Proposal Doctoral Colloquium

DUTCH AND SPANISH SOCIAL NETWORKING SITES USERS AND NON-USERS: A COMPARATIVE STUDY

MARÍA DEL CARMEN ALARCÓN DEL AMO
University of Castilla-La Mancha (Spain)

Thesis advisors:
MIGUEL ÁNGEL GÓMEZ BORJA
CARLOTA LORENZO ROMERO
University of Castilla-La Mancha (Spain)

DUTCH AND SPANISH SOCIAL NETWORKING SITES USERS AND NON-USERS: A COMPARATIVE STUDY

ABSTRACT

Social Networking Sites, despite their recent emergence, from their origin have attracted millions of users, many of them have integrated Social Networking Sites (SNS) into their everyday life. SNS are considered of great importance both for individuals and companies, allowed to maintain existing contacts and/or form new connections. In this context, the goal of this work consists in comparing the degree of acceptance and use of SNS by Dutch and Spanish users and non-users. So, it has carried out a double survey in both countries in order to analyze the differences and similarities between Dutch and Spanish SNS users and non-users thought the application of a modified TAM. To test formally if there are significant structural differences, multrigroup Structural Equation Modeling will be conducted. The conclusions obtained could improve the marketing strategies of two countries characterized by having different degree of use of the Internet and SNS applications.

KEYWORDS

Social Networking Sites (SNS), Web 2.0, Technology Acceptance Model (TAM), Structural Equation Modeling, trust, perceived risk

1. INTRODUCTION AND OBJETIVES

Social Networks Sites (SNS) such as Facebook, MySpace, etc., despite their recent emergence, they are being used by millions of users from their origin. Many of them have integrated SNS into their everyday life (Boyd and Ellison, 2008; Ofcom, 2008). According to data from comScore Media Metrix (2008), this new form of human interaction through social networks in the Internet, has positioned itself as one of online media more popular on the Internet, exceed 132 million of usual users in some cases.

Currently, there are hundreds of SNS with various technological options which support a wide range of interests and practices. While their main technological features are fairly consistent, cultures that emerge around SNS are varied. Some SNS serve a diverse audience, while others attract people based on common language or race, sex, religion or nationality (Boyd and Ellison, 208).

SNS are considered of great importance both for individuals and companies, since they support both the maintenance of existing social ties and the formation of new connections (Donath and Boyd, 2004; Cliff, Ellison and Steinfield, 2006; Ellison, Heino and Gibbs, 2006; Ellison, Steinfield and Lampe, 2007; Lampe, Ellison and Steinfield, 2007; Boyd and Ellison, 2008). The connections between users in SNS can be important to facilitate other tasks of the group (Sproull and Kiesler, 1991; Preece and Maloney-Krichmar, 2003), to decrease bad behaviour (Donath, 1998; Reid, 1999) and building different types of social capital (Resnik, 2001; Ellison *et al*., 2006), among other potential benefits (Wellman, 2001).

The objective of this study consists in comparing the degree of acceptance and use of SNS by Dutch and Spanish users and non-users. So, it has carried out a double survey in both countries in order to analyze the differences and similarities between Dutch and Spanish SNS users and non-users. So we will contrast the basic perceptions of the TAM (Davis, 1989) applied to SNS as a new communication system with technology web.

2. LITERATURE REVIEW

2.1. Social Networking Sites

The increased popularity of Social Networking Sites (SNS) has passed in parallel to the development of Web 2.0. A more social Web has allowed individuals to communicate, entertain and share. Users have gone from a stage where they were considered consumers of content created by others users with knowledge of programming, to a stage where content is produced by users equipped with a computer, connection and basic knowledge of Internet.

The social networks analysis has appeared in many social sciences in the last twenty years as a new tool for the analysis of individuals and their social relations. Mainly social networks has been used to study habits, tastes and ways of mix with people, because they focus on the relations of individuals (or groups of individuals) and not on the characteristics of them (race, age, income and education).

