



# An Investigation into the Effect of Frequency, Irritability and Credibility of Short Messaging Services (SMS) Advertising towards Mobile Phone Users' Attitude in Eswatini

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**Abstract:** This study investigated the effect of three constructs of SMS advertising on mobile phone users' attitudes toward Short Messaging Service (SMS) advertising. In general, the study tested the effect of frequency, irritation, and credibility on consumers' attitudes toward SMS advertising. A structured digital questionnaire was used to collect data from 168 mobile phone users on Facebook social networking platform. A multiple linear regression model was used to estimate the significant effect of the three constructs of SMS advertising on mobile phone users' attitudes. The results of the test of hypothesis indicated that the model was a significant predictor of the outcome variable at ( $F(3, 152) = 3.990, p = .009$ ). The coefficient of determination was  $R^2 = 0.073$ . This indicates that a 7.3% change in mobile phone users' attitudes can be explained by irritability, credibility, and frequency of SMS messages. The results further revealed that irritation ( $\beta = -0.035, t = -3.420, p = .001$ ), significantly influences mobile phone users' attitudes towards SMS advertising. The outcome of the study implies that mobile phone users are mindful of the value of the type of advertising content that they receive as they seem to possess adequate taste and preferences for the type of information that they seek to receive through SMS adverts. Therefore, the study concludes that the success of SMS advertising medium strongly depends on message characteristics. Based on the findings of the study, it is recommended that marketing managers in telecommunication should ensure proper packaging of messages as well as the target group to whom messages are sent.

**Keywords:** Credibility, Irritation, Effect, Frequency, Phone, Short Messaging Service,

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## 1. Introduction

Through mobile advertising, businesses, brands, agencies, and marketers have the opportunity to communicate with customers directly on their mobile devices. Asynchronous communication is made feasible by mobile messaging technology because messages are stored in the network and sent to the recipient's mobile phone as soon as the recipient's phone can receive them. Immediately upon

delivery, the message is saved on the user's mobile device (Lakshminarayanan, Canori, Ponnada, Nunn, Read, Hiremath & Intile, 2022). Using Short Messaging Service (SMS) protocol, a mobile user can send and receive text messages up to 160 characters long on practically any operator network. Additionally, this service is referred to as "texting" and "text messaging." Every mobile device sold in recent years has SMS functionality. As a result, the substantial penetration of SMS phones generates a sizable potential market for SMS-based mobile marketing initiatives. Advertising placement is possible with mobile

messaging. Mobile content is distributed by media publishers through messaging (Salem, Baidoun, Wady, Alhajsaleh & Hamounda, 2022). Therefore, businesses are using mobile messaging to offer consumer services. With the use of these messages, adverts can be placed in available space. In essence, personal-to-person SMS and Multimedia Messaging Service (MMS) communications can now contain advertisements.

In the history of telecommunications, SMS has been the most profitable non-voice service for mobile providers and a major source of income (Gidessa 2022). Despite the prevalence of reports about the doom of this 160-character service, the number of SMS messages sent each year rises as new applications for this previously overlooked service is discovered. The success of SMS has been largely attributed to its accessibility, affordability, and dependability. Since SMS was introduced, every single messaging-based program has struggled to live up to the high standards it set. There is however lack of consensus on how SMS ads influence consumers' attitudes (Vamali, 2014). Industry forecasts predict that SMS volumes and income will increase globally over the next three years at the very least (Zhang, Moro & Ramos, 2022).

The development of technology has given organizations access to a variety of new consumer-facing advertising channels and improved the frequency and effectiveness of advertising for organizations. New-age media like short messaging service (SMS) advertising was developed as a result of the necessity to develop new mediums for advertising (Bhosale, Raverkar, and Tamondkar 2020). It is necessary to monitor the deployment of this innovation to ascertain how customers feel about SMS advertisements to maximize the benefits reaped by organizations.

