

Marketing without Wires: Survey of Factors Affecting Mobile Advertising Effectiveness in Iran

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Abstract—Mobile advertising is spreading rapidly and is strongly considered to be one of the success factors for mobile commerce. Mobile advertising is a new way of marketing communications in developing countries. Nevertheless, low acceptance rate will prevent the success of mobile advertising campaigns. As a result, it is crucial to understand what factors can affect mobile advertising effectiveness especially for Iranian users as they send 80 million SMS per day [1].

The purpose of this paper is to examine whether social norms along with perceived usefulness (PU) and perceived ease of use (PEOU) play important roles in predicting consumers' mobile advertising adoption. This study employed an online questionnaire survey method to collect empirical data. Descriptive statistics and a simple linear regression were calculated to examine the research hypotheses.

Perceived usefulness of mobile advertising was found to predict consumers' attitude towards mobile advertising, while perceived ease of use of mobile advertising did not. Social norms should be considered as interventions in decision-making for mobile users, as social norms have been found to be effective in changing the behavior of students. Findings of this study help mobile advertisers and marketers understand if and how social norms can be tailored into mobile advertising campaigns to ensure higher level of adoption and acceptance.

Keywords—Mobile Advertising; Wireless Marketing; Short Message Service (SMS); Technology Acceptance Model (TAM)

I. INTRODUCTION

Mobile advertising refers to advertisements sent to and received by mobile devices [2]. The mobile phone and network is promptly becoming a feasible marketing channel as mobile phones facilitate the exposure to mobile technology. The mobile phone is one of the few devices, which people carry all day long. In the never-ending quest for a captive audience, advertisers are beginning to funnel money into mobile advertising [3].

The rapid boost of mobile technology and subscribers has introduced mobile advertising as part of the marketing mix [4]. Mobile advertising is creating a new marketing and

advertising channel and has the potential to reach millions of wireless devices at the right time, the right place and to the right consumer. Complementing mobile advertising with other channels, such as the Internet, television, print media, and personal contact, allows marketers to maximize campaign effectiveness by attracting the consumer's attention and producing bigger responses than other media channels would. Mobile advertising is perceived by many marketers to be more effective because it allows for a one-to-one targeted interaction. Mobile phones are being referred to as the "third screen" [5] because of the enormous potential to send targeted and personalized advertisements to consumers' on the move.

II. MOBILE ADVERTISING EFFECTIVENESS

Despite the fact that marketers are looking for new media options and other alternatives for TV advertising, it is not clear whether consumers are accepting mobile advertising in a positive light [6]. Mobile advertising companies face a number of challenges, most notably acceptance of the ads. However, all operators appear to agree that the key to successful mobile advertising is that it should not be intrusive [7]. User permission is one of the variables affecting mobile advertising effectiveness [8]. User permission occurs when individuals give consent to receive information from a company. Many users also insisted that they should have the right as with Internet newsletters to opt out quickly and easily whenever they want to [7]. Advertisers need to tread carefully in order to strike a balance between effective advertising and invading the privacy of mobile phone users. Mobile advertising should provide unique value to customers, making it something that is exclusive and sought after, rather than an intrusion [9]. Another factor affecting mobile advertising adoption is advertising content. The advertisements that are relevant and offered a tangible benefit, users would accept mobile advertising.

III. ATTITUDE TOWARDS MOBILE ADVERTISING

It is of extreme significance to determine consumers' attitudes towards mobile advertising. Attitude is the psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor. Attitude towards the ad can be defined as a "predisposition to respond in a favorable or unfavorable manner to a particular advertising stimulus during a particular exposure occasion".

Positive attitudes towards the ad should lead to higher acceptance of mobile advertising; however, consumers' held a negative attitude about mobile advertising. It is believed that this may have been due to annoying advertisements, given the personal, intimate nature of a mobile device [10]. Since mobile advertising is made possible via a wide array of mobile commerce applications, we can say that consumers' positive attitudes towards mobile commerce subsequently influence their attitudes towards mobile advertising.

IV. MOBILE MARKET IN IRAN

Irancell and TCI are currently the only two mobile operators working in Iran. Serious competition exists only in the mobile market where second national mobile operator MTN Irancell now has around one third of the market. The mobile market is attractive due to Iran's relatively large population and yet to be saturated market. Both annual growth and penetration rates are around 65% as of January 2009, projected: over 80% in 2012 [11]. Fixed-line penetration in Iran is higher than in most Middle East countries. Internet user penetration is not that much different from many countries in the region.

