

# AN EMPIRICAL STUDY OF THE SOCIAL INDIVIDUAL DIFFERENCES ON MOBILE SOCIAL NETWORK SERVICE USE

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## Abstract

*When developing and aiming to achieve success in the arena of mobile social network services, user behaviour is one of the key aspects for consideration. Nowadays, it is recognised that mobile social networks are fast, responsive technologies centred on facilitating mobile commerce. Our aim in this study to perform an empirical study to investigate the way in which social individual factors (gender, age and education) affect user acceptance in mobile social network services in the context of Saudi Arabia. In an attempt to achieve sound insight into the market of Saudi Arabia in relation to mobile commerce—which is recognised as being a very valuable sector—a survey was carried out targeting a sample of 363 participants in several cities across Saudi Arabia. As a result, social individual differences were discovered as having no significant statistical difference on mobile social network services.*

*Keywords: Saudi Arabia, Social influence, Mobile social networks*

## 1. INTRODUCTION

Mobile Social Network Services, referred to as MSNSs in this paper, are recognised widely as being the future of m-commerce (Kourouthanassis and Giaglis, 2012), with such services fundamental in the arena of m-commerce. A study carried out recently established that 91% of mobile subscribers are involved in social computing applications; desktop users amount to 79%. In the USA, on average, people are known to spend approximately 2.7 hours each day utilising mobile devices, of which 40% share contacts with others and 38% share other media, such as images, on social networking forums, thus enhancing the utilisation facility of favourable socialising platforms (Mohan, Agarwal and Dutta, 2012) (Mohan, Agarwal and Dutta, 2012). On this subject, Facebook Mobile revenue amounts to approximately \$152.6m, 14% of which is attributed to advertising sales, exceeding the expectations of analysts (BBC, 2012). Also, by 2015, more than 60% of Twitter revenue is expected to come from mobile ads (Emarketer, 2013).

In the context of Saudi Arabia, the total number of mobile subscriptions has increased to approximately 53.7 million by the end of 2011—up from only 2.5 million in 2001 (CITC, 2011), 60% of mobile users own Smartphones. By comparison, the market penetration of Smartphones in the US was 44% (Crum, 2012). Moreover, in Saudi Arabia, 85% of Smartphone users have access to the internet (Crum, 2012); 88% of those access to the internet daily (Alkhunaizan and Love, 2013).

In a number of industrialised, technology-savvy countries, such as China, the USA and those within Europe, various theoretical frameworks have been devised in an attempt to understand the factors affecting the adoption of information and communication technologies (Lu *et al.*, 2008; Carlsson *et al.*, 2006; Jackson *et al.*, 2001; Morris and Venkatesh, 2000; Venkatesh and Davis, 2000; Davis, 1989). Accordingly, the overall aim of this paper is centred on performing an empirical study to

investigate the way in which social individual factors, namely gender, age and education, impact actual user acceptance in regard to mobile social network services in the context of Saudi Arabia.

## 2. DEMOGRAPHIC DIFFERENCES

### Gender

Gender has been considered during the course of a number of studies with the aim of examining whether or not there are differences between men and women in regard to technology utilisation. Various academics have examined the role adopted by gender in the utilisation and implementation of technology (Al-Shafi and Weerakkody, 2010; Jackson *et al.*, 2001; Morris and Venkatesh, 2000). Moreover, a number of researchers have emphasised that gender markedly impacts when considering the use and implementation of technology in a business-related context. In this regard, it is illustrated that males utilise computers more so than women (Venkatesh and Davis, 2000). In addition, the differences between genders have been highlighted in regard to internet utilisation (Jackson *et al.*, 2001). Notably, Venkatesh *et al.* (2003) have found that perceived usefulness in regard to behavioural intention is controlled by gender. In regards to e-government usage, Alsahfi & Weerakkody (2010) note that 73.6% of e-government adapters are male. On the other hand, it was found that women and men do not exhibit important differences in shopping behaviours in regard to mobile technology (Bigne *et al.*, 2005). Moreover, Alkhunaizan & Love (2013) support that gender does not have effect on m-commerce usage. In the context of this study, the works of various scholars, including (Dwivedi *et al.*, 2006) Dwivedi *et al.* (2006), Al-Shafi & Weerakkody (2010) and Alkhunaizan & Love (2013) will be followed, with gender taken into account as a social, independent variable. This will be done in an attempt to explain the differences between technology users, with the researcher proposing the following hypothesis.

