Consumer adoption of Mobile Social Network Games (M-SNGs) in Saudi Arabia: The role of social influence, hedonic motivation and trust

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ABSTRACT

Mobile Social Network Games (M-SNGs) are highly upgraded technological applications which are used immensely within the electronic game sector. The proliferation of M-SNGs have triggered the necessity to understand factors that affect consumers' behavioural intention to use M-SNGs in order to gain a competitive advantage amongst companies in the market. However, there is no such literature that examines this topic in the Saudi Arabian context. Hence, the main purpose of this study is to identify the different factors which might impact on the intention to use M-SNGs amongst the Saudi potential users. As such, the influence of the independent factors of Unified Theory of Acceptance and Use of Technology (UTAUT2) has been highlighted (i.e. performance expectancy, effort expectancy, hedonic motivation, social influence, facilitating conditions and price value). Moreover, the importance of 'trust' factor in impacting the behavioural intention of the Saudi citizens has also been evaluated; furthermore, the impact of social influence and hedonic motivation over trust has been discussed. Regarding methodology, data has been collected through a field survey questionnaire and a total of 386 participants responded through the convenient sampling technique. The findings indicated that all the proposed hypotheses were accepted with the greatest impact of social influence over trust (0.41) followed by the impact of performance expectancy over behavioural intention (0.29).

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1. Introduction

Technology has become an integral part in the dynamics of societies in the world [1,2]. With the growth and advancements of technologies and their applications, the adoption of technology has reshaped the morals and way of living for people through establishing new social connections and cyber ethics [3]. Examples of these ethics are the issues of cyber security, cyber privacy, and establishing groups or digital tribes where people who have similar interests can establish one group on the Internet as it is with the case of Mobile Social Network Games (M-SNGs).

Mobile Games are highly upgraded technological applications which have become a predominant trend in the modern society. Mobile games constitute a considerable portion of the mobile media growth rate. Internationally, the mobile game industry yielded revenues of 30.1 US billion dollars [4]. Furthermore, the overall revenue of mobile games is expected to exceed 40.6 US

billion dollars by the end of 2017. In 2016, the total revenue gained from using mobile games was done through using the Google Play store (90%) and the Apple App Store (80%). Furthermore, within 2016, an estimated number of 2.8 billion activities per month were registered by users of mobile games around the globe. Interestingly, 2.7 billion user activities out of the estimated 2.8 billion user activities took place in the fourth quarter of 2016 [4]. In Saudi Arabia, the total revenue earned for the use of these online mobile games is around US$83m as per the records of 2016. However, the revenue amount is anticipated to increase by about 8.8% by 2021. This will ultimately boost the Saudi market's revenue to US$127m by that time. Also, the mobile game penetration rate is also expected to increase to around 19.3% by 2021 and the average revenue per Saudi player is estimated around US$22.91. While Saudi's revenue is gradually growing in this domain, China has already generated revenue of US$7.144m in the last year (2016). Thus, it can be said that Saudi Arabia has a modest revenue of playing online mobile games in both local and international level [5,6]. This additivity about mobile games has included various types of mobile games such as individual games and social games.

Mobile Social Network Games (M-SNGs) are online mobile games developed by asynchronous game mechanisms and distinctive types of multiplayer capacities which are played by creating social groups or networks [7]. These games constitute virtual platforms that bring together players from heterogeneous backgrounds into unified social virtual reality. For the aim of increasing the number of potential users of M-SNGs in Saudi Arabia and for the purpose of understanding the reasons behind the gathering of players, who have diversified ad hominem perceptions about various issues in life, in one game, this study examines several factors that might impact the behavioural intention of users towards the adoption of M-SNGs in Saudi Arabia.

In this respect, the role of the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) adopted from Ref. [8] has been examined by considering its independent factors such as performance expectancy (PE), effort expectancy (EE), hedonic motivation (HM), social influence (SI), facilitating conditions (FC) and price value (PV) and its dependent factor such as behavioural intention (BI) of the users. Moreover, in this study, trust (TR) is also considered as an independent variable in addition to UTAUT2's variables which drives the users' behaviours towards M-SNGs. Trust is a factor which influences the attitudes and preferences of the individuals towards using technology [9,10]. However, dependent factors of UTAUT2 (i.e. usage) and independent factor (i.e. habit) have been discarded in this study as it focuses upon all potential Saudi users of M-SNGs.

The next section 'section two' provides an overview of M-SNGs literature followed by an overview of the theoretical basis in section three. After that, this study presents its methodology, results and discussion outlined in section four, five and six, respectively. And finally, this study comes to its conclusion in section seven.