Burt (1980) defines social networks as "a set of individuals who are close by the social relations between them". These relationships established between individuals can be of different nature: formal or informal, superficial or strong, frequent or sporadic, and a lot more besides. Therefore, the world consist o a set of networks (Wellman, 1999), hence the great importance of these (Flavián, Díaz, Lozano, Guinaliú, Cristóbal, Gurrea and Casaló, 2007).

Researchers are trying to transfer the concept of social networks to an online context. SNS concept is being widely studied, but currently there is no a concept absolutely accepted by the Academy. Boyd and Ellison (2008) define SNS such as web-based services that allow individuals to create a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connection and those made by others within the system".

Kolbitsch and Maurer (2006) postulate that "SNS offer friends a space where they can maintain their relationships, chat with each other and share information. They also provide the opportunity to build new relationships through existing friends. On the first use of the system, users are required to submit a profile with basic personal information such as their name, date of birth, place of residence, among other, this information depends on the sites. The personal information is made available to other users of the system, and is used to identify friends on the network and to add them to a list of contacts".

2.2. Use of new technologies by Dutch and Spanish

The percentage of households connected to the Internet in the EU27 is 60%, four percentage points lower than for the EU15. Netherlands tops the ranking of this indicator with 86%, and Spain is in the sixteenth place with 51%. However, Spain has grown 6% since December 2006 to December 2007, while the Netherlands has increased 3% (Red.es, 2009).

On the other hand, the feature more typical of 2008 in terms of annual increase, is the raise of the importance of using new technologies for social relations. Is this aspect, SNS are the tool that has experienced increased growth in the population. (Red.es, 2009).

Of the 282,7 million European Internet users age 15 and over who went online via a home or work computer in December 2008, 211 million visited a social networking site (a reach of 74,6 percent and a growth of 13,7) percentage points versus the previous year. Of the 16

individual European countries studied, Spain is the second whit a 74,6%, having grown 10,8 percentage points versus the previous year. However, the Netherlands is in fourteenth place, with 63% of users, having grown at 5,8% versus the previous year.

3. THEORETICAL FRAMEWORK AND HYPOTHESES

3.1. Hypotheses concerning attitude, intention to use, use, perceived usefulness and perceived ease of use

To achieve the goals outlined in the introduction, we raise the formulation of specific hypotheses which we will intent to contrast with the empirical analysis proposed in this research.

The reason for using a TAM for the analysis of SNS is mainly based on the theory which support the efficacy of this model to predict the adoption of any technology (Mathieson, 1991; Venkatesh and Davis, 2000; Gefen, Karahanna and Straub, 2003a,b; Vijayasarathy, 2004; Shih and Fang, 2004; King and He, 2006). In addition, Willis, Coover, Nelsol, Spctor, Rohrer, and Shimizu (2008) applied a model based on the TAM (Venkatesh and Davis, 2000) to explain the adoption of SNS, and they obtained significant and positive effects between the studied constructs.

According to the reasoning of the models based on the TAM, there is a direct and positive effect between attitude, intention of use and use of information systems that an individual make.

The relationship between attitude and intention of use towards the system, is obvious and essential for these behavioral models. Furthermore, this relationship has been demonstrated by several researchers in different contexts: adoption of information technology and information systems (e.g. Davis, 1989; Davis, Bagozzi and Warshaw, 1989; Mathieson, 1991; Taylor and Todd, 1995; Bernadette, 1996; Harrison, Mykytyn and Riemenschneider, 1997; Karahanna, Straub and Chervany, 1999; Malhotra and Galleta, 1999; Chen, Gillenson and Sherrell, 2002; Van der Heijden, 2003; Bhattacherjee and Premkumar, 2004); Web (Fenech, 1998; Lederer, Maupin, Sens and Zhuang, 2000; Lin and Lu, 2000); e-commerce (Gefen and Straub, 1997, 2000; Bhattacherjee, 2000; Chen *et al.*, 2002; Pavlou, 2002); visit a website (Pavlou and Fygenson, 2006; Sánchez and Roldán, 2004); e-mail (Segars and Grover, 1993; Szajna, 1996; Gefen and Straub, 1997); and, the most important for our study by similarity, the virtual community (Papadopoulou, 2007; Shin, 2008a), and SNS Willis *et al*. (2008). Therefore, is evident that the attitude has a positive effect on the intention of use, which leads us to propose the following hypothesis:

H_1: The attitude toward SNS has a positive and significant effect on the intention to use these websites.