Short messaging service (SMS), a component of digital cellular networks, allows users to send short text and numeric messages to and from digital cell phones utilizing cell phones and e-mail addresses based on open SMS messaging gateways over the internet (Walter, Klare, Strenhle, Aschenbeck, Ludwig, Dikopolous, Mary & Neu, 2019). Given the advantages and widespread use of mobile devices, it is reasonable to anticipate an increase in the number of SMS-style advertisements and their significance in an organization's communication strategy. SMS marketing can be categorized as traditional advertising, direct marketing, or as an interactive medium that enables two-way communication between a business and its clients (Jung, Kim, and Shin 2022). Companies are beginning to exploit this channel as a means of sales promotion and sending SMS coupons to customers' mobile phones. Given that consumers always have their phones with them and can access the coupons when needed, this sort of sales promotion has shown to be successful (Joshi and Bhatt 2021).

According to Shadkam (2017), despite the outspoken potential of SMS advertising, problems with non-adherence to consumer privacy laws also pose a threat to this form of advertising medium. As a result, for campaigns to be effective, advertisers must align their operations with such laws and obtain consent from consumers. These rules could be one of the things slowing down Eswatini's acceptance of SMS advertising. Customer perception of the SMSs sent by the network providers is another consideration. The nature of SMS may cause mobile customers to feel uneasy, and they may respond by complaining to the providers, leaving unfavorable reviews, or, in the worst situations, ceasing to use the network altogether. SMS advertising has a lot of promotional possibilities for network providers as well as numerous corporations and small businesses that might be interested in advertising their products/services using SMS. This sort of promotion can help them increase the number of their clientele. However, it is crucial to examine the barriers to such consumers' perceptions and attitudes to discover efficient solutions.

Studies on SMS advertising are mostly conducted in developed economies, while such studies in developing countries like Eswatini are non-existent. SMS marketing offers a significant low-cost alternative for local firms that are facing significant financial and marketing issues to reach a broad spectrum of customers. The elements affecting consumers' attitudes toward SMS advertisements must be understood if organisations are to develop effective mobile communication tactics. SMS advertising is widely used by mobile network operators to inform their consumers about promotional services and products that enhance the consumer experience. To date, no research study has been conducted to establish the nature of content that mobile network operators in Eswatini send to their subscribers and the effect of such on their subscribers' attitudes. It is further not clear whether messages sent through SMS are sent to a segmented category of customers or not. Therefore, on account of these agency problems, the behavioral outcomes of consumers are, such as ignoring or skipping the SMS advertisement and deleting the advertisement either before or after reading it. Månsson and Wiberg (2019) aptly argue that consumers tend to filter out excess visual and aural marketing stimuli in deciding what to read and what not to. Although studies have been conducted on the effect of SMS advertising on competitive advantage, most have been conducted in the developed world, producing mixed results. In Africa and many developing nations where mobile phone penetration is low, it is not clear whether SMS is an effective tool for advertising. To understand the key factors that affect consumers' attitude towards SMS advertising, mobile phone users' perceptions of the frequency, irritation, and credibility nature of SMS adverts influence their attitudes towards SMS advertising in Eswatini was examined.

## 1.1. Hypotheses

To investigate the effect of frequency, irritation, and credibility nature of SMS adverts on consumer attitude, the following hypotheses were formulated;

- i)  $H_{a1}$ : Irritative nature of SMS significantly influences attitudes toward SMS advertising
- ii)  $H_{a2}$ : Credibility of SMS significantly influences attitudes towards SMS advertising
- iii)  $H_{a3}$ : The frequency of SMSs significantly influences attitudes toward SMS advertising

## 2. Literature Review

### 2.1 Advertising and Mobile Advertising Concepts

Advertising essentially informs prospective customers about goods and services, assisting them in selecting one option over another depending on the needs and wants they have and the issues they are now facing (Tuten 2022). The main advertising objective is to persuade the audience to develop a favorable attitude that may result in an immediate or future purchase of such goods and services. Additionally, it serves to affirm and reaffirm to customers that they have chosen wisely.

Dhir, Kaur, and Rajala (2020) argued that businesses are pushed to discover new insights into how to keep consumers with digital mobile phone advertising communication. The advertisement message is delivered directly to and received by the target audience's mobile phones over a wireless network. This gives users convenient time- and location-based services, as well as individualized information that advertises goods and services and ultimately benefits all parties involved. Inter-reactiveness, individualization, and ubiquity are characteristics of mobile advertising (Bakr, Tolba, and Meshreki 2019). Mobile advertising enables quick, connections simple, affordable, and efficient engagement between customers and businesses. In actuality, it is the only form of advertising that customers carry around with them practically everywhere.

