

Factors Influencing Social Media Adoption and Frequency of Use: An Examination of Facebook, Twitter, Pinterest and Google+

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Abstract

Social media has become an important venue for marketers to reach their audiences. Understanding factors that influence the adoption and frequency of use of social media services can assist marketers in selecting the social media to use and how to best structure their social media content. This research examined factors impacting the adoption and frequency of use of various social media services – Facebook, Twitter, Pinterest, and Google+ – among undergraduate university students 18 to 23 years old. The findings included the positive relationship between frequency of use of social media and its ease of use, enjoyment, and perceived usefulness.

Keywords: *Social media, technology acceptance, perceived ease of use, enjoyment, perceived usefulness, social media adoption, frequency of use*

1. Introduction

Social media offers organizations the opportunity to engage with customers in new ways. Enhanced engagement between customers and businesses increases the chances that customers will become more involved with the company and its brands (Smith & Zook, 2012). Due to its ability to engage consumers in a timely and direct manner while at relatively low costs, social media is relevant for organizations of all sizes – small, medium and large (Kaplan & Haenlein, 2010). Social media is important because it lets customers communicate with each other and organizations communicate (two-way) with customers (Smith & Zook, 2012). This type of digital communication between firms and their audiences has significance in marketing as an increasing number of consumers desire such connectedness any time and any place (Karaatli, Ma & Suntornpithug, 2010).

Social media is a form of word-of-mouth that amplifies the ability for communication with large numbers of consumers – be it organization to consumers or consumer to consumers (Mangold & Faulds, 2009; Sago, 2010; Evans, 2012).

Usage of social media sites is significant and increasing. Of Internet users in the U.S. in 2012,

- 71% of women used social media sites
- 61% of men used social media sites
- Age groupings:

- 86% of 18-29 year olds used social media sites
- 72% of 30-49 year olds used social media sites
- 50% of 50-64 years old used social media sites
- 34% of 65+ years olds used social media sites

(Brenner, 2012)

Social media is used by a majority of traditional age college students in the U.S. with a range of 86% (Pew, 2011) to 95% (Sago, 2010). American college students have a high comfort level participating in online social communities (Yoo & Huang, 2011).

1.1 Technology Acceptance Model (TAM)

Since its introduction by Davis in the 1980s, the Technology Acceptance Model (TAM) has been one of the most tested and widely adopted acceptance models (Teo, 2009). Theoretical and empirical research has supported TAM (Pipers, Bemelmans, Hemstra & van Montfort, 2001; Legris, Ingham & Colletette, 2003; Olson & Boyer, 2003; Pederson, 2005; Yang, 2007). TAM has been shown to successfully model technology acceptance and use across organizational types and technologies (Saade, 2003; Seyal, Rahmin & Rahm, 2002; Martins & Kellermanns, 2004; Landray, Griffeth & Hartman, 2006). Research has also proven TAM to be a predictor of acceptance of technology products (Pagani, 2004; Yang, 2005). The validity of using TAM to predict acceptance of a variety of information technology-related products has been shown by numerous researchers (Segars & Grover, 1993; Chin & Todd, 1995; Igarra, Zinatelli, Cragg & Cavaye, 1997; Venkatesh & Davis, 2000; Horton, Buck, Waterson & Clegg, 2001).

1.2 Perceived Ease of Use (PEOU) & Perceived Usefulness (PU)

Perceived ease of use and perceived usefulness are two key components that have made the Technology Acceptance Model one of the most influential research models related to understanding information technology usage (Chau, 2001). Perceived ease of use (PEOU) and perceived usefulness (PU) impact attitude toward a technology, which in turn impact adoption and use of a new information technology (Davis, 1989). PEOU and PU were found to be primary factors in adoption in the early days of personal computers in organizational settings (Davis, 1986). Davis, Bagozzi & Warshaw (1989) defined perceived ease of use as “the degree to which the prospective user expects the target system to be free of effort” (p. 985) and perceived usefulness as “the prospective user’s subjective probability that using a specific application system will increase his or her job performance within an organization” (p. 985).

Various researchers have shown that perceived usefulness can also relate to the increased performance of a non-job related task that occurs outside of an organizational. Tseng, Hsu and Chuang (2012) found that PEOU and PU made a significant positive impact on attitudes towards website use. PEOU and PU have a positive impact on consumer online shopping: future plans to use online shopping (Koufaris, 2002), overall attitude and behavior towards online shopping (Hsieth & Liao, 2011) and attitudes and behavior intention (Hung, Ku & Chang, 2003).