Some studies have included the current use of technology (Davis, 1989; Henderson and Divett, 2003; Shang, Chen and Shen, 2005) and others intention to use (Mathieson, 1991; Lin and Lu, 2000; Luarn and Li, 2005). However, other authors have introduced both concepts, and suggest a causal relationship between them (Davis *et al*., 1989; Taylor and Todd, 1995a; Igbaria, Zinatelli, Cragg and Cavaye, 1997; Horton, Buck, Waterson and Clegg, 2001; Shang *et al*., 2005; Wu and Wang, 2005). In this line, we have introduced both final variables, as we believe that the intention to use variable acts as intermediary between the effect exerted by the perceptions (ease of use and perceived usefulness) and final use of the individual. Therefore, we propose the following hypothesis:

H_2: The intention to use SNS has a positive and significant effect on the final use of these websites.

In the model TAM, the perceived usefulness directly affects to the use by the intention to use. Davis *et al*. (1989) argue that although the direct effect of a belief (as is the perceived usefulness) on the intention to use is contrary to the premises of the Theory of Reasoned Action, TRA (Fishbein and Ajzen, 1975), studies provided the theoretical justification, as well as empirical evidence of direct links between perceived usefulness and intention to use (Triandis, 1977; Brinberg, 1979; Bagozzi, 1982; Davis *et al*., 1989; Mathieson, 1991; Igbaria, 1993; Taylor and Todd, 1995a,b; Agarwal and Karahanna, 1998; Chuan-Chuan and Lu, 2000; Liaw and Huang, 2003; Wang, Wang, Lin and Tang, 2003; Bhattacherjee *et al.*, 2004). Moreover, Lee, Kozar and Larsen (2003) indicate that the relationship between the perceived usefulness and intention to use in the context of the TAM model, is statistically support, since there are 74 studies that show a significant relationship between both variables. Willis *et al*. (2008) obtained a positive and significant relation between both constructs within SNS.

The relationship between perceived usefulness and intention to use is based on the idea that people form their intentions toward the use thinking about how to improve the performance of their work, beyond the positive or negative feelings that may have toward their own use (attitude). The reason is that individuals will use this innovation (in our case SNS), only if they perceive that the use will help them achieve the desired task (Muñoz, 2008). Therefore, we propose the third hypothesis:

H_3: The perceived usefulness of SNS has a positive and significant effect on the intention to use them.

Davis (1989) suggest an indirect relationship between perceived ease of use and the intention to use, mediated by the perceived usefulness. In addition, several studies confirm this indirect relationship (Davis *et al*., 1989; Karahanna and Straub, 1999). However, recent empirical studies have found that perceived ease of use has a positive and significant effect on the intention to use, defined as wish to use (Lee, Lee and Kwon, 2005; Ramayah, 2006). When the interaction with the technology is easier, the feeling of efficiency by the user should be greater, and hence the intention to use it should be greater (Chung, 2005). Willis *et al*. (2008) obtained significant and positive effects between both variables after the empirical analysis applied to SNS. Based on the theoretical assumption, we propose the following hypothesis:

> *H_4: The perceived ease of use of SNS has a positive and significant effect on the intention to use them.*

According to Muñoz (2008), the ease of use has a double impact on the attitude, because self-efficacy and instrumentality. The efficiency or effectiveness is one of the factors of intrinsic motivation of the person (Bandura, 1982). Therefore, this effect of ease of use is directly related to the attitude.