The time and spatial aspects of traditional mass media advertising are spared by the prevalence of mobile phones (Mullatahiri and Ukaj, 2019). According to Le and Wang (2020), the high penetration rate of mobile phones offers enormous possibilities for successfully delivering advertising content. This method of advertising delivery to customers overcomes time and space constraints as well as reduces costs to the organization. Some countries now have rules and regulations that require getting the consumer's consent before delivering adverts. Advertisers are required to include opt-in and out functions in the SMS advertisement.

Text-based advertising messages transmitted via mobile phones are commonly referred to as mobile advertising, SMS advertising, or text message advertising. However, there are a variety of ways to deploy advertising campaigns with mobile advertising. For instance, Multi-media Messaging Service (MMS) messaging enables the marketer to deliver multimedia content to specific target audiences, such as photographs, audio, or even animations. It appears that consumers like MMS advertisements over SMS messages (Jayasooriya, Shivany & Vaikunthavasan, 2020). With the introduction of Android phones, MMS messaging has, as expected, flourished.

Anyasor and Umeadi (2017) investigated consumers' perceptions of mobile phone advertising value and their attitudes toward mobile advertising. The study used 400 mobile phone users in the Onitsha metropolis to assess the correlation between consumer attitudes toward mobile advertising and their perception of the informativeness, entertainment, credibility, and irritability nature of mobile adverts in Anambra State, Nigeria. The data were analyzed using frequency tables and Spearman's correlation coefficient. According to the findings, consumers' attitudes about mobile advertising are positively influenced by mobile ads' entertainment value, informativeness, and credibility to the extent of 66.9%, 67.6%, and 66.7%, respectively, while their attitudes are negatively impacted by mobile infomercials' displeasure to the extent of 15.7%. In addition, the study advised marketers to make sure that messages are sent to customers at a sensible hour of the day based on their preferences. To prevent interrupting and upsetting consumers, messages should be sent in a reasonable amount. Furthermore, companies should design innovative strategies for advertising content to boost the level of enjoyment that may be gained from SMS marketing.

Sharma *et al.* (2021) also provided empirical evidence on the relevance of SMS advertising on consumer purchasing intentions. The study validated a Stimulus-Organism-Response Framework (SRF) to expand the scope of SMS advertising perception research and its effect on purchase intention. The study established that SMS advertising perception has a significant effect on purchase intention, mediated by advertising value and attitude toward SMS advertisement. Proponents of this view also studied factors that lead to the acceptance of SMS advertisements from South African college students. According to the findings, social influence surpasses attitudes as a predictor of the target market's intent to use SMS advertising. Attitudes, societal factors, levels of innovation, and the perceived value of studying were all found to influence students' behavioral intentions. However, there was no correlation between acceptance of SMS advertising and inherent risk (Radder *et al.* 2010).

The framework of the study relies on the models developed by Ducoffe (1996) in a study of consumer

attitudes toward internet advertising. This study posits that consumer attitudes are affected by three key factors, namely; Credibility, Irritation, and Frequency. A set of null hypotheses were drawn from each of the determinants

to represent the effect that they have on influencing consumer attitudes toward SMS advertising as shown in the diagram below.