Iran has a population over twice as high as any other of the countries of the Middle East. Mobile penetration levels are starting to change and the market is seeing high mobile growth, particularly since the launch of a second national operator in late 2006. During 2007 the Iranian government announced that it would split up and sell off the state owned Telecommunications Company of Iran (TCI), as part of its program to privatize 80% of state-owned businesses [1]. Iran is among the first five countries which have had a growth rate of over 20 percent and the highest level of development in telecommunication. Iran has been awarded the UNESCO special certificate for providing telecommunication services to rural areas. By the end of 2009, Iran's telecom market was the fourth-largest market in the region at \$9.2 billion and is expected to grow to \$12.9 billion by 2014 [1].

V. SOCIAL NORMS

Social norms defined as standards of behavior that determine how individual members with a group ought to behave in a specific circumstance, on the basis of widely and commonly shared beliefs [13]. Moreover, social norms are the rules that a group uses for appropriate and inappropriate values, attitudes and behaviors. Social norms are composed of injunctive, descriptive, perceived and collective norms [14]. Injunctive norms are behaviors which are perceived as being approved of by other people, these are the norms that refer to people's beliefs about what ought to be done [15]. Descriptive norms are perceptions of how

other people are actually behaving, whether or not these are approved of. On the one hand, collective norms are defined as those that exist at the level of the group, community or culture. Perceived norms are defined as the people's understanding of those norms [14]. Collective norms emerge through shared interaction among members of a social group or community, and the way in which norms emerge rely on how these norms are transmitted and socially construed among group members.

Perceived norms, on the other hand, exist at the individual, psychological level and they represent each individual's interpretations of the prevailing collective norm [14]. Social norms theory describes situations in which individuals incorrectly perceive the attitudes and/or behaviors of peers and other community members to be different from their own when, in fact, they are not.

VI. TECHNOLOGY ACCEPTANCE MODEL (TAM2)

TAM2 differs from the original TAM model by adding three additional variables: "subjective norm," "voluntariness," and "image" [16]. The extended model, referred to as TAM2, was tested in both voluntary and mandatory settings. The addition of these three variables to the original TAM accounts for technology adoption decisions not made by managers in an organizational setting for functional considerations [17]. TAM 2 incorporates subjective norm as a social influence variable. In this theory, the social norm concept impacts the opportunity to adopt or reject a new system [16]. Because consumers are affected by what they perceive to be normative, social norm, as a variable, can help explain why consumers are willing to adopt mobile advertising.

VII. CONSUMERS' PERCEPTION OR BELIEFS

User permission is the most important variable, as consumers are apprehensive of mobile advertising and high levels of spam [18]. For mobile users to accept mobile advertising, they need to perceive mobile advertising to be useful and beneficial to their life. As a result, perceived-ease-of-use (PEOU) and perceived usefulness (PU) taken from TAM2 are useful predictors to explain consumers' mobile advertising acceptance.

In TAM2, perceived usefulness (PU) is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" and is when individuals tend to use or not use an application or technology, to the extent they believe it will help them perform their job better. On the other hand, perceived-ease-of-use (PEOU) is defined as "the degree to which a person believes that using a particular system would be free from effort". In TAM2 subjective norm significantly influences perceived usefulness [16]. We can state that when a technological application has high perceived usefulness, in turn, is one for which a user believes in the existence of a positive use performance relationship.

VIII. INTENT TO ADOPT MOBILE ADVERTISING

According to TAM2, intention to adopt a new technology is influenced by social influence processes (subjective norm) and cognitive instrumental processes (job relevance).

Subjective norm has been found to predict people's intention adoption [16]. Subjective norm has a direct effect on usage intentions over and above perceived usefulness and perceived ease of use for mandatory but not voluntary, usage contexts. TAM2 posits that PU and PEOU are of prime relevance for technology acceptance behaviors.

IX. CONCEPTUAL MODEL AND HYPOTHESES

Given that subjective norm is very similar to social norms and have been found to influence consumer's adoption to new technologies, this paper proposed the following theoretical framework that integrates both social norms theory and the extended technology acceptance model. Below establishes a conceptual framework of study, identifying key determinants of consumers' responses to mobile advertising.