On the other hand, the ease of use can also be instrumental, contributing to increase the performance. This increase means less effort, with the ease of use, allowing to get more work with the same effort (Davis *et al*., 1992). This instrumental effect on the attitude occurs via perceived usefulness, as the original TAM model postulates (Muñoz, 2008). Furthermore, this effect has been amply demonstrated in empirical studies (Davis, 1989, 1993; Davis *et al.*, 1989; Venkatesh *et al*., 1996; Agarwal and Prasad, 1999; Venkatesh, 2000; Venkatesh *et al*., 2000; O´Cass and Fenech, 2003; Liaw and Wei, 2003; Shang *et al.*, 2004; Shih, 2004). Therefore, we propose the following hypotheses:

> *H_5: The perceived ease of use of SNS has a positive and significant effect on the attitude toward these sites.*
>
> *H_6: The perceived ease of use of SNS has a positive and significant effect on the perceived usefulness of using them.*

In the TAM, the ease of use and the perceived usefulness are considered beliefs that are postulated a priori, and they are considered constructs which determine the attitude (Davis *et al.*, 1989). This assertion is based on a pillar of the TRA (Fishbein and Ajzen, 1975), which states that attitudes toward a behavior are influenced by relevant beliefs (Fishbein and Ajzen, 1975; Davis, 1989; Davis *et al.*, 1989). Furthermore, there is empirical evidence of these relationships (e.g. Davis *et al*., 1989; Malhotra and Galleta, 1999; Venkatesh *et al*., 2000). Therefore, we propose the following hypothesis:

H_7: The perceived usefulness of SNS has a positive and significant effect on the attitude toward these sites.

3.2. Hypotheses concerning trust and perceived risk

Some studies have included the construct trust in research about the adoption or acceptance of electronic services (e.g. McKnight *et al*., 1998, 2002a, b, 2004a, b; Jarvenpaa *et al*., 2000; Chircu, Davis, Kauffman, 2000; Gefen and Straub, 2000; Pavlou, 2002b, 2003; Gefen *et al*., 2003a, b). Trust in a website is important to attract new users, which will affect in the adoption and use (Gefen *et al.*, 2003a). Moreover, Gefen *et al.* (2003a) and Muñoz (2008) raise that trust is an indirect determinant of intention to use, and it has a direct effect through attitude. This relationship has been empirically demonstrated by various authors (e.g. Lau and Lee, 1999; Pavlou, 2002a, b; Alsajjan and Dennis, 2006; Shin, 2008a). Therefore, we propose the following hypothesis:

H_8: Trust towards SNS has a positive and significant effect on the attitude toward the use of these websites.

When trust of users to a website is greater, they have to devote less effort to examine the details of the website. Therefore, if a website is reliable, users will not use time or cognitive effort browsing across the website, reading the privacy policy, terms of use, etc., and therefore they will perceive more ease of use (Shin, 2008a). This relationship has been studied by several authors, concluding that trust influences in the perceived usefulness (Pavlou, 2003; Shin, 2008a) and in the perceived ease of use (Pavlou, 2002a, 2003; Gefen *et al*., 2003b; Alsajjan and Dennis, 2006; Shin, 2008a). In line with empirical evidence, we propose the following hypotheses:

H_9: Trust towards SNS has a positive and significant effect on the perceived usefulness of these websites.

H_{10}: Trust towards SNS has a positive and significant effect on the perceived ease of use of these websites.

We consider necessary to include a measure of perceived risk in users within the TAM, as individuals, consciously or unconsciously, perceive risk when evaluating the adoption and/or use of online services (Bauer, 1967). Similarly, Igbaria (1993) identified that the adoption of information systems creates discomfort for consumers. Use of the Internet also adds uncertainty and dangers by its nature (Featherman and Fuller, 2002). In fact, there is empirical evidence that perceived risk decreases the perceived usefulness (Dowling and Staelin, 1994; Featherman and Fuller 2002; Yi, 2002; McKnight *et al.*, 2002b; Featherman and Pavlou 2003; Pavlou, 2003) and the intention to use (Dowling and Staelin, 1994; Featherman and Fuller,

2002; McKnight *et al*., 2002b; Featherman and Pavlou, 2003; Pavlou, 2003; Shin, 2008b). Therefore, we propose the following hypothesis:

H_{11}: Perceived risk towards SNS has a negative and significant effect on the perceived usefulness of these websites.