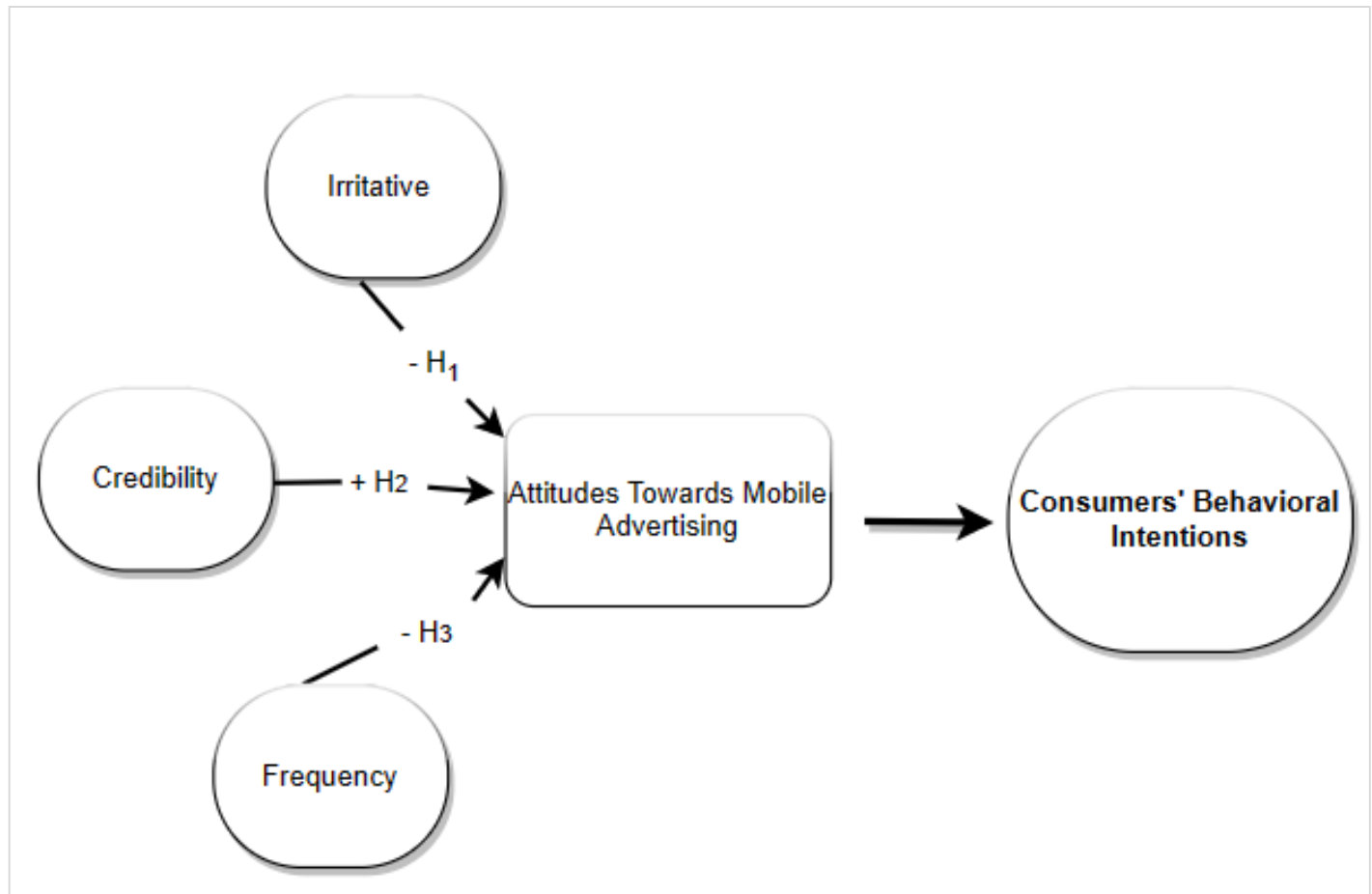


Figure 4.1: Conceptual framework of the hypothesized relationship between irritation, credibility, and frequency on consumers' attitudes toward SMS advertising

### 2.1.1. Consumers' Perceptions About Advertising Content

#### *Irritation*

Perceptions of irritation include unpleasant emotions, particularly annoyance, discomfort, and infatuation. Customers will become irritated if they are subjected to high-frequency advertising while the advertisers use overly aggressive tactics to upset, annoy, or insult them (Abdul & Muhammad, 2019). Recipients of irritative messages react badly to advertisements. Consumer attitudes about mobile phone advertising may become negative as a result of irritation from unfavorable viral marketing messages (Ismail *et al.*, 2022). Customers are likely to consider advertising as unwelcome and irritating when it uses grating, abrasive, insulting, or unduly manipulative approaches. Mobile advertising may offer a variety of information that perplexes consumers and can be both overwhelming and distracting (Salem *et al.* 2023).