*H1: The Actual Use of MSNSs will be greater amongst males than females.*

### Age

Various IS studies have found that age has important, direct and moderating effects on the adoption and use of behaviours, in addition to behavioural intention (Al-Shafi and Weerakkody, 2010; Dwivedi and Lal, 2007; Bigne, Ruiz and Sanz, 2005; Venkatesh *et al.*, 2003; Morris and Venkatesh, 2000; Venkatesh and Davis, 2000). Furthermore, it has been found that the 15–17 years age group was most likely to utilise computers in the USA, with the 26–35 age group following subsequently. Similarly, in several West European countries (Carveth and Kretchmer, 2002), it was found that the older demographic groups are less inclined to use computers and the internet compared with the younger population. In the United Kingdom, 85% of 16–24 year olds have internet access, but amongst older age groups, only 15% of 65–74 years and 7% of those 75 years and older have access (Carveth and Kretchmer, 2002). In addition, Dwivedi *et al.* (2007) have found that most broadband subscribers are aged between 25 and 54 years. In Saudi Arabia, (Al-Ghaith, Sanzogni and Sandhu, 2010) have shown that younger people in Saudi Arabia are more willing to use e-services. In addition, in the context of e-government, the results garnered by Al-(Al-Sobhi, 2011) show that less than 10% from the e-government of those utilising the service are above 45 years old. Specifically, in the m-commerce context, Alkhunaizan & Love (2013) show that older individuals use m-commerce less often in Saudi Arabia. Accordingly, the present study predicts that younger and middle-aged individuals are expected to exhibit differences in MSNS usage. Accordingly, through this research, the following hypothesis is considered:

*H2: There will be a difference between MSNSs users of various age groups.*

## Education

It has been emphasised that those possessing educational qualifications are far more likely to ascertain a greater occupational position (Dwivedi and Lal, 2007). Accordingly, it is believed that such individuals are more likely to implement new technologies. Studies carried out previously in the arena of technology utilisation suggest a strong link between usage, and the level of education and technological ownership (Morris and Venkatesh, 2000). With this in mind, the work of Morris & Venkatesh (2000) states that people with higher educational qualifications use computers more often than those with fewer qualifications. In this context, it is then emphasised that education is recognised largely as being one of the most fundamental drivers in South Korea (Carveth & Kretchmer, 2004; Choudrie & Papazafeiropoulou, 2007). In specific consideration to internet access, it has been suggested that those individuals with either secondary or tertiary education are more likely to have access to the internet (Choudrie and Dwivedi, 2005). Al-Shafi & Weerakkody (2010) state that, in regard to e-government usage, 75% of postgraduates use e-government services; however, just 46.8% did so of those with high school or lower qualifications. In m-commerce usage, (Alkhunaizan and Love, 2013) did not find a significant effect in regard to education on m-commerce usage in Saudi Arabia. With this in mind, the hypothesis is stated as follows:

*H3: A difference between MSNS usages will be seen in terms of education.*

### 3. RESEARCH METHODOLOGY

In order to gather the most appropriate data, the decision was made to adopt a positivist approach through the research by applying a survey. This is acknowledged as being the most suitable technique in this context. Previous studies conducted in the same arena, such as those by (Suki, Ramayah and Ly, 2012; Kwon and Wen, 2010) have utilised such an approach.

A quantitative survey approach was employed in this study. Furthermore, in order to analyse the data objectively, statistical software, known as Statistical Package for the Social Sciences (SPSS), was adopted. The sample was recruited with the assistance of 50 volunteers; all were individually recruited participants from public places in different cities, including public hospitals, cafes and universities, with the use of convenience sampling.