H_{12}: Perceived risk towards SNS has a negative and significant effect on the intention to use them.

The perceived ease of use toward an online service is likely to affect the perceived risk. Services that are perceived as complex can be considered risky. For example, Moore and Bensabat (1991) demonstrated that the complexity of a system reduces the intention to use and decreases the perceived ease of use.

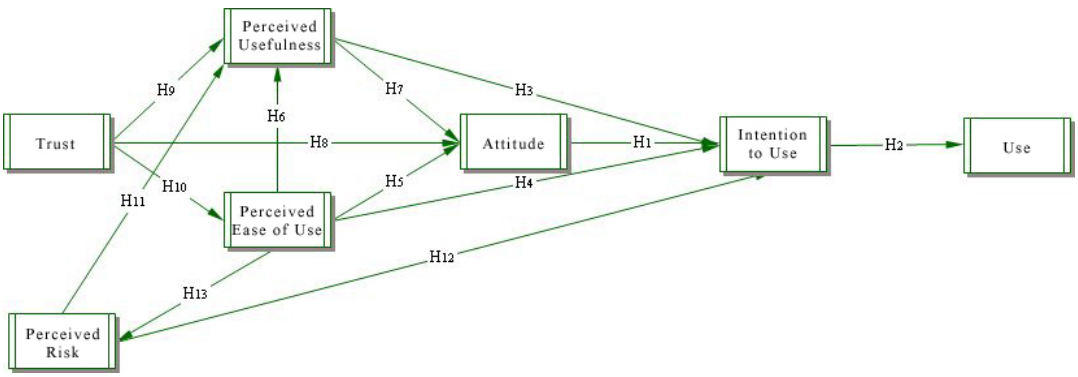
The perceived ease of use in TAM is perhaps a construct similar to usability, which can reduce the perceived risk (Featherman and Pavlou, 2003). Because highly usable electronic services are less likely to generate concerns about the use, perceived ease of use can function as an important factor to reduce the risk. Therefore, we propose the following hypothesis:

H_{13}: The perceived ease of use of SNS has a negative and significant effect on the perceived risk.

3.3. Proposed theoretical model

Following the assumptions explained in the previous section, we obtain an initial model (Figure 1) which tries to explain the adoption of SNS. Specifically, it is a modified TAM, that is to say, we have added the trust and perceived risk construct to the original TAM of Davis *et al*. (1989), since there is enough empirical evidence about its influence on the process of a new technology acceptance (Dowling and Staelin, 1994; Lau and Lee, 1999; McKnight *et al*., 1998, 2002a, b, 2004a, b; Jarvenpaa *et al*., 2000; Chircu *et al*., 2000; Gefen and Straub, 2000, 2003a, b; Featherman and Fuller, 2002; McKnight *et al*., 2002b; Yi, 2002; Pavlou, 2002a, b, 2003; Featherman and Pavlou, 2003; Alsajjan and Dennis, 2006; Shin, 2008a, b; Muñoz, 2008).

Figure 1. Proposal for a model to explain the acceptance of SNS



4. METHODOLOGY

We have carried out an online web-based survey to a panel of users of a market research company. The survey was carried out in both countries in order to analyze the differences and similarities between Dutch and Spanish SNS users and non-users. The final sample consist of 1000 Internet users, 500 are from Netherland and 500 are from Spain. Within this sample there are 800 users of SNS and 200 non-users of SNS. We will use a nonprobability sampling method by quota sampling, because our objective is to ensure that the various subgroups of the population are represented in the sample for the relevant features and the exact proportion. The statistical technique that we will use for testing and estimating the causal relationships of our modified TAM and compare the case of the Netherlands and Spain, will be the multigroup structural equation modeling (SEM) using EQS Version 6.

