
Investigating Facebook's acceptance and satisfaction: a study in the Greek university community

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Abstract: This paper investigates the uses of the popular social network site Facebook, and the influence of these uses on acceptance and satisfaction. A total of 171 Facebook users answered a questionnaire that allowed us to examine how the four uses of Facebook (social connection, social surfing, wasting time and using applications) shape the level of users' acceptance and satisfaction from this social network. Our research indicated that, out of the four uses, 'social connection', 'wasting time' and 'using applications' have significant effect on Facebook acceptance. Moreover, 'social surfing' and 'wasting time' affect positively users' satisfaction. The results of this study highlight the fact that social network applications, such as Facebook, owe their success in young ages in their ability to bring them in communication with people that are away. Nevertheless, young people's satisfaction increase as they spend more and more time in them and get accustomed to such networks.

Keywords: acceptance; social networks; satisfaction; online interactions; uses and gratifications; U&G.

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1 Introduction

Social network sites are one type of online community that relies on user contributions. Although human networks have existed throughout history in various forms (guilds, political parties etc.), the first social network site was launched in 1997. Nowadays, there are hundreds of them worldwide. In 2004, when Facebook was launched, few people would have predicted the magnitude of its success in the following years. Indeed, by the end of 2011 the numbers that prove its worldwide echo are staggering: 750 million users spend over 700 billion minutes per month and share more than 30 billion pieces of content in the same time space (Facebook Statistics, 2011). These numbers do not only reveal the degree of Facebook's rapid growth, but an active and vibrant community as well. This explains Facebook's dominance over several other social platforms, which initially may have had a similar growth rate, only to be left with a lot of inactive users afterwards.

In the face of a success story such as Facebook's, an observer could be wondering how do Facebook's features manage to attract so many people globally and in addition to that, keep them active by regularly coming back, spending a considerable amount of their time. From the users' point of view, it remains to be answered what would their motivations be, so as to use Facebook, and what would their behaviour be while using it. Additionally, current research in the social network community has not provided answers regarding the effect of different uses of Facebook (i.e., social connection, using

applications, etc.) on their users' behaviour and satisfaction from this social network (Stutzman, 2005).

Previous work from Lampe and colleagues (Lampe et al., 2006) identified a number of Facebook uses (e.g., social surfing, social browsing). These were later essentially confirmed by Joinson (2008), who took the study for the motivations for the use of Facebook one step ahead. However, the effect of each of these different Facebook uses on users' behaviour remains unexplored. The current study¹ attempts to fill this gap by providing data collected from a survey in young Greek people.

The paper is structured as follows. The next section outlines the background theories and the related work. Section 3 describes the research hypotheses, while Section 4 presents the methodology employed in the empirical study. Finally, Section 5 presents the empirical results derived, while the last section discusses the results raised as well as ideas for further research.

2 Background theories and related work

Several models and theories have been used to identify the cause and the effect of the adoption of new technological tools. The most important of them include the unified theory of use and acceptance of technology (UTAUT) (Venkatesh et al., 2003) and the uses and gratifications (U&G) theory (Katz, 1959). When it comes to user motivations, the U&G theory has been the most common approach, explaining 'why' certain media behaviour occurs. The unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003) is one of the most widely and successfully used prediction model. Past researchers have empirically explained (using UTAUT or its initial form of TAM) several issues regarding users acceptance of various technological systems such as, learning systems (Giannakos and Vlamos, 2012), Social networks (Brandtzæg and Heim, 2008) etc. U&G theory has been widely used to online communities (Jin et al., 2010) and social networks (Lampe, et al., 2006) gratifications studies and identified a number of items (e.g., social surfing, social browsing) regarding the user motivations. However, the influence of the level of each use on Facebook users' satisfaction and acceptance is notable.

Recent research has attempted to understand why people participate or do not participate in social network sites. These attempts have mainly developed theoretical frameworks or featured an empirical focus towards a certain types of users'. Results from other studies on social network platforms show that, users' ranked pouring out feelings, wasting their time and connecting with people as the most valued rewards for social networking (Joinson, 2008; Giannakos et al., 2010). In addition, research done in the popular social network site Facebook has stressed several motivational factors:

- 1 social connection
- 2 using applications
- 3 wasting time
- 4 social surfing (Giannakos et al., 2010; Lampe et al., 2006).

