefen and Straub's (2005) procedure to test convergent and discriminant validity. Convergent validity indicates the extent to which items on a scale that are theoretically related are actually related in reality. We evaluated the convergent validity by examining item loadings, composite reliabilities, and average variance extracted (AVE)

TABLE 1
ITEM MEANS, STANDARD DEVIATIONS (SDS), LOADINGS, AND SIGNIFICANCE LEVELS

CONSTRUCT	ITEM	CR	AVE	LOADING	P VALUE
Attitude (ATT)	ATT1			0.93	<0.001
	ATT2	0.95	0.83	0.95	<0.001
	ATT3			0.94	<0.001
	ATT4			0.81	<0.001
Brand Preference (BPR)	BPR1				0.92
Brand Preference (BPR)	BPR2	0.96	0.87	0.95	<0.001
	BPR3			0.91	<0.001
	BPR4			0.95	<0.001
	Entertainment (ENT)			ENT1	
Entertainment (ENT)	ENT2	0.96	0.84	0.94	<0.001
	ENT3			0.93	<0.001
	ENT4			0.91	<0.001
	ENT5			0.90	<0.001
	Credibility (CRE)			CRE1	
Credibility (CRE)	CRE2	0.89	0.67	0.87	<0.001
	CRE3			0.80	<0.001
	CRE4			0.80	<0.001
	Game Play (GPL)			GPL1	
Game Play (GPL)	GPL2	0.92	0.71	0.82	<0.001
	GPL3			0.86	<0.001
	GPL4			0.85	<0.001
	GPL5			0.83	<0.001
	Game Price (GPR)			GPR1	
Game Price (GPR)	GPR2	0.84	0.65	0.70	<0.001
	GPR5			0.87	<0.001
	Informativeness (INF)			INF1	
Informativeness (INF)	INF2	0.91	0.72	0.84	<0.001
	INF3			0.87	<0.001
	INF4			0.87	<0.001
	Intention to Click (iCLK)			iCLK1	
Intention to Click (iCLK)	iCLK2	0.92	0.74	0.92	<0.001
	iCLK3			0.86	<0.001
	iCLK4			0.80	<0.001
	Irritation (IRR)			IRR1	
Irritation (IRR)	*IRR2	0.76	0.52	0.52	<0.001
	IRR3			0.64	<0.001
	IRR4			0.65	<0.001
	Social Influence (SOI)			SOI1	0.92
Social Influence (SOI)	SOI2			0.93	<0.001
	SOI3			0.88	<0.001

Note: Average Variance Extracted (AVE), Composite Reliability (CR), * Items were removed due to loadings less than 0.70

values. With regard to item loadings, Fornell and Larcker (1981) have recommended that values of at least 0.7 are acceptable. One item (IRR2) from irritation had a loading of 0.52, and this item was thus removed. Two other items (IRR3 and IRR4) from irritation also had slightly lower item loadings than the threshold 0.7. As these values were just below

the threshold, we decided to retain them. Composite reliabilities of above 0.8 and AVE values exceeding 0.5 further support satisfactory convergent validity (Fornell & Larcker 1981). The loadings, CRs, and AVE values are shown in Table 1.

Discriminant validity refers to whether the items measure the construct in question or other (related) constructs (Gefen & Straub 2005). We evaluated the discriminant validity by comparing the square roots of the AVE values to the inter-construct correlations (Fornell & Larcker 1981). Table 2 shows the correlation matrix with the square root of the AVE values presented diagonally. As can be seen from the table, the square roots of the AVE values for the variables are consistently greater than the off-diagonal correlation values – suggesting satisfactory discriminant

TABLE 2
CORRELATIONS BETWEEN LATENT VARIABLES

	ATT	BPR	CRE	ENT	GPL	GPR	INF	iCLK	IRR	SOI
Attitude (ATT)	0.91									
Brand preference (BPR)	0.55	0.93								
Credibility (CRE)	0.59	0.62	0.82							
Entertainment (ENT)	0.58	0.52	0.62	0.92						
Game Play (GPL)	0.60	0.37	0.38	0.39	0.84					
Game Price (GPR)	0.51	0.39	0.39	0.32	0.42	0.81				
Informativeness (INF)	0.45	0.49	0.61	0.55	0.27	0.31	0.85			
Intention to Click (iCLK)	0.62	0.57	0.64	0.63	0.41	0.28	0.49	0.86		
Irritation (IRR)	-0.48	-0.27	-0.36	-0.32	-0.35	-0.32	-0.26	-0.32	0.72	
Social Influence (SOI)	0.44	0.44	0.47	0.40	0.25	0.26	0.28	0.44	-0.29	0.89

Note: the square roots of the AVE values are shown on the main diagonal

validity between the variables.