REFERENCES

Baggozzi, R.P. (1982). "A field investigation of causal relations among cognition, affect, intentions and behavior", *Journal of Marketing Research*, 19, 562-584.

Bhattacherjee, A. and Premkumar, G. (2004). "Understanding changes in beliefs and attitude toward Information Technology usage: A theoretical model and longitudinal test", *MIS Quarterly*, 28 (2), 229-254.

Boyd, D.M. and Ellison, N.B. (2008). "Social network sites: Definition, history, and scholarship", *Journal of Computer-Mediated Communication*, 13 (1). Brinberg, D. (1979). "An examination of the determinants of intention and behavior: A comparison of two models", *Journal of Applied Social Psychology*, 6, 560-575.

Cliff, L.; Ellison, N. and Steinfield, C. (2006). "A face(book) in the crowd: social Searching vs. social browsing", *Proceedings of the 2006 20th anniversary conference on Computer supported cooperative work.*)

Davis, F.D. (1989). "Perceived usefulness, perceived ease of use and user acceptance of Information Technology", *MIS Quarterly*, 13 (3), 319-340.

Davis, F. D.; Bagozzi, R. P. and Warshaw, P. R. (1989). "User acceptance of computer technology: A comparison of two theoretical models", *Management Science*, 35 (8), 982-1003.

Ellison, N.B; Steinfield, C. and Lampe, C. (2007). "The benefits of Facebook "Friends": Social capital and college students' use of online social network sites", *Journal of Computer-Mediated Comunication*, 12 (4).

Fishbein, M. and Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Addison-Wesley, Reading, MA.

Karahanna, E. and Straub, D.W. (1999). "The psychological origins of perceived usefulness and ease of-use", *Information & Management*, 35 (4), 237-250.

Kolbitsch, J. and Maurer, H. (2006). "The transformation of the Web: How emerging communities shape the information we consume", *Journal of Universal Computer Science*, 2 (12), 187-213.

Lampe, C.; Ellison, N. and Steinfeld, C. (2007). "Profile elements as signals in an online social network", en *Conference on Human Factors in Computing Systems*, (april), San Jose, CA, USA.

Lin, C.C. and Lu, H. (2000). "Towards an Understanding of the Behavioral Intention to Use a Web site", *International Journal of Information Management*, 20, 197-208

Red.es (2009). "La sociedad en red". Observatorio de las Telecomunicaciones y la Sociedad de la Información. Entidad Pública Empresarial Red.es, Noviembre, Madrid.

Segars, A.H. and Grover, V. (1993). "Re-examining perceived easy of use and usefulness: A confirmatory factor analysis", *MIS Quarterly*, 17 (4), 517-525.

Shin, D.H. (2008b). "Understanding purchasing behaviors in a virtual economy: Consumer behavior involving virtual currency in Web 2.0 communities", *Interacting with Computers*, 20, 433-446.

Venkatesh, V. and Davis, F.D. (2000). "A theoretical extension of the Technology Acceptance Model: Four Longitudinal Field Studies", *Management Science*, 46 (2), 186-204.

Vijayasarathy, L.R. (2004). "Predicting consumer intentions to use online shopping: The case for an augmented technology acceptance model", *Information&Management*, 41 (6), 747-762.

Wellman, B. (1999). "The network community: An introduction", en Wellman, B. (Ed.), *Networks in the global village: Life in contemporary communities*, 1-48. Westview Press: Boulder, CO.

Wellman, B. (2001). "Computer Networks as Social Networks", *Science, 293* (14), 2031-2034.

Willis, T.; Coovert, D.; Nelson, C.; Spector, P.; Rohrer, D. and Shimizu, T. (2008). *An Evaluation of the Technology Acceptance Model as a Means of Understanding Online Social Networking Behavior* Tesis Doctoral. Estados Unidos.

Wu, J.C. and Wang, S.C. (2005). "What drives mobile commerce?: An empirical evaluation of the revised technology acceptance model", *Information and Management*, 42 (5), 719-729.