In this light, our study aims to measure empirically the important perceived uses and the acceptance and satisfaction on Facebook users and then to examine the influence of the perceived uses on acceptance and satisfaction regarding Facebook.

3 Research hypotheses

One of the most popular approaches to understand mass communication behaviour is the Theory of U&G (Katz, 1959). This theory places more focus on the user, instead of the actual message itself by asking 'what people do with media'. According to the U&G model (Katz, 1959) a person's usage factors influence motives for communicating – their gratifications sought and gratifications obtained. Research on media using patterns suggests that, usage and functional variables of e medium influence motives and behaviours of the user. Thus, several researches regarding the social networks (e.g., Giannakos et al., 2012; Joinson, 2008) found that functionalities and uses may influence the perceptions and motivations of the user regarding a social network. As such, in conjunction with the widespread adoption of Facebook, important new research from the social perspective and the impact of specific uses is emerging.

U&G theory also holds that users are responsible for choosing media to meet their needs. The approach suggests that people use the media to fulfil specific gratifications. This theory would then imply that each medium compete against other information sources for users' gratification (Katz, 1959). However, researchers have to examine individuals' needs and behaviours to more completely understand the contribution of each medium in the 'creation and satisfaction' (Katz, 1959). Although the U&G theory was originally developed in the context of broadcast media (e.g., TV), with the widespread adoption of media, such as online communities, virtual worlds, and SNSs, important new research from the U&G perspective and the users' attitude is emerging.

In addition, Facebook is an information system and studies have investigated UTAUT, and agreed that it is valid in predicting the individual acceptance of various systems (Hsu and Lin, 2008; Venkatesh et al., 2003). In addition, researchers have discovered that the involvement with the system uses influences the behavioural intention regarding the system (Jackson et al., 1997). In the context of Facebook, this study measures the perceived uses: social connection, social surfing, using applications and wasting time using constructs adopted from previous studies (Vasalou et al., 2010; Giannakos et al., 2010) and explores the influence of these uses on Facebook's acceptance.

Hence, the following research hypotheses are formulated:

- H1a the level of social connection uses on Facebook positively affects behavioural intention to use Facebook.
- H2a the level of social surfing uses on Facebook positively affects behavioural intention to use Facebook.
- H3a the level of wasting time uses on Facebook positively affects behavioural intention to use Facebook.
- H4a the level of application uses on Facebook positively affects behavioural intention to use Facebook.

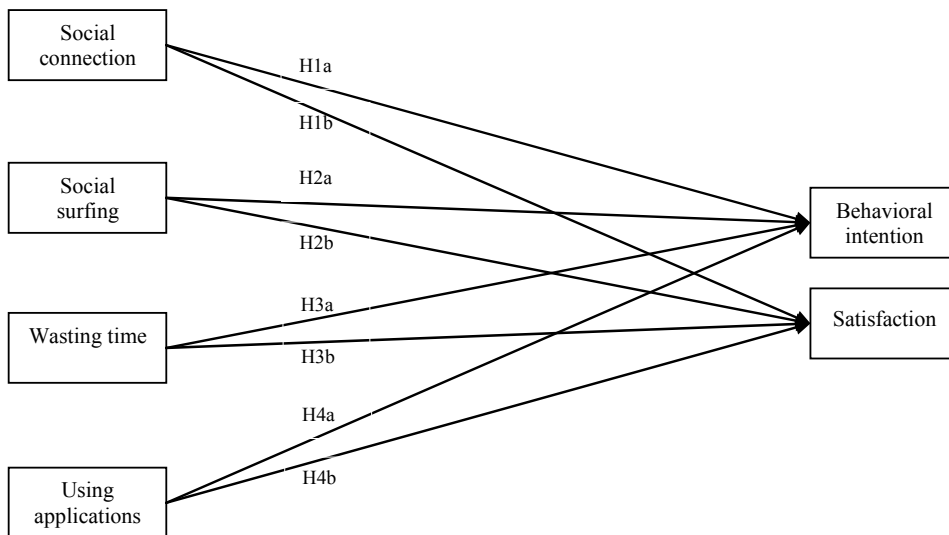
User satisfaction is a measure of subjective evaluation of any outcome or experience associated with the usage of a service. Satisfaction with technological systems is the degree to which a person positively feels for the system (Lin et al., 2005), often leads to favourable results, such as improved user adoption and increased its population. Studies have suggested that user perceptions of service quality and satisfaction influenced in a positive way by their involvement with the system usage (Baroudi et al., 1986). In our research, we assume that the involvement with some uses affects user’s Satisfaction with Facebook.