On the basis of TAM2, social norms can influence consumers' perceived usefulness (PU) and perceived ease of use (PEOU) of mobile advertising. When mobile advertising is perceived as easy to use and useful to users, it is more likely that consumers will adopt mobile advertising.

Therefore, the following hypotheses and questions are proposed:

Question 1: Do social norms positively affect perceived usefulness of mobile advertising?

Q1-1: Do subjective norms affect perceived usefulness of mobile advertising?

Q1-2: Do types of norms affect perceived usefulness of mobile advertising?

Question 2: Do social norms positively affect perceived ease of use of mobile advertising?

Q2-1: Do subjective norms affect perceived ease of use of mobile advertising?

Q2-2: Do types of norms affect perceived ease of use of mobile advertising?

Hypothesis 1: Perceived usefulness (PU) of mobile advertising positively influences consumers' attitudes towards mobile advertising.

Hypothesis 2: Perceived ease of use (PEOU) of mobile advertising positively influences consumers' attitudes towards mobile advertising.

Hypothesis 3: Attitudes towards mobile advertising positively influences consumers' intention to adopt mobile advertising.

This study establishes a conceptual model (Fig. 1) to identify key determinants in mobile advertising perception, attitude and adoption. It is of great interest for the study to explore how social norms and TAM2 contribute to the attitudes and adoption of mobile advertising and how these behaviors can be further explored.

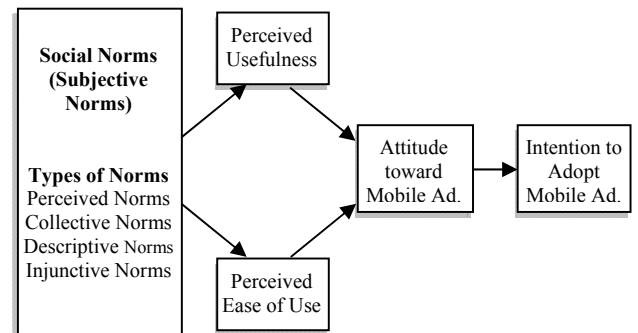


Figure 1. Basic Model

X. RESEARCH METHODOLOGY

To examine if and whether social norms affect mobile users' perceived usefulness, perceived ease of use, attitudes towards, and intention to use mobile advertising, this study employed an online questionnaire survey method to collect empirical data. The advantages of using online questionnaire survey in this study were convenience and the rapid turnaround of data collection, which this method of research provides.

An invitation email sent to target students with a link on www.surveymshare.com to participate voluntarily in this study. A total of 144 students from main universities in Iran were recruited to take part in this study. The respondents that participated in the study ranged from freshman, sophomore, junior, senior, and graduate level students. Among 144 respondents, 56.25 percent (n=81) were females, while the other half, 43.75 percent (n=63) were males.

The survey administered to the participants consisted of 36 questions where all the constructs were being measured on a 5-point Likert scale. Cronbach's alpha (α) coefficients were run to ensure scale reliability of the instrument. Scales measuring subjective norm ($\alpha=0.88$), perceived norms ($\alpha=0.91$), collective norms ($\alpha=0.81$), descriptive norms ($\alpha=0.86$), and injunctive norms ($\alpha=0.90$), perceived usefulness ($\alpha=0.82$) and perceived ease of use ($\alpha=0.82$) have shown good reliability coefficients. Lastly, attitude towards the mobile ad had a high alpha coefficient of ($\alpha=0.93$). All constructs in the model show high internal consistency with high alpha coefficients (α).

XI. DATA ANALYSIS AND RESULTS

A. Social Norms Perceptions of Mobile Advertising

To examine if and how social norms and types of social norms will influence consumers' use of mobile advertising, descriptive statistics were examined to see how and if different norm perceptions influence consumers' behavior of receiving mobile advertising.

Participants' assessment of whether perceived norms played a role in their attitude towards mobile advertising showed a neutral attitude (M=3.05, SD=1.00). Although it is perceived to be a norm for a typical student to receive mobile advertisements every day (M=3.25, SD=1.06),

participants themselves less agreed with whether it is typical for them to receive mobile advertisements every day ($M=2.38$, $SD=1.17$). The assessment on the level of excitement about mobile advertising showed a strong level of disagreement ($M=1.84$, $SD=1.02$).