PEOU and PU have been found to positively influence aspects of mobile marketing. PEOU and PU were shown to have positive impact related to use of mobile coupons (Venkatesh & Davis, 2000; Han, Yoon & Cameron, 2001; Hsu, Wang & Wen, 2006; Jayasingh & Eze, 2010). Amin (2007) found that PEOU and PU were key predictive variables regarding customer adoption of mobile phone credit cards. These two variables have been shown to positively impact the consumer usage intention of mobile advertising (Shen & Chen, 2008). The adoption of e-prescriptions and automated medication management systems were positively impacted by the relationship between PEOU and PU (Escobar-Rodriquez, Monge-Lozano &

Romero-Alonso, 2012). PEOU and PU have been found to affect adoption and acceptance of online learning. Lee, Hsieh and Hsu (2011) found that PEOU and PU had a significant positive impact on behavioral intention to use online learning systems. Online academic achievement was influenced to such a degree by PEOU and PU that “the design of the learning environment should be centered around learners so that every feature and function of the online system is useful and easy to use” (Joo, Lim & Kim, 2012, p. 323). PEOU and PU have been shown to be major predictors of learning achievement and user satisfaction in online MBA programs (Arbaugh & Duray, 2002). Research has indicated the positive influence of PEOU and PU on the behavior intention to use university blended learning systems – a mixture of traditional and online learning (Tselios, Daskalakis & Papadopoulou, 2011).

1.3 Perceived Ease of Use

Numerous and wide ranging research has indicated PEOU is a major determinant of attitude towards a technology (Burton-Jones & Hubona, 2005; Childers, Carr, Peck & Carson, 2001; Davis, 1989, Davis, Bagozzi & Warshaw, 1989; Lim & Ting, 2012; Selamat, Jaffar & Ong, 2009; Teo, 2001; Yulihastri & Daud, 2011). Davis, Bagozzi and Warshaw (1989) findings indicated that an increase of output quality and ease of use provided by a technology would have positive effects on both perceived usefulness and enjoyment of the information system.

PEOU was found to have significant positive impact on consumer perceptions and attitudes toward ecommerce websites. Green and Pearson (2011) found the PEOU’s impact on how users viewed the usefulness of online retail websites significant. PEOU had such a positive effect on attitudes toward online shopping that “consumers would only develop favourable attitudes toward online shopping if online shopping sites are easy to use” (Lim & Ting, 2012, p. 54).

PEOU was also found to have a significant positive role in the adoption of mobile coupons (Jayasingh & Eze, 2010) and the adoption and use of cellular phones (Kwan & Chidambaram, 2000). Maholtra and Segars (2005) found that a significant behavior change needed to adopt the perceived complexities of the wireless web inhibited the speed of adoption of mobile commerce.

The attractiveness of PEOU has been found to be stronger for women, older workers and users with limited experience with a technology (Venkatesh, Morris, Davis & Davis, 2003).

1.4 Perceived Usefulness

PU has been found to also be a determinant of adoption and acceptance of technology. Davis, Bagozzi and Warshaw (1992) found that technology is rejected by users due to the lack of perceived usefulness even if the technology was easy to use.

Research has shown PU to have a significant variable of user adoption and satisfaction across a range of technologies. PU was found to be a significant predictor of user satisfaction of an ecommerce website (Green & Pearson, 2011). Studies also indicated the PU was related to the adoption of mobile coupons (Jayasingh & Eze, 2010) and computers (Davis, Bagozzi & Warshaw, 1989).

The expectancy of PU of a technology was stronger for men and younger workers (Venkatesh, Morris, Davis & Davis, 2003). However, usefulness of a technology should be promoted regardless of gender (Goh, 2011).

1.5 Perceived Usefulness & Enjoyment

The combination of PU and enjoyment has been shown to have significant positive impact on technology usage intention. Davis, Bagozzi and Warshaw (1992) stated that “usefulness and enjoyment together represent a simple yet powerful explanation of what influences computer usage intentions” (p. 1125). The continued user’s usage intention of social networking services have been shown to be predicted by user PU and perceived enjoyment (Kim, 2011).