We further verified discriminant validity by examining item cross-loadings. The results of this analysis are presented in Appendix B. All items load higher on their assigned latent construct than on any other construct (Fornell & Larcker 1981). This indicates that discriminant validity at the item level is met for all the constructs (Gefen & Straub 2005).

Having verified the convergent and discriminant validity of the measurement, we addressed the potential concern of common method bias (CMB) (Podsakoff & Organ 1986). To evaluate the risk that CMB remained, we conducted Harman's (1976) one-factor test. A principal component analysis indicated that no single construct accounted for a majority of the total variance. It could thus be concluded that CMB is unlikely to have distorted the interpretations.

RESULTS

The test of the structural model includes estimates of the path coefficients, which indicate the strengths of the relationships between the dependent and independent variables, and the R² values, which represent the amount of variance explained in the dependent variables. Figure 2 shows the results of the structural model test.

The data offered support for eight out of the nine hypotheses in our proposed research model. The summary of the hypotheses test results is shown in Table 3.

In line with earlier studies, attitude ($\beta = 0.62$, $p < 0.001$) had a significant effect on intention to click (Nasir et al. 2011; Fulgoni & Lipsman 2014). Thus, H₁ was supported. H₂ was supported as attitude ($\beta = 0.56$, $p < 0.001$) had a significant influence on brand preference (Briggs & Hollis 1997; Cho et al. 2014). Irritation ($\beta = -0.16$, $p < 0.001$), entertainment ($\beta = 0.20$, $p < 0.001$), and credibility ($\beta = 0.15$, $p < 0.01$) all had significant effects on attitude, thus supporting H₃, H₄, and H₆. Irritation has a significant negative effect, while entertainment and credibility have significant positive impacts on the gamer's attitude to IGBAs. This is in line with previous studies (Ducoffe 1996; Gao 2004; Tangmanee & Rustanavibul 2012; Altuna & Konuk 2009; Tsang et al. 2004). Contrary to earlier research (Goodrich et al. 2015; Tsang et al. 2004; Ducoffe 1996), H₅ was not supported, as informativeness ($\beta = 0.04$, n.s.) had a non-