Likewise, when the volume of promotional messages increases, consumers' attitudes toward the importance and relevance deteriorate since it irritates them. Delivering the right message to the right target group that offers them value lessens irritation (Maseeh *et al.* 2021). Utilizing the permission-based marketing concept can help to lessen the irritability caused on by SMS advertising. As a result, customers have a good attitude as a result of non-irritating mobile viral marketing. According to Jebarajakirthy *et al.* (2021), consumers' attitudes regarding e-mail advertising, is influenced by three factors: the perceived intrusiveness of the advertising, the perceived loss of personal information, and the annoyance that these marketing strategies generate.

The degree to which an unwanted marketing communication obstructs a person's ability to think clearly and do daily duties is known as perceived ad irritation. Unwanted promotional e-mails are time-consuming to delete, which irritates people. The recipients of these

unwanted emails are annoyed by the fact that they are annoyingly diverted to other business websites without their permission. As a result, it has been noted that marketing communications can also cause recipients to get irritated and annoyed, which can result in adverse consumer attitudes. Irritation refers to the indignity that people feel when they come into contact with unpleasant messages in the form of overly manipulative, annoying, offensive, or insulting content (Ducoffe 1996). When advertisers employ such tactics in advertisements, it is likely to create negative attitudes toward SMS advertising. Irritation is likely to be negatively correlated with SMS advertising and hurt attitudes toward SMS advertising. From the above, the hypothesis below was formulated:

*Ha1: Irritative nature of SMS significantly and negatively influence attitudes toward SMS advertising*

### **Credibility**

The trust of the customer and their perceptions in the mind could be referred to as perceived source credibility. Likewise in SMS advertising, customers may become irritated or outraged by advertising messages that are conveyed in an undesirable way, or more dangerously, mostly by perceived disclosure of personal information (Salem et al. 2023). The cornerstone of an effective advertisement is credibility, which holds consumers' appreciation for the offered goods. One basic truth is that the more customers are likely to adhere to an advertisement, the stronger and more believable it is, which increases the likelihood that purchases will result in increased revenue (Liu et al. 2019). This is so because information with credibility tends to have a higher market value, especially when it originates from a reputable and trustworthy source (Eshra & Beshir, 2019). On the other hand, critics argue that there is a risk connected with a platform for spreading viral messages. One important factor to take into account is that the more faith that is placed on that platform, the bigger the danger that will follow. The credibility of the company and the message-bearer are two aspects that have an impact on an advertisement's reliability. Therefore, the value of advertisements and their impact on message recipients increases as the perceived credibility of the advertising medium increases (Sharma et al. 2021). Higher source trust results in consumers responding more favourably to SMS advertisements (Liu et al. 2019). Based on the reviewed literature, there is a strong positive correlation between message credibility and its impact on consumers' reactions.

Advertisement credibility has been defined by Zha, Li, and Yan (2015), as “the extent to which the consumer perceives claims made about the brand in the advertisement to be truthful and believable”. The credibility of an advertisement can be directly or indirectly influenced by the company's credibility which is the

bearer of the message. From the above review, the hypothesis below was stated:

*Ha2: The credibility of SMS significantly and positively influences attitudes toward SMS advertising*

### **Frequency**

Frequency refers to the number of times a consumer receives SMS advertisements per given period. Receiving multiple SMS advertisements is negatively associated with consumer attitudes toward mobile marketing. Critiques argue that a significant increase in SMS adverts sent to mobile phone users proportionately increases unsubscribe rates of consumers who use the opt-out options compromising the value and impact of this advertising medium (Sabokwigina, Malima & Mpogole, 2013). The frequency of SMS adverts demonstrates that too high a frequency might be seen as frustrating, and consumers might seek to be given the option of determining the frequency with which they receive notifications (Wohllebe, 2020). Based on the review of literature, there is a strong negative correlation between the message frequency of SMS adverts and its impact on consumers' intentions. From the above, the hypothesis below as formulated:

*Ha3: The frequency of SMSs significantly and negatively influences attitudes toward SMS advertising*