1.6 Enjoyment

Studies have found that user entertainment plays a significant role in the success of certain technology. Research has shown that the adoption and satisfaction levels of information systems and products are associated with user perceptions of entertainment provided by the technology (Kim, Choi & Han, 2009; Kim & Han, 2009). Enjoyment was a key determinant of both consumer usage intention and actual use of sports websites (Hur, Ko & Claussen, 2012). Enjoyment was also a key indicator of the intention to use blogs and similar hedonic systems (Hsu & Lin, 2008; Hsu & Lu, 2007; Lin & Bhattacharjee, 2010; Van der Heijden, 2003; Van der Heijden, 2004; Wang, Lin & Liao, 2010). The most popular reason for the adoption of e-books by university students was for enjoyment (reading pleasure and leisure) over academic purposes (Abdullah & Gibb, 2006). Similarly, enjoyment has been shown to be a key to player usage of online gaming (Lee & Tsai, 2010).

High levels of enjoyment perceived by users of a technology might increase the adoption of even a somewhat unproductive system (Davis, Bagozzi & Warshaw, 1992).

Younger men newer to a technology have been found to be more motivated by enjoyment benefits attained from the technology (Venkatesh, Thong & Xu, 2012).

1.7 Involvement

User involvement has been shown to be a key determinant of technology usage. Research by Swanson (1974) indicated that high user involvement ultimately increases frequency of use. User involvement has been found to be the “most prominent predictor” of intention to use Wikis (Shu & Chuang, 2011, p. 861).

1.8 Awareness

The level of awareness of technology plays a key factor in its usage. Top-of-mind awareness was highly correlated with higher usage (Nedungadi & Hutchison, 1985) while the lack of awareness was the main reason for lack of usage of e-books among college students (Abdullah & Gibb, 2006).

1.9 Gender

Research confirms gender differences exist for already adopted technologies (Selwyn, 2007) and among genders aged 16 to 25 year olds (Goh, 2011). Females were found to have lower levels of satisfaction with and desire more training with enterprise planning software compared to males (Bradley & Lee, 2007). Sohn and Lee (2007) found females more likely than males to adopt text messaging. First year college female students were found to be less confident using computer technology than males (Madigan, Goodfellow & Stone, 2007). Males had a higher level of beliefs about using software packages successfully compared to females (Hartzel, 2003).

2. Research Questions

This study focuses on factors affecting the adoption and usage of social media. The study examined adoption factors and usage/uses for four social media networking services – Facebook, Twitter, Pinterest,

and Google+. Various adoption characteristics including awareness, knowledge, frequency of use, enjoyment, reasons used, ease of use, and usefulness were analyzed along with social media uses such as communication, information sharing and gathering, and playing games. The following research questions (RQ) were investigated among current university students:

- RQ1: What was the adoption level of the social media services among traditional age university students?
- RQ2: What is the impact of the knowledge level of specific social media services on their adoption?
- RQ3: What is the relationship between the perceived ease of use of the social media service and the frequency of use?
- RQ4: What is the relationship of the enjoyment derived from the social media service and the frequency of use?
- RQ5: What is the relationship of the perceived level of usefulness of social media services and the frequency of use?

3. Research Methodology

The self-administered questionnaire yielded 195 completed surveys by traditional age undergraduate university students. The sample consisted of 107 females (55%) and 88 males (45%) ages 18 to 23 years old. The mean age was 22.23 years (SD 1.324).

The survey was open to students from any of the institution’s 55 majors as well as undeclared majors. Surveys were collected over a three day period from students in 36 majors as well as undeclared majors across the humanities, business, mathematics, sciences and other liberal arts and professional areas.

4. Results

The analysis of Research Question 1 (RQ1) identified the number of users of each of the four social media services. Table 1 gives the adoption rates of the social media services. While Facebook enjoyed near universal adoption (94.9%), Twitter, Pinterest and Google+ had much lower adoption rates ranging from 22.1 to 31.8%. There was a significant difference in adoption of Pinterest by gender – 54.4% by females while only 1.1% by males.

- RQ1: What was the adoption level of the social media services among traditional age university students?