2. Literature review

Mobile games are uploaded through the applications and are played on mobile phones. These can be played either by using the Internet or without the Internet [11]. The online mobile games are played with the use of the Internet. These can be divided into two groups (i.e. social networking online games and individually Internet-based mobile games). The M-SNGs are played by using certain asynchronous playing procedures and techniques and the games can be played by multiple users at the same time. Examples of such games are FrontierVille and The Sims Social. Nonetheless, while the casual video games or non-Internet mobile games are easier, M-SNG games have complex gaming rules and procedures for which the users need to have some special capabilities and intelligence. Moreover, M-SNGs need long commitment periods which can be achieved through achieving high behavioural intention of the users to use the service [12].

Various researchers (e.g. Refs. [13–15] used a number of models such as the Technology Acceptance Model (TAM) and the Theory of Reasoned Action (TRA) in order to examine the factors that impact behavioural intention to use M-SNGs particularly and mobile games generally. Within the domain of Korea, an extended version of the Technology Acceptance Model (TAM) is used for examining the influential factors [14]. The analysis had been done by conducting an online questionnaire survey with 20 undergraduate students and obtaining statistical data and information regarding perceived usefulness, perceived enjoyment, perceived control, perceived skills and perceived mobility of the users using M-SNGs. Also, the extended TAM model was used to examine the behavioural intentions of 432 youths of Spain, USA, Japan and Czech Republic towards using M-SNGs [13]. This model depicted certain variables of escapism, visual appeal, fun, convenience, ease of use, economic value, attitude, novelty and playing intentions. In this

study, the users' intention of playing M-SNGs has been influenced by perceived convenience and perceived fun.

The TAM model has also been used to examine the impact of perceived usefulness, perceived ease of use, social norms and perceived behavioural control over the behavioural intentions of New Zealand users towards online mobile games [15]. Their findings indicated that perceived expressiveness is another most effective factor which influences the behavioural intention of the users towards using online mobile games. Moreover, perceived ease of use influences the perceived enjoyment of the users which, in turn, affects users' behavioural intention. Depending upon the flow theory which emphasises the factors that control the mind state and feelings of the users towards using a particular service [16], commented that Chinese users are influenced through perceived ease of use, perceived Internet connection quality and content quality. The social influence, cost and flow are the factors to influence the behavioural intentions of the consumers using mobile games. Subjective norms also play an important role in driving the users' intentions and choices towards playing mobile games.

Moreover, by relying on a model that contains variables from the TAM and TRA models [11], analysed the effect of independent variables (i.e. playfulness, attitude, subjective norms, and ease of use) over the dependent variable which is the users' intention to use mobile games. Amongst the various independent variables [11], reported that the subjective norm is particularly important in crystallising behavioural intention of users. Also [17], tended to rely on the variables of the UTAUT model to influence the decisions of the users regarding web browsing on mobile phones and online gaming experiences. They referred that performance expectancy, effort expectancy, social influence and facilitating conditions of UTAUT were important contribution in the formation the behavioural intention of mobile game users. Nonetheless, they asserted that the effect of the aforementioned independent variables relied on the effects of two moderators (i.e. the experience in doing online games and the experience of doing online mobile browsing). These results were duplicated by Ref. [18] who indicated that there are two practical steps that could shift the effect size of the relationships between the dependent and independent variable: the practical capacity of the users to use his/her mobile in browsing and then the practical capacity of the user to play in a mobile game.

However, the aforementioned studies that examined mobile games generally and M-SNGs are adopted neither to a newer model (i.e. UTAUT2) nor examined in the Saudi Arabian context. This would leave a gap in the literature for three main reasons:

(i) the UTAUT2 model is broader than the TAM model which only focuses mainly on personal factors of perceived usefulness and perceived ease of use with a vague indication for external factors which can cover many factors such as social influence. That is to say, TAM does not particularly focus on the role of social influence which is considerably important in M-SNGs which is, by definition, based on social interaction between players. Furthermore, the UTAUT2 model is broader than TRA which focuses; inter alia, on the role of subjective norms. Although subjective norms include normative believes about behaviours, the TRA does not focus on the personal role of perceived usefulness and perceived ease of use which play essential roles in determining the behavioural intention of users as mentioned in studies of, for example [13], and [14]. Moreover, UTAUT2 is broader that the mixed model of TRA and TAM which was adopted by Ref. [11] as the former included the role of facilitating conditions which is necessary for issues such as easing the level of mobile browser which, in turn, would lead to gaining faster experience in the Internet mobile browser. This is important as a