FIGURE 2
THE RESULTS OF THE STRUCTURAL EQUATION MODEL

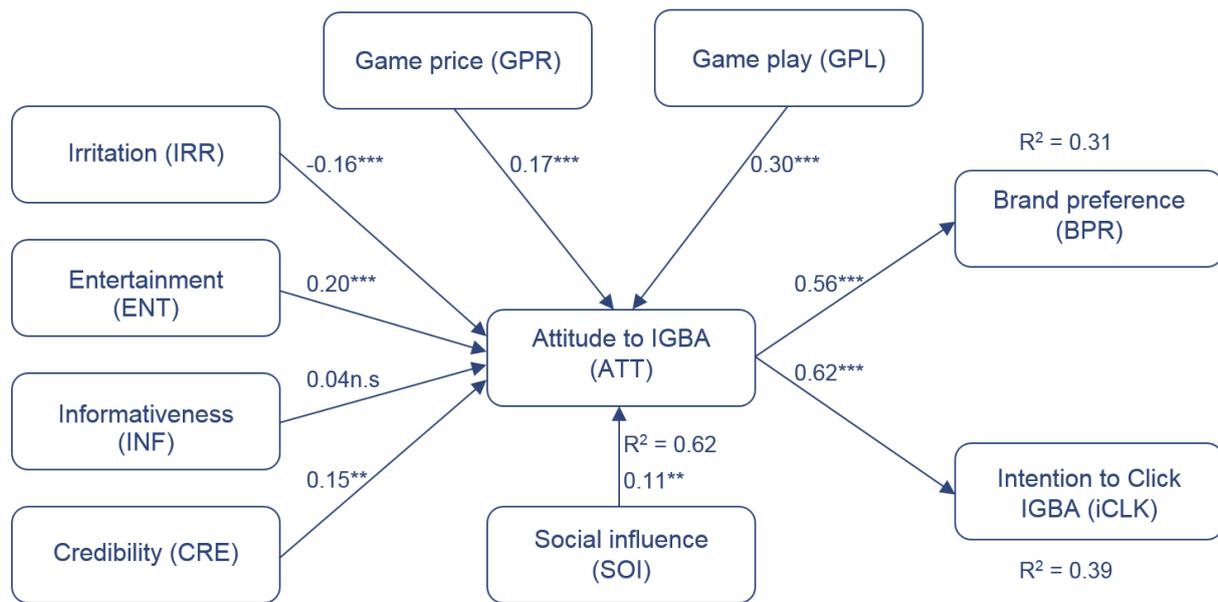


TABLE 3
THE RESULTS OF HYPOTHESIS TESTING

Hypothesis	Path coefficient	p value	Hypothesis test result
H1: ATT-iCLK	0.62	<0.001	Supported
H2: ATT-BPR	0.56	<0.001	Supported
H3: IRR-ATT	0.16	<0.001	Supported
H4: ENT-ATT	0.20	<0.001	Supported
H5: INF-ATT	0.04	Not significant	Not supported
H6: CRE-ATT	0.15	<0.01	Supported
H7: GPR-ATT	0.17	<0.001	Supported
H8: GPL-ATT	0.30	<0.001	Supported
H9: SOI-ATT	0.11	<0.01	Supported

significant effect on attitude. Game play ($\beta = 0.30, p < 0.001$), game price ($\beta = 0.17, p < 0.001$), and social influence ($\beta = 0.11, p < 0.01$) also all had significant effects on attitude – supporting H₇, H₈, and H₉. Our proposed model explained 62% of variances in attitude, 39% of variances in intention to click, and 31% of variances in brand preference.

DISCUSSION

Theoretical Implications

The results contribute to the mobile advertising literature on understanding the factors affecting the effectiveness of IGBAs. We investigated the attitudes, intention to click, and brand preference of mobile gamers toward IGBAs, since ultimately it is the consumer’s acceptance and use of advertising that determines its effectiveness. Our study validates and extends the findings of prior research. In particular, we describe five theoretical contributions based on our study findings.

First, and consistent with earlier research (Tsang et al. 2004; Ducoffe 1996), we found that attitude had a strong influence on both intention to click and brand preference with regard to IGBAs. These findings validate the findings

of prior studies that found a favourable attitude leads to intention to click (Nasir et al. 2011; Fulgoni & Lipsman 2014) and influences brand preferences (Briggs & Hollis 1997; Cho et al. 2014).

Second, entertainment value has a positive influence on mobile gamers' attitudes toward IGBAs. This finding is consistent with many earlier studies, which suggest that banner ads in the digital and interactive environment should be creative, entertaining and have an emotional appeal to targets (Hadija et al. 2012; Ashmawy & Sahn, 2014). Mobile gamers consider mobile devices to be a form of entertainment vehicle. This may explain why an entertaining advertisement may attract and amuse them more effectively in terms of generating curiosity to click on the ads (Ling et al. 2010; Hadija et al. 2012,). The result suggests that when the IGBA is enriched with entertainment contexts and more interactive aspects, it will result in a more positive attitude of the mobile gamer to the IGBAs than plain ones.

Third, we found that social influence had a positive influence on the gamer's attitude toward IGBAs. This is not surprising when casual mobile gamers play with others – especially friends (Gamasutra 2016b). As such, there is likely influence from the social circle consisting of other gamers who may have expectations to behave in similar ways (McDonald & Crandall 2015).

Fourth, in contrast to prior research (Ducoffe 1996; Tsang et al. 2004), we found that informativeness had no influence on the gamer's attitude to IGBAs. There could be a few explanations for this outcome. The gamers' main task is to play; thus, the depth of information content on the IGBA is unimportant in this context in comparison to an online banner where the screen size is bigger. Also, an IGBA is designed to attract the casual gamer to click, and not read.