## **3. Methodology**

The study adopted a cross-sectional research design. A research design depicts a perspective that combines various elements of the study in a logical and cogent manner (Tierney 2002). It serves as the guide for the data gathering, measurement, and analysis processes. Cross-sectional studies are observational in nature and classified as descriptive research, which means they are frequently used to make inferences about possible relationships within variables (Kesmodel, 2018). To understand the effect of frequency, irritation and credibility on attitudes of SMS users 500 Facebook users were targeted. According to Chuah and Cham (2020) in the absence of a sampling frame, when administering online surveys, deciding factors get blurred since respondents interested in a particular topic most often give their time answering the questionnaire instrument. On the other hand, Hair, Anderson, Babin, and Black (2010) suggested that in a non-probability sampling technique, a sample size between 160 and 300 has been found well suited for multivariate statistical analysis techniques when the target population is too large and lacks a sampling frame.

Using a digital survey, the research instrument (questionnaire) was digitally distributed to Facebook users. Cronbach's alpha was used to measure the validity of the instrument. According to Hayes and Coutts (2020),

Cronbach's alpha is a commonly used indicator of reliability that is used to estimate the degree of random measurement error included in a sum score or average produced by a multi-item measurement scale. The study tested for reliability to determine whether internal consistency reflected the degree of homogeneity among the statements on the ordinal Likert scale, as shown in Table 1 below. According to Schubert (2021),

estimations with good reliability and an alpha value of 0.6 (60%) might be considered satisfactory. Results in Table 1 show that irritation appeared to have reliability coefficients higher than 0.7, indicating the presence of high internal consistency. The overall reliability coefficient, however, shows weak internal consistency of 0.404 when all the variables are taken into account.

**Table 1: Reliability statistics**

Variable	Number of items	Alpha value
Irritation	3	0.736
Credibility	3	0.154
Frequency	3	0.329
Overall	9	0.405

According to Sekaran (2003), Statistical Package for Social Sciences (SPSS) is the most recommendable package for analyzing social sciences research data. As such, SPSS was used to analyze data that was collected through a questionnaire. The independent variable was operationalized as; irritation, credibility, and frequency, and the dependent variable is consumers' attitudes toward SMS advertising.

Descriptive statistics focussed on the measures of central tendencies (mean and standard deviation) and inferential statistics to measure the direction, form, and degree of the relationship (regression and correlation) between the three factors (irritation, credibility, and frequency) of SMS advertising and mobile phones users' attitudes, which was provided by SPSS.

## 4. Results and Discussion

To unravel the effect of the three factors, the data that was collected was analyzed as presented below.

### 4.1 Analysis of variation

The Analysis of variation was used to ascertain whether irritation, credibility, and frequency were significant predictors of the outcome variable (attitudes toward SMS advertising). Results from the ANOVA output revealed that the independent variables have a 10% level of significance on mobile phone users' attitudes towards SMS advertising ( $F(3, 152)=3.990, p=.009$ ). The analysis of results established that the model was a significant predictor of consumer's attitudes towards SMS advertising.

**Table 2: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.206	3	.735	3.990	.009 <sup>b</sup>
	Residual	28.018	152	.184		
	Total	30.224	155			

a. Dependent Variable: 19. Attitude

b. Predictors: (Constant), FREQUENCY, IRRITATION, CREDIBILITY

## 4.2 Model summary

The results in Table 3 below show that the coefficient of determination statistics of  $R^2=0.073$  which indicates that there is a 7.3% variance in mobile phone users' attitudes

that can be explained by irritation, credibility, and frequency. A 7% indicates that other factors may contribute the greatest percentage towards the attitudes of consumers. Human behavior studies are said to have low  $R^2$  values because it is more difficult to forecast people than physical processes (Lee, Bardi, and Sneddon, 2021).

**Table 3: Model summary**

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Model	R	R Square	Adjusted R Square	Std. The error of the Estimate
1	.270 <sup>a</sup>	.073	.055	.4293

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a. Predictors: (Constant), FREQUENCY, IRRITATION, CREDIBILITY

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### 4.3 Coefficients of regression

Table 4 presents results on how each factor significantly influences consumers' attitudes towards SMS advertising.