Hence, the following research hypotheses are formulated:

- H1b the level of social connection uses on Facebook positively affects user’s satisfaction with Facebook.
- H2b the level of social surfing uses on Facebook positively affects user’s satisfaction with Facebook.
- H3b the level of wasting time uses on Facebook positively affects user’s satisfaction with Facebook.
- H4b the level of applications uses on Facebook positively affects user’s satisfaction with Facebook.

In the following path diagram (Figure 1) the proposed research hypotheses are summarised.

Figure 1 Path diagram of the research questions



4 Methodology

4.1 Sampling

Participants included 171 active Facebook users. A number of different methods were recruited for attracting respondents; questionnaires distributed in various places (e.g., university campus) and e-mails were sent to different mailing lists. The study was open during the final week of November and throughout December 2010 at a public university in the Northwestern Greece. As table shows, the sample's composition regarding the gender was 71.9% men and 28.1% women (mean age = 24.52 years; $SD = 6.12$, range 14–44 years old). In terms of age, the majority of the respondents were between 25 and 34 (44.7%), while the second more frequent age group involved people between 19 and 24(35.1%). Finally, the great majority of the respondents were graduates and post-graduate students (75.8%). In Table 1, we present a brief profile of our sample.

Table 1 Users' profile

<i>Demographic profile</i>		<i>No</i>	<i>%</i>
Gender	Male	123	71.9%
	Female	48	28.1%
Marital Status	Single	156	91.2%
	Married	15	8.8%
Age	0–18	23	13.2%
	19–24	60	35.1%
	25–34	76	44.7%
	35+	12	7.0%
Education	Middle school	6	3.5%
	High school	44	25.7%
	University	91	53.3%
	Post graduate	30	17.5%
History of use (years)		Mean (S.D.)	
		2.32 (1.20)	
Time spent on each week (hours)		Mean (S.D.)	
		9.35 (14.20)	
Number of friends		Mean (S.D.)	
		247.40 (210.49)	

4.2 Measures

The questionnaire was split in two parts. The first part included questions regarding the demographics of the sample (e.g., age, gender, educational level). The second part included questions regarding the four Facebook uses extracted from previous study (Giannakos et al., 2010) and behavioural intention and satisfaction with Facebook. To be more specific, participants were asked to rate, using a seven-point Likert scale, the items of the six factors (Table 2). The scale was anchored from 1 (none) to 7 (very much).

Table 2 lists the questionnaire items used to measure each factor and their literature sources.

Table 2 Key factors' constructs and items

<i>Factors</i>	<i>Items</i>	<i>Source</i>
Social connection	Communicate with people who are away (SC1)	Giannakos et al. (2010) and Joinson (2008)
	Communicate with people who I have a long time to see (SC2)	
	Reconnect with people who I have lost contact (SC3)	
	Finding out what my old friends do (SC4)	
Social surfing	Looking at the profiles of people you do not know (SS1)	Lampe et al. (2006) and Giannakos et al. (2010)
	Looking at the profiles of friends of my friends (SS2)	
	Viewing photos of people you do not know (SS3)	
Wasting time	To spend my time (WT1)	Giannakos et al. (2010)
	To kill my time (WT2)	
	Just for fun (WT3)	
	To fill up free time (WT4)	
	From habit (WT5)	
Using applications	Using various FB applications (UA1)	Giannakos et al. (2010) and Vasalou et al. (2010)
	Playing games (UA2)	
	Trying apps because you see your friends have used them (UA3)	
Satisfaction	I am satisfied with the use of Facebook (STF1)	Hsu et al. (2006)
	I am pleased with the use of Facebook (STF2)	
	My decision to use Facebook was a wise one (STF3)	
Behavioural intention	I intend to continue using Facebook in the future (BI1)	Venkatesh et al. (2003)
	I will continue using Facebook in the future (BI2)	
	I will regularly use Facebook in the future (BI3)	

The first use, 'social connection', is the most common in the majority of the studies (Giannakos et al., 2010; Joinson, 2008; Vasalou et al., 2010) and it deals with the reconnecting with people and maintaining contact with individuals from one's social environment through communication, are the uses that are outlined by the respective items (see Table 3). With regards to the items concerning maintaining contact, these are focused on people which communication is somewhat problematic, because of the distance or the fact that they are not often met. The items concerning reconnecting with people are quite straightforward, from the aspect that Facebook's features enable someone to trace people from his own past.