For this study, questionnaires were distributed amongst approximately 980 Smartphone users in Saudi Arabia. Of this number, 420 were returned (42.86% response rate); 363 were usable and the remaining 57 had to be removed from the sample owing to missing important information.

### Sample Demographic Profile of Participants

Table 1 describes the profile of participants based on gender, age and education level. This part will help to inform the propositions in that mobile social network services' acceptance differs in line with personal factors (gender, age and education level).

Demographic	Category	Frequency	%
Gender	Male	133	37
	Female	230	63
Age	15-18 years	52	14
	18-25 years	181	50
	26-35 years	99	27
	36-45 years	24	7
	+45 years	7	2
Education	Less than high school	20	6
	High school	90	25
	Diploma	17	5
	Bachelor	192	53
	Postgraduate	44	12

*Table 1. Demographic characteristics of the participants (n = 363)*

Of the 363 respondents, the majority were female (63%, n = 230) whilst 37% (n = 133) were male. The majority were young, falling into the age group of 18–25 years (50%, n = 181), followed by 26–35 years (27%, n = 99), 15–18 years (14%, n = 52), 36–45 years (7%, n = 24), whilst only 2% (n = 7) were aged 45 years and over. As for education, the majority (50%, n = 181) held undergraduate level degrees, 25% school certificates, 12% postgraduate degrees, 6% (n = 20) less than high school qualifications, whilst 5% held a diploma.

#### **4. DEMOGRAPHIC DIFFERENCES**

*H1: The Actual Use of MSNSs will be greater amongst males than females*

A chi-square test of independence was performed in order to examine the relation between the gender and frequency of actual use. The relation between these variables was not significant. The findings in Table 2 show that the largest percentage (93%) of actual use was ‘daily use’ for males, followed by females (85%). Females are (10%) than males (4%) used mobile social network services ‘more than once per week.’ Also, the prevalence of ‘More than once’ use was low for both males (1%) and females (4%). Furthermore, a small minority of males (2%) and females (2%) use mobile social network services ‘non-adopters’. Table 2 represents the Pearson’s chi-square test, which confirmed that there was no significant difference between males and females in their frequency of actual use ( $X^2(3, n = 363) = 7.08, p = .07$ ).

		Gender				
		Male	Female	Total		
ACTUAL USE	Non-Adopters	Count	3	4	7	
		% within gender	2%	2%	2%	
	More than once	count	1	8	9	
		% within gender	1%	4%	3%	
	More than Once per Week	count	5	22	27	
		% within gender	4%	10%	7%	
	Daily	count	124	196	320	
		% within gender	<b>93%</b>	<b>85%</b>	88%	
	Total	Count	133	230	363	
		% within gender	100%	100%	100%	

Table 2. Cross-table Analysis: Gender by Actual Use of Mobile social network services

**H2:** There will be a difference between the m-commerce users of various age groups.

A chi-square test of independence was performed to examine the relation between age group and frequency of mobile social networks actual use. The relation between these variables was not significant. Table 3 shows the cross-tabulation between actual use for the five age groups, and shows that age groups consistently reported ‘daily use,’ with the largest percentage of ‘daily use’ in the 15–18 age group (94%), followed by the 26–35 age group (90%), and finally the 18–25 age group (87%). The older participants reported lower ‘daily use’, including those in the 36–45 age group (83%) and the 45+ age group (71%). These results support the idea that actual use differs for the age subgroups. Table 3 shows the Pearson’s chi-square test was not significant, thus indicating a difference in age groups and the frequency of actual use ( $X^2(12, n = 363) = 12.36, p = .417$ ).