The results show that irritation ( $\beta=-0.035$ ,  $t=-3.420$ ,  $p=.001$ ), significantly influences mobile phone users' attitudes towards SMS advertising, while credibility and frequency do not seem to influence users' attitudes towards SMS advertising.

**Table 4: Coefficients of regression**

Models		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.525	.223		2.352	.020
	CREDIBILITY	.006	.015	.031	.391	.696
	IRRITATION	-.035	.010	-.269	-3.420	.001
	FREQUENCY	.003	.014	.015	.187	.852

a. Dependent Variable: 19. Attitude

## Discussion

Results of the test of hypothesis indicated that the model was a significant predictor of the outcome variable at  $F(3, 152)=3.990$ ,  $p=.009$ . The coefficient of determination was  $R^2=0.073$ . This indicates that a 7.3% change in mobile phone users' attitudes can be explained by irritation, credibility, and frequency. As a result, assumptions can be reached based on significant values of independent variables. The study's first hypothesis was: *Ha1: Irritative nature of SMS significantly and negatively influence attitudes toward SMS advertising.* The results established a p-value less than 0.05 which accepts the study alternative hypothesis (Ha1) that irritation negatively -0.035 influences mobile consumers' attitudes towards SMS advertising. The findings indicate that a unit increase in the irritative nature of SMS advertising decreases mobile phone users' intention to follow up on the product being advertised by -0.035. This finding is in line with Shura and Elsayed's (2012) contention that consumer perceptions of the irritation aspect of SMS advertising are negatively correlated with consumers' attitudes towards purchasing intentions. The second hypothesis of the study was: *Ha2: Credibility of SMS significantly influences attitudes towards SMS advertising.* The results of the study found that credibility does influence mobile phone users' attitudes towards SMS advertising since the coefficient of regression is 0.006. The results indicate that a unit change in credible content of SMS advert increases consumers' intention to follow up on the content by 0.006. According to Eshra and Beshir (2019), information with credibility tends to have a higher market value, especially when it originates from a reputable and trustworthy source.

However, the study's findings were not significant, therefore failing to reject the null hypothesis. The last hypothesis of the study was: *Ha3: The frequency of SMSs significantly influences attitudes towards SMS advertising.*

The results of the study found that the frequency of SMS adverts does influence mobile phone users' attitudes towards SMS advertising since the coefficient of regression is 0.003. The results indicate that a unit change in the frequency of SMS adverts increases consumer's intention to follow up on the content by 0.003. However, the study's findings were not significant, therefore failing to reject the null hypothesis. The findings contradict Ducoffe (1996) who found that receiving multiple SMS advertisements is negatively associated with consumer attitudes toward mobile marketing.

## 5. Conclusion and Recommendations

### 5.1 Conclusion

This study investigated the effect of three factors that affect attitude of mobile phone users towards Short Messaging Service (SMS) advertising. The study concludes that the success of SMS advertising medium strongly depends on message characteristics. In essence, mobile phone users are mindful of the value of the type of advertising content that they receive since they seem to possess adequate taste and preferences for the type of information that they seek to receive through SMS adverts (irritability, frequency, and credibility). The study shows that the more irritative a message is, the higher the



likelihood that customers will seek ways to opt out of such advertising medium. Although studies have reported mixed results on the effect of credibility and frequency, it has been generally acceptable that the credible nature of a message and frequency affect attitude of mobile phone users towards SMS advertising.

## 5.2 Recommendations

Mobile phones are personal gadgets, and as such, users have choices to make about what they read and how they interpret what they read. This study recommends that marketing managers need to do a needs assessment survey on the type of information and frequency at which an average customer of a certain segment of the population would prefer to receive or spend time reading and locate relevant adverts. There is a need to evaluate what works and what doesn't work. Advertising managers need to ensure that content in information sent to consumers is free from bias, personalized where possible, and infuse other features of credibility. Although it might appear that the more irritating a message is, the higher the decline in the impact of SMS, advertisers should continue to use the platform as long as messages are correctly packaged with the right content and frequency.

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