The second use, 'social surfing', contains items that describe Facebook's features that enable its users to browse information about people that are not directly connected to them (see Table 3), but on the contrary, they are either total strangers, or people that are somehow related with the individual's contacts.

The third use, 'wasting time', is quite interesting, with regards to the way Facebook's users seem to have alternated their motivations for using it and their behaviour while using it. The items contained in this factor reveal, the extent to which Facebook has become a part of their everyday life, especially when it comes to the items that refer to

the ways it attracts users to spend their free time (see Table 3). A differentiation between the two predominant items (spending and killing time) can be noticed. This comes from the fact that the various users have a different view of what Facebook has to offer and evaluate the way they spend their time on it accordingly.

This last use, 'using applications' contains items that are concerned with the applications that Facebook has to offer (see Table 3). Taking into account that the various Facebook's applications form up one factor that differentiates it substantially from other social platforms, one item focuses on Facebook's games, due to the fact that these applications' impact and popularity is more than noticeable. The way the popularity of Facebook's applications has made them an integral component of the platform, is shown by the fact that, trying applications because someone's friend is using them, is quite common nowadays.

The factor behavioural intention according to UTAUT refers to the degree of users' willingness to act, especially in our study refers to their willingness to use Facebook (Facebook's acceptance). Satisfaction factor refers to the degree to which a person positively feels for using Facebook, in other words satisfaction can be defined as the user level of approval when comparing a systems with his expectations and experiences.

5 Results and findings

We followed three procedures to assess the convergent validity of our measures (Fornell and Larcker, 1981):

- 1 composite reliability of each construct
- 2 item reliability of the measure
- 3 the average variance extracted (AVE).

First, we carried out an analysis of reliability and dimensionality to check the validity of the scales used in the questionnaire. Regarding the reliability of the scales, Cronbach's (1951) α indicator was applied and inter-item correlations statistics for the items of each variable were performed. According to Fornell and Larcker (1981) and Hair et al. (2006), Cronbach's α value greater than 0.70 for confirmatory research and 0.60 for exploratory research indicates high reliability. As we can see in Table 3, the result of the test revealed acceptable indices of internal consistency.

In the next stage, we proceeded to evaluate the reliability of the measure. The reliability of an item was assessed by measuring its factor loading into the underlying construct. According to Hair et al. (2006), who recommended a factor loading of 0.6 to be good indicator of validity at the item level, the result of the test revealed acceptable indices.

The third step for assessing the convergent validity of our constructs included calculating the AVE. Convergent validity was found to be adequate for all constructs of our study, since their AVE exceeded 0.50 (Segars, 1997).

The descriptive statistics of the construct is shown in Table 3. Standard deviations range from 1.27 to 2.05, indicating an important difference among factors and high equality level of the items in the spread around the mean.

Table 3 Summary of measurement scales

<i>Factors</i>	<i>Items</i>	<i>Mean</i>	<i>S.D</i>	<i>CR</i>	<i>Loadings</i>	<i>AVE</i>
Social connection	SC1	4.94	1.69	.734	.660	.52
	SC2	4.65	1.85		.879	
	SC3	3.86	2.01		.696	
	SC4	4.14	1.81		.618	
Social surfing	SS1	2.39	1.77	.868	.912	.73
	SS2	3.03	1.97		.747	
	SS3	2.32	1.88		.899	
Wasting time	WT1	3.81	1.87	.884	.788	.62
	WT2	3.56	2.00		.851	
	WT3	4.32	1.75		.746	
	WT4	3.13	1.90		.796	
	WT5	3.43	2.05		.759	
Using applications	UA1	2.56	1.75	.805	.876	.67
	UA2	2.69	1.98		.884	
	UA3	1.75	1.27		.684	
Satisfaction	STF1	4.09	1.25	.860	.784	.66
	STF2	3.96	1.37		.794	
	STF3	3.96	1.67		.856	
Behavioural intention	BI1	4.50	1.56	.918	.844	.67
	BI2	3.65	1.58		.772	
	BI3	4.46	1.58		.829	

Despite the fact that Facebook uses arise from an orthogonal rotation and are separable in terms of item loadings, we perform spearman correlation and we identify that all the uses are significant correlated with each other. In view of the above, the identification of the impact of Facebook's uses on users' behaviour becomes more interesting.