Participants' assessment of whether descriptive norms played a role in their attitudes towards mobile advertising, showed that respondents disagreed with the potential influence of descriptive norms on their mobile advertising adoption ($M=2.79$, $SD=1.18$).

The following statements in the survey evaluated participants' injunctive norms (punishment) and injunctive norms (acceptance). In the injunctive norms section (punishment), participants' reported a neutral position ($M=2.84$, $SD=1.07$); whereas injunctive norms (acceptance) reported a strong disagreement for the acceptance of mobile advertising ($M=1.82$, $SD=0.68$). Participant's results showed that they do not accept mobile advertising; however, the results showed that they neither agreed nor disagreed to punishing receiving mobile advertisements.

Descriptive results for subjective norm showed that respondents disagreed with the influence of subjective norm ($M=2.54$, $SD=0.79$). Participants mostly disagreed that mobile advertising was considered to be fashionable ($M=2.63$, $SD=1.13$).

B. Perceptions of Mobile Advertising

Perceived usefulness was used as a predictor to explain consumers' mobile advertising acceptance; it was hypothesized that among other variables that affect adoption intention, perceived usefulness (PU) is an important determinant of behavior intention. Overall, the perceived usefulness, reported a moderate disagreement level within the sample ($M=2.68$, $SD=0.84$). In the assessment, only one statement "Mobile advertising is informative" showed that respondents leaned towards neither agreed nor disagreed.

Participants' disagreed that mobile advertising is credible ($M=2.43$, $SD=0.92$), participants' also rated mobile advertising as not being a good source for timely information ($M=2.73$, $SD=1.06$) as they disagreed with the assessment that mobile advertising is useful for their everyday life ($M=2.52$, $SD=1.02$). Moreover, participants' neither agreed nor disagreed that mobile advertising is informative ($M=3.02$, $SD=0.89$). On the other hand, participants' agreed that mobile advertising is likely to invade their personal privacy ($M=2.76$, $SD=1.12$). The last construct measured in the study was attitude towards mobile advertising. The results in the study reported a disagreement level within the sample ($M=2.26$, $SD=1.17$). The assessment confirmed that participants' view mobile advertising as irritating ($M=2.12$, $SD=1.06$), as annoying ($M=2.34$, $SD=1.06$), and as intrusive ($M=2.21$, $SD=1.02$). Lastly, participants' disagreed that they like mobile advertising ($M=2.31$, $SD=1.23$) and disagreed to like receiving mobile advertising ($M=2.12$, $SD=1.04$).

C. The Relationship between Subjective Norm and PU of Mobile Advertising

A simple linear regression was calculated predicting the relationship between participants' subjective norm and perceived usefulness of mobile advertising. A significant regression equation was found ($F(1,144)=98.67$, $p=0.000<0.001$). Overall, regression analysis predicted that participants' subjective norm predict perceived usefulness of mobile advertising. Consumers' subjective norm was found to account for 41% of variance in their perceived usefulness of mobile advertising ($R^2 = 0.41$).

D. The Relationship between types of Social Norms and PU of Mobile Advertising

A simple linear regression was calculated to examine if types of social norms predicted perceived usefulness of mobile advertising. A significant regression equation was found ($F(5,144)=36.58$, $p=0.000<0.001$). Although the overall model supported the importance of social norms, not all types of social norms were predictive of consumers' perceived usefulness of mobile advertising. The regression analysis predicted that, injunctive norms (acceptance) ($\beta=0.21$, $p<0.001$) collective norms ($\beta=0.35$, $p<0.001$), and descriptive norms ($\beta=0.34$, $p<0.001$) predicted perceived usefulness of mobile advertising. These constructs contributed with high levels of significance. Perceived norms ($\beta=0.07$, $p>0.05$), and injunctive norms (punishment) ($\beta=-0.01$, $p>0.05$); on the other hand, did not show significance. Consumers' types of norms were found to account for 57% of variance in their perceived usefulness of mobile advertising ($R^2=0.57$).