TABLE 1: Adoption Rates of Selected Social Media Services by University Students

	Facebook		Twitter		Pinterest		Google+	
Overall sample	195		195		195		195	
Female	107		107		107		107	
Male	88		88		88		88	
Had social media account								
Overall	184	94.9%	62	31.8%	59	30.3%	43	22.1%
Female	105	98.8%	37	34.6%	58	54.2%	23	21.5%

Male	79	89.8%	25	28.4%	1	1.1%	20	23.0%
Did not have social media account								
Overall								
Female	11	5.1%	133	68.2%	136	68.7%	152	77.9%
Male	2	1.2%	70	65.4%	49	45.8%	84	78.5%
	9	10.2%	63	71.6%	87	98.9%	68	77.3%

The results addressing Research Question 2 (RQ2) were analyzed by comparing the mean scores of survey respondent knowledge level of the social media services by two categories – adopters and non-adopters of the social media service. As shown in Table 2, the mean scores of knowledge levels of all four social media services were higher for adopters for both genders. Also, with the exception of adopters of Pinterest, the mean knowledge scores for both adopters and non-adopters corresponded with the adoption numbers for the social media service – the most widely adopted service, Facebook, had the highest knowledge means for both adoption categories and Google+ had the lowest.

RQ2: What is the impact of the knowledge level of specific social media services on their adoption?

TABLE 2: Knowledge Levels of Selected Social Media Services by University Students Adopters and Non-Adopters

	Facebook		Twitter		Pinterest		Google+	
Overall sample	195		195		195		195	
Female	107		107		107		107	
Male	88		88		88		88	
		Mean score *		Mean score *		Mean score *		Mean score *
Adopters								
Overall	184	4.26	62	3.44	59	4.25	43	2.83
Female	105	4.26	37	3.53	58	4.27	23	2.73
Male	79	4.27	25	3.32	1	3.00	20	2.95
Non-Adopters								
Overall	11	3.82	133	1.89	136	1.86	152	1.78
Female	2	3.50	70	1.80	49	1.90	84	1.75
Male	9	3.89	63	2.00	87	1.85	68	1.84

Note: “*” Scale: 1= no knowledge, 5= extremely knowledgeable

The results related to Research Question 3 (RQ3) identified the relationships between the perceived ease of use a social media service by the user and its frequency of use. Noting that the social media services are listed oldest to newest (left to right), the correlations shown in Table 3 indicate the relationship between perceived ease of use and frequency decreases as social media services age in the marketplace – moving from very high correlations for the newest (Google+) through medium (Pinterest) to mostly low (for Twitter and Facebook). In addition, females were shown to have higher levels of correlations between ease of use and frequency of use across every social media service.

RQ3: What is the relationship between the perceived ease of use of the social media service and the frequency of use?

TABLE 3: Relationship between Ease of Use of Social Media Services and Frequency of Use

	Facebook	Twitter	Pinterest	Google+
Perceived ease of use_to frequency of use				
Overall	0.254	0.275	0.474	0.790
Female	0.263	0.358	0.494	0.847
Male	0.229	0.154	*	0.742

Notes:

- Pearson r scores shown
- “*” only one male Pinterest adopter

The results addressing Research Question 4 (RQ4) examined the relationship between the level of user enjoyment from using the social media service and the frequency of use of the service. Table 4 shows the level of relationship between the two variables are significant with all available correlations with medium, high or very high. These significant correlations crossed genders though male scores were higher for Facebook, Twitter, and Google+ (correlation for Pinterest were not available due to adoption by only one male).

RQ4: What is the relationship of the enjoyment derived from the social media service and the frequency of use?

TABLE 4: Relationship between Level of Enjoyment from Social Media Services and Frequency of Use

	Facebook	Twitter	Pinterest	Google+
Enjoyment to frequency of use				
Overall	0.443	0.716	0.403	0.688
Female	0.442	0.688	0.427	0.637
Male	0.432	0.746	*	0.736

Notes:

- Pearson r scores shown
- “*” only one male Pinterest adopter

The results addressing Research Question 5 (RQ5) showed the relationship between the levels of user perceived usefulness and the frequency of use of social media services. This relationship was significant for both genders across all four social media services studied. The strength of correlation was high for the four services for females while males had very high correlations for Twitter and Google+ with Facebook medium.

RQ5: What is the relationship of the perceived level of usefulness of social media services and the frequency of use?