		Actual Use					Total
		non-adopter	More than Once	More than Once per Week	Daily		
AGE	15-18 yr	Count	1	0	2	49	52
		% within AGE	2%	.0%	4%	<b>94%</b>	100%
	18-25 yr	Count	2	5	17	157	181
		% within AGE	1%	3%	9%	<b>87%</b>	100%
	26-35 yr	Count	2	3	5	89	99
		% within AGE	2%	3%	5%	<b>90%</b>	100%
	36-45 yr	Count	1	1	2	20	24
		% within AGE	4%	4%	8%	<b>83%</b>	100%
	45+ yr	Count	1	0	1	5	7
		% within AGE	14%	.0%	14%	<b>71%</b>	100%
Total		Count	7	9	27	320	363
		% within AGE	2%	3%	7%	<b>88%</b>	100%

Table 3. Cross-table Analysis: Age by Actual Use of Mobile social network services

**H3:** A difference between m-commerce usage will be seen in terms of education.

A chi-square test of independence was performed to examine the relation between education and the frequency of actual use. The relation between these variables was not significant ( $X^2(12, n = 363) = 9.59, p = .652$ ). Table 4 shows actual use across the five education groups, with all education groups consistently reporting highest 'daily use'. Notably, 92% of 'daily use' was reported by those that were high school educated, followed by those with bachelor and postgraduate degrees (86%), the diploma group (82%), and then less than high school (75%). The results suggest that this difference is not statistically significant.

		Actual Use					Total
		non-adopter	More than Once	More than Once per Week	Daily		
Education	Less than high school	Count	0	0	5	15	20
		% within EDUCATION	0%	0%	25%	<b>75%</b>	100%
	High school	Count	2	1	4	83	90
		% within EDUCATION	2%	1%	4%	<b>92%</b>	100%
	Diploma	Count	1	1	1	14	17
		% within EDUCATION	6%	6%	6%	<b>82%</b>	100%
	Bachelor	Count	3	5	19	165	195
		% within EDUCATION	2%	3%	10%	<b>86%</b>	100%
	Postgraduate	Count	1	2	3	38	44
		% within EDUCATION	2%	5%	7%	<b>86%</b>	100%
Total		Count	7	9	32	315	363
		% within EDUCATION	2%	2%	9%	<b>87%</b>	100%

**Table 4. Cross-table Analysis: Education by Actual Use of Mobile social network services**

## 5. DISCUSSION

This paper has presented the findings obtained from the data analysis of the survey conducted in order to examine demographic differences for mobile social network services usage. The findings were shown in several sections. The first step was a discussion of the profile of the participants. Subsequently, as noted earlier, various scholars, such as Al-Shafi (2011), have stated gender as being relevant in the use of technology. In contrast, however, this study has established no differences in terms of gender and the utilisation of MSNSs. Importantly, we believe this result is due to the number of MSNSs advantage, which leads male and females to use this service. In terms of the age factor, this research has established that the greatest percentage of actual use was 'daily use', which was the case across all age groups considered in the study, although those in the 18–35 years bracket cited this most often, which is same as in the study of Alkhunaizan & Steve (2013), who found this category to be the most often age group utilising m-commerce. Through this study, we found that older people are willing to use MSNSs, which could be rationalised as owing to the shortage of skills necessary for such utilisation. This finding is not supported through the work of Alkhunaizan & Love (2013), Al-Shafi and Weerakkody. (2010) and Al-Sobhi (2011), who found the age effect as significantly resting on usage. Furthermore, education has been found to have no significant influence on the usage of MSNSs, meaning that education and/or qualifications are not recognised as relevant in the adoption of

MSNSs within Saudi Arabia in particular. Moreover this resultant support (Alkhunaizan & Love, 2012) could possibly be owing to higher study demands or affording less mobile credit. Accordingly, Al-Shafi and Weerakkody (2010) and Al-Sobhi (2011) have recognised this as having a significant effect on the usage of e-government.

## 6. CONCLUSION

In this paper, the three main hypotheses affecting the usage of mobile social network services have been reviewed with the aim of investigating such a service in Saudi Arabia. A sample population of 363 individuals was chosen in this study from a wide geographical area. One of the main interesting points is that most of the mobile social network users in different gender, age and education levels use this service daily, which draws attention to the need to investigate which application they like to use. Three hypotheses were presented that investigate the way in which demographic differences affect the usage of mobile social network services. It was found in this study that gender, age and education level do not have a statistical effect on usage, which is an uncommon expectation in regard to most information technology acceptance. From this study, we suggest that these factors be examined in regard to one of the mobile social network services, such as Twitter or Facebook.

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