E. The Relationship between Subjective Norm and PEOU of Mobile Advertising

A simple linear regression was calculated to examine if subjective norm explained perceived ease of use of mobile advertising. A significant regression equation was found ($F(1,144)=63.79$, $p=0.000<0.001$). Regression analysis explained that participants' subjective norm ($\beta=0.48$, $p<0.001$) can explain perceived ease of use of mobile advertising. Consumers' subjective norm were found to account for 31% of variance in their perceived ease of use of mobile advertising ($R^2=0.31$).

F. The Relationship between types of Norms and PEOU of Mobile advertising

A simple linear regression was calculated to investigate if types of norms affected perceived ease of use of mobile advertising. A significant regression equation was found ($F(5,144)=6.47$, $p=0.000<0.001$). Although types of norms were found to be significant predictors in the whole model, only some norm types were significant predictors. The regression analysis predicted that perceived norms ($\beta=0.22$, $p<0.001$) and descriptive norms ($\beta=0.19$, $p<0.001$) were found to be significant predictors of perceived ease of use of mobile advertising. However, for injunctive (acceptable)

($\beta=-0.50$, $p>0.05$), injunctive (punishment) ($\beta=0.00$, $p>0.05$), and collective norms ($\beta=0.14$, $p>0.05$), these constructs did not demonstrate that they can explain consumers' perceived ease of use of mobile advertising. Overall, consumers' norms were found to account for 19% of variance in their perceived ease of use of mobile advertising ($R^2=0.19$).

G. *The Relationship between PU, PEOU and Attitude towards Mobile Advertising*

A simple linear regression was calculated to examine if perceived usefulness and perceived ease of use predicted attitude towards mobile advertising. A significant regression equation was found ($F(2,144)=62.51$, $p=0.000<0.001$). Although the linear regression model showed the predictive power of PU and PEOU, not all perceptions of mobile advertising were found to be significant. Regression analysis predicted that perceived usefulness ($\beta=0.68$, $p<0.001$) predicted attitude towards mobile advertising. However, perceived ease of use ($\beta=0.51$, $p>0.05$) was not found to be a significant predictor of consumers' attitudes towards mobile advertising. Consumers' PU and PEOU, combined, were found to account for 47% of variance in their attitude towards mobile advertising ($R^2=0.47$).

H. *The Relationship of Attitude towards Mobile Advertising and Adoption Intention*

A simple linear regression was calculated to examine if attitude towards advertising predicted the intention to adopt mobile advertising. A significant regression equation was found ($F(1,144)=69.94$, $p<0.001$). The regression analysis explained that attitude towards mobile advertising ($\beta=0.75$, $p<0.001$) predicted the behavior intention of mobile advertising with high significance. Consumers' attitude towards mobile advertising was found to account for 33% of variance in their intention to adopt mobile advertising ($R^2=0.33$).

XII. CONCLUSION

The results confirmed that subjective norm predicted perceived usefulness of mobile advertising. Subjective norm has been defined as an individual's perception about what other people important to them think a specific behavior should or should not be performed. Subjective norm refers to social influence that can determine individuals' behavior intention. One of the goals of the study was to determine what causes consumers' to accept or reject mobile advertising. Perceived usefulness of mobile advertising was found to predict consumers' attitude towards mobile advertising, while perceived ease of use of mobile advertising did not.

Perceived usefulness (PU) is defined as, "the degree to which a person believes that using a particular system would enhance his or her job performance". PU has been operationalized and measured in this study to account for non-job related perceived usefulness of mobile advertising.

On the other hand, perceived-ease-of-use (PEOU) is defined as "the degree to which a person believes that using a particular system would be free from effort". The prominence of perceived usefulness in the study makes sense, users are driven to adopt a system primarily because of the functions it provides for them, and secondarily for how easy or difficult it is to get the system to perform those functions.

The study did not found PEOU to be a predictor of attitude towards mobile advertising along with PU in the regression model. It is likely that may have been due to the fact that mobile advertising is not perceived as a difficult thing to do. Moreover, perceived ease of use might not be significant in the study, due to the known role of direct hands-on experience in forming this belief. Subjective norm along with perceived and descriptive norms predict consumers' PEOU of mobile advertising, while injunctive and collective norms did not. Lastly attitude towards mobile advertising successfully predicted the intention to adopt mobile advertising. Mobile advertising is in the early stages of development; however, it promises a bright future in the mobile advertising and marketing industry.

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