Finally, we found that both factors related to game factors (i.e. lower price and game play) had significant influences on the gamer's attitude to IGBAs. As long as the IGBA is not affecting the gamer's experience, the result suggests that the presence of an IGBA will have insignificant impact on the gamer's attitude toward an IGBA. Another explanation might be that about 60% of mobile games are typically played by casual players (Delta DNA 2016). They play mobile games to kill time and the play time is usually short. As such, they may feel less irritated by the presence of IGBAs or may even stop the gameplay to click on them to explore something relevant or more interesting if it offers more value to pass the time. According to Bhave et al. (2013), users prefer to click an IGBA that opens upon clicking, rather than directing them to another page so that they can continue to play after clicking on the ad. This may also explain the high response rate to click an IGBA, if a reward is offered in the IGBA according to the responses received in this study.

The model developed in this study is the first of its kind to study the influence of social influence and game conditions on mobile gamers' attitudes toward IGBAs. In addition, the study builds on a small base of research that explores the impact of attitude on IGBAs and the gamer's intention to click or the gamer's intention to choose the advertised brands over other brands.

Managerial Implications

The managerial implications of this study are six-fold. The results reveal which factors contribute to the effectiveness of this new form of advertising and how that effectiveness could be enhanced.

Firstly, the gamer's attitude to IGBAs is positively influenced by the entertainment value of the IGBA. Thus, marketers may consider enriching the entertainment value of IGBAs with more creativity – such as animated words, graphics, and interactive links that are more appealing (Lohtia et al. 2003; Rosenkrans 2009; Chi et al. 2012).

Secondly, the informativeness value seems to have an insignificant impact on gamers' attitudes toward IGBAs, given that searching for information is not an objective of game playing. In addition, the screen size on a mobile device is significantly smaller than that of a television or computer screen, meaning that the amount of information that can be presented effectively in smaller banner ads is limited. This means that marketers should reduce the text or information presented in the IGBAs, keeping the contents simple, and they should enrich the entertainment value – as suggested earlier in the subsection.

Thirdly, the game price has a positive impact on the gamer's attitude and thus their intention to click or their

likelihood to show preference toward the advertised brand. Gamers believe the IGBAs are acceptable in low-cost or free mobile games, because this is a way to support the game development. Also, some believe the revenue from ads can support the development of better game content and features. As such, marketers should consider IGBAs for free-to-play games, as these are more effective than advertising in purchased mobile games.

Fourthly, game involvement also affects the attitudes of the gamers positively. When gamers are very focused on a mobile game and deeply involved, their attitude, intention to click, and recall of the advertised brand as a choice is less effective. As such, it is wise for marketers to choose mobile games that are slower paced and those that require moderate involvement, so that the gamers will enjoy the mobile game but still have some spare capacity for the IGBAs that are shown during the gameplay session.

Fifthly, a favourable attitude toward an IGBA leads to a positive intention to click on a mobile IGBA and also the gamer's preference toward the brand presented in the IGBA. This is an important finding, because it has empirically demonstrated that an IGBA is not seen as irritation or is unwelcomed. Casual gamers in the mobile games context might click if the IGBA does not affect their gaming experience, and is enriched with entertainment values. The results also show that the gamer may show preference to the brand presented in the IGBA. The explanation might be the acceptance of advertisements so that they can play free or pay only a low price to satisfy their entertainment needs.

Finally, the reduction of Internet costs coupled with the social capabilities of mobile devices and games have had a positive effect on social influence on brand preference and intention to click on an IGBA. As such, it is important for marketers to create IGBA content that is eye-catching and entertaining, so that mobile gamers are encouraged to share and discuss the ad and thus increase the rate of clicking and the awareness of the brand advertised.

Limitations and Future Research

As with any other empirical research, the present study is subject to a number of limitations. Some of the limitations can however be avenues for future research. First, the study was conducted among younger South Africans. This evidently limits generalisation of the findings directly to other user groups. Moreover, we relied on self-reported constructs. Hence, to overcome the well-known issues related to self-reported data and to increase the generalisability of the findings, future research in other user populations that also employs objective measures of usage, such as log data, is needed. Second, this study does not consider participants' characteristics. According to Myhill (2002), individual differences can significantly affect users' attitudes. Third, modern mobile technology offers various opportunities for advertising, and, consequently, there has been a rapid shift from mere message advertising to various formats (e.g. in-app messages) and mixed reality mobile games (e.g. Pokemon Go). Finally, our research focuses on the effectiveness of IGBAs and therefore leaves the field open for further studies on the effectiveness of other forms of advertising in mobile games, in addition to the IGBA (e.g. mobile video ads), and also the context influences of advertising (e.g. physical ambience, location, weather, incentive).

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