TABLE 5: Relationship between Perceived Level of Usefulness of the Social Media Services and Frequency of Use

	Facebook	Twitter	Pinterest	Google+
Perceived usefulness <u>to</u> frequency of use				
Overall	0.511	0.756	0.602	0.748
Female	0.536	0.668	0.638	0.681
Male	0.456	0.854	*	0.826

Notes:

- Pearson r scores shown
- “*” only one male Pinterest adopter

5. Discussion

The objectives of this research were to identify the adoption levels and factors influencing adoption of social media services among university students. The study examined these using four social media services – Facebook, Twitter, Pinterest, and Google+.

A finding of this research is the strong relationship between the perceived usefulness of the social media services and the frequency of use among 18 to 23 year old university students (tables 3, 4 and 5). Thirty-three of 36 (92%) correlations among both females and males between the three variables of user reactions of perceived ease of use, enjoyment, and perceived usefulness of the social media services tested to the frequency of use were at a medium correlation or higher. Among these, however, the strength of relationship between perceived usefulness and frequency of use featured the highest correlations of the three user reactions. These results indicate that social media services can increase user frequency of use by increasing the perception of usefulness of the service by users. Designers and marketers should make usefulness a focus of their efforts. Designers can make sure to have functions that users find valuable while marketers can educate consumers about the usefulness of current and new features of the social media service. Although having a focus on frequency of use, the results of this area of the study agreed with the stream of previous research on perceived usefulness – that it is a positive influence on technology adoption and a bit stronger among males (except for Pinterest in this study).

Another finding of this study is the positive relationship between the user enjoyment of the social media service and frequency of use. As shown in Table 4, the impact of enjoyment is generally higher for males though noteworthy correlations between enjoyment and frequency of use were present for both genders. Social media services can increase the frequency of use among users by providing an enjoyable experience. Research should be conducted by social media services to understand what could constitute such enjoyable experiences for their target audiences, and develop and promote those functions. This finding is in agreement with previous research that identified enjoyment having a positive impact on user attitudes and adoption. Like previous literature, this research also found males a bit more positively impacted by the enjoyment from technology than females.

A finding of this research is the positive correlations between ease of use and frequency of use among traditional age university students (Table 5). The relationship between these two key variables crosses genders and social media services. Because of this relationship, social media services would benefit from

a focus on increasing ease of use of their service. Such a focus could range from the actual functionality and user interface to the instructional materials and promotions of the service. This finding was congruent with the many studies in literature that found ease of use a positive influence on user attitude and adoption.

An additional finding of this research is while the overall adoption rates are significant (ranging from the highest of 94.9% for Facebook to the lowest of 22.1% for Google+), both genders generally have somewhat similar adoption rates except for Pinterest. Of the four social media services used in the study, Pinterest is the most visually-oriented with the least text-based communication focus. As noted in Table 1, 54.4% of females surveyed had adopted Pinterest compared to 1.1% of males. One implication of this finding is that organizations should monitor social media services adoption rates (overall and by gender) so that social media outlets can be best selected that reach their target audiences.

The final finding for this article deals with the varying knowledge levels of the social media services between adopters and non-adopters as shown in Table 2. While reasonable to conclude that adopter knowledge would be increased by the use of the social media services, it should also be considered that some non-adopters had not adopted due to a lack of understanding of the offerings of the social media service (such as the benefits of use, how to use, etc). Marketers of social media services should examine the knowledge level of their service among desired target audiences and develop informative promotional campaigns to increase the understanding of their service. Such a program could be developed to benefit both non-adopters and adopters. This finding was in agreement to the literature in which awareness had a positive influence in the adoption process.

6. Limitations and Opportunities for Future Research

Limitations of this research include that the sample population of 18 to 23 year old university students came from a single institution that draws its majority of students from one region of the United States and the study examined only four well-known social media services (Facebook, Twitter, Pinterest, and Google+).

Opportunities for further research include continued study of social media adoption and use by other age groups across the United States and in other countries. In addition, an opportunity exists for research of adoption and uses of more niche/specialized social media services.

7. Conclusions

This research found that the frequency of use of social media services is positively impacted by the level of perceived usefulness, enjoyment, and perceived ease of use provided by the social media services. The study found fairly equal adoption of social media services across genders with the exception of Pinterest. Social media service designers and marketers can use the findings of this study to act as a guide in the development and promotion of functions that are attractive to current and potential users of their services.

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