To test our research hypotheses, a multivariate analysis of variances (MANOVA) was employed including the four independent variables-uses (social connection, social surfing, wasting time, using applications) and the two dependent variables (behavioural intention, satisfaction). As Table 4 shows, 'social connection', 'wasting time' and 'using apps' exhibit a highly significant impact on users' behavioural intention, supporting H1a, H3a and H4a. In addition, it was found that 'social surfing' and 'wasting time' have both a significant effect on users' satisfaction. These results provide strong support for H2b and H3b. Regarding the impact of 'social surfing' on users' acceptance the findings showed that this effect is insignificant; as such the H2a is rejected. Moreover, the effects of 'social connection' and 'using applications' on users' satisfaction are also insignificant.

Table 4 Research Hypotheses testing using MANOVA

	Level	Behavioural Intention				Satisfaction				Wilk's Lambda
		Mean (S.D)	F	SST	H	Mean (S.D)	F	SST	H	
Social connection	Low	3.33 (1.87)	7.04**	27.05	H1a	3.53 (1.55)	2.26	7.17	H1b	0.01
	Medium	4.20 (1.29)				4.04 (1.21)				
	High	4.74 (1.18)				4.25 (1.14)				
Social surfing	Low	4.07 (1.43)	1.35	5.70	H2a	3.76 (1.20)	4.90**	14.85	H2b	0.01
	Medium	4.33 (1.45)				4.54 (1.09)				
	High	4.78 (1.46)				4.52 (1.66)				
Wasting time	Low	3.70 (1.51)	4.95**	19.67	H3a	3.57 (1.26)	7.97**	22.99	H3b	0.00
	Medium	4.48 (1.18)				4.04 (1.10)				
	High	4.65 (1.60)				4.78 (1.25)				
Using applications	Low	4.08 (1.43)	3.61*	14.66	H4a	3.87 (1.31)	2.20	6.98	H4b	0.04
	Medium	4.33 (1.45)				4.33 (1.05)				
	High	6.00 (1.05)				4.83 (1.23)				

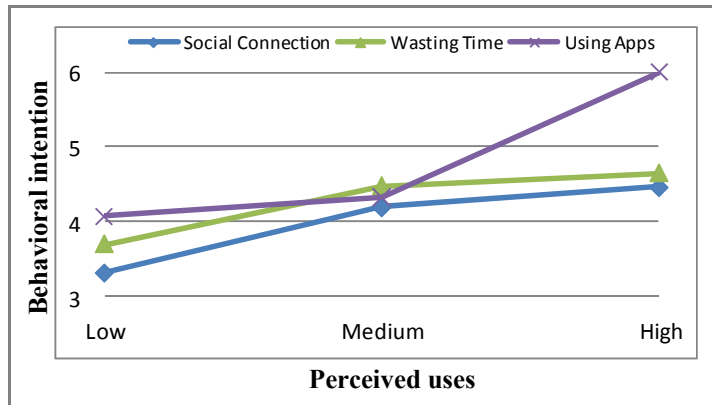
Notes: **p < 0.01, *p < 0.05; SD, standard deviation; H, hypothesis; SST, total sum of squares

6 Discussion and conclusions

This paper presents a study regarding the most widely used social network, Facebook, by exploring its most popular and attractive uses and features. The proposed model integrated factors from the UTAUT model with the U&G theory. It is based on the proposition of Rogers (1986) that an individual's perception of a communication system is influenced by the way people around that person uses the system. The study's main goal is to investigate the connection between the way the Facebook is used, and the perceived acceptance and satisfaction from the user's point of view. The ultimate purpose of this research is to clarify the users' perception regarding the different uses that provide the motivation for engaging and be satisfied with this social application. The findings of this study suggests that the UTAUT could offer a theoretically sound and parsimonious method for evaluating social networks' acceptance. By gathering user perceptions of the SNS uses, developers can more accurately assess whether some uses help the users to accept the system and to be more satisfied with it.

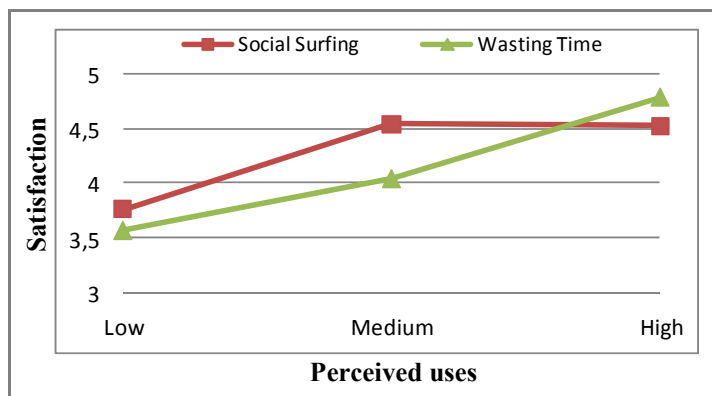
‘Social surfing’ is the only use which has no significance influence on behavioural intention. In contrast, ‘social connection’, ‘wasting time’ and ‘using apps’ have very significant effects on behavioural intention (Figure 2). However, we must state that the increase of using apps in the figure is much higher.

Figure 2 The influence of social connection, wasting time and using apps in users’ behavioural intention regarding Facebook (see online version for colours)



According to our analysis, ‘social surfing’ and ‘wasting time’ have significant effect on satisfaction. Although, ‘social surfing’ exhibits its influence only in the transition from low to medium levels (Figure 3), ‘social connection’ and ‘using apps’ have insignificant effect on satisfaction.

Figure 3 The influence of social surfing and wasting time in users’ satisfaction regarding Facebook (see online version for colours)



The most interesting result of this research is *the impact of the use ‘wasting time’ on both behavioural intention and satisfaction regarding Facebook*. The fact that the ‘wasting time’ use has had such an impact in the present study could be interpreted as a result of Facebook’s early success. Combined with its continuous tendency to evolve, Facebook managed to preserve such a large number of active users for such a long time. These results are consistent with the research findings of Coley (2006), who indicated that for

the case of students, most of them are using Facebook for fun, to organise parties, and to find dates. Coley explains that fact by the students' desire to find others with similar interests, students with whom they are in class. When using Facebook, they feel a sense of community and connectedness. As a consequence, Facebook is eventually perceived to be part of their daily routine. Such a perception affects positively their intention to continue, or even increase, the use of this social network.

As it has already been stated, it is evident that Facebook is currently being used by a large number of users. This could be a result of its features that enabled the platform to substantially differentiate itself from its competitors. This, in turn, rendered Facebook a very successful and attractive platform for someone to use and to spend time on. This refers to the fact that a possibly large number of users view Facebook, not only as a set of tools and applications that enable them to engage with the activities that a social network is supposed to support, but as an integral part of their everyday routine. This is indicative of a relation between a successful social network and a satisfied user.

6.1 Implications

How do social network designers attract users to engage and keep coming back to the site? The UTAUT model in conjunction with the U&G theory aims to answer this question by analysing users' perceptions. In general, this analysis reveals that Facebook uses affect in a highly significant way users' acceptance and satisfaction regarding Facebook. However, there is a differentiation among the uses in the way they affect users' satisfaction and behavioural intention.

The results of this study add to our knowledge and open up new avenues of thinking about the impact of each Facebook's use. For social network designers, this study reveals the need for developing more attractive social applications and games, due to the phenomenal effect of the 'wasting time' on both acceptance and satisfaction of the user. In addition, as users' with high levels of 'wasting time' are more satisfied from users with high levels of 'social surfing'; designers must be focused on developing applications that enable users to spend their time in a pleasant way.

6.2 Limitations and future work

Our study has several limitations. The most important one concerns the sample frame. In particular, the majority of the sample was drawn from a public Greek university. This generates potential problems, such as not includes uses of marketing, sales and other widely applied Facebook uses which are not of first priority for college students. It should also be noted that the nature of the sampling method, and the self-selection of respondents, may have influenced the pattern of responses and overall levels of activity. Although the researchers have no reason to believe that the source of the sample biased the results. Moreover, there are numerous uses affecting the acceptance of a system, but this study focused on the specific uses raised from the literature as key uses of SMSs acceptance. Finally, respondents may have misreported behavioural information, as we used measures which created in prior studies.

In many ways, the limitations of this article highlight areas for future research. Regarding the sample, future studies should be conducted including a variety of institutions from more than one geographic region. In addition, a 'user's experience' scale could be applied in order to examine if users' experience affects the relationship

between perceived uses, satisfaction and behavioural intention. Future research might be conducted in a longitudinal framework to ensure that the patterns and the behaviour are even more representative of the typical user.

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