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Skills and the use of twitter by higher education students[1]

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Abstract

.Using Information and Communication Technology- TIC (Spanish abbreviation), as a didactic tool that should be integrated into academic business is a growing trend, mainly in higher education, taking into account advantages in terms of access to information and cooperative learning environment to improve knowledge. However, use of this tool by students is not well known; therefore, the purpose of this study was to learn about current status of Twitter use by university students in their learning process. A multi-varied analysis of the variance (MANOVA) was used with orthogonal canon contrast where the sample size was 125 individuals, based on 95% reliability level, and a permissible maximum error of 8.88%; questioned individuals were selected at random, according to genre as balancing factor. A low use of Twitter was found and a relationship between genre and skills on the same, and the concept regarding usefulness in learning ($p<0.05$); a highly meaningful relationship was found between possession of Twitter and using purpose ($p<0.0001$); relationship between genre and using frequency was not found ($p>0.05$). In general, university students make little use of this technological tool in their learning, and those using it show a low frequency; therefore it is necessary to implement strategies aimed at promoting twitter use and strengthen its benefits to improve academic process.

Key words: Learning, higher education, social networks, TIC, Twiter.

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Introduction

Information and Communication Technology- TIC (Spanish abbreviation), has become popular as a tool applied to teaching-learning process in higher education, by providing multiple advantages, such as: easy access to contents; availability of varied resources (text, animations, graphics, video, and sound); in addition, they are used in communication between students and teachers, thus improving planning and development of formation process (Piccoli, Ahmad, and Ives, 2001) (Castro and Chirino, 2011). In turn, it allows personal growth, independence, critic ability (Bidarin and Davoudi, 2011; Dighe, 2009). In addition, university students using Twitter assume additional responsibilities for continuous learning (Castro and Chirino, 2011).

There is a strong relationship among use of TIC and development of competences, interaction among students, and practical application of concepts (Blanco, 2005; Sigalés, 2004). However, it depends at a great extent on motivation and skills of students regarding this technology (Hauge, 2006), and specially, on teacher ability in implementation of such technology. Likewise, attitude toward its use relies on the interest of each user in achieving personal benefits, such as demonstrating the teacher that he deserves high grades (Hernandez, Montaner, Sese and Urquizu, 2011).

New generations, named *Generation red* (Tapscott, 2009), or digital natives (Prensky, 2001), at being familiar with use of TIC, bear a positive concept on its use in learning; therefore, orientation strategies should be implemented for the students to incorporate TIC in their formation process (Thorpe, 2005; Castro Chirino, 2011). However, according to some research, university students consider that training acquired on the use of TIC has been deficient, and teacher preparation is insufficient (Gonzalez and Gutierrez, 2009).

Studies performed in the use of TIC in learning have found that students show a positive attitude on the use of blogs and wikis, which allows cooperative learning, and collective preparation of documents (Avci, 2012), by achieving that contribution by each group member may be shared with the rest of the team (Anderson, 2005; Minocha, 2008). In addition, they find these tools as very easy to use (Huang, Yoo and Choi, 2008).

Organization of virtual communities showed its highest level through appearance of services such as Myspace, Facebook, Skype, among other, known as "social networks" (Bernete, 2010). Such services promote and improve horizontal communication among users, and provide higher speed of dialogue among them. (Abarca, 2013).

Social networks have been used not only for entertainment, but also as pedagogic communication means by teachers, mainly at universities; and such communication has faced antagonistic postures between those who believe that it adversely affects intellectual development of frequent users, at encouraging more interpersonal relationships, and those in favor, because they think that it is a didactic tool that should be integrate to their teaching labor, due to its advantages to access information and promotion of cooperative learning (Abarca, 2013), thus contributing to critical thought and promotion of creativity (Levis, 2011), to improve student interest in their formation (De Haro, 2010; Crook, 2008), and enhanced interest of individuals in belonging to any group to achieve their goals (Connell, 2006).

Social networks, regarded as cooperative learning environment, in teaching young individuals, becomes an important tool to improve learning, but they call for a restatement of pedagogic practice by teachers (Levis, 2011). The teacher's role as sender, and the student as receiver in a single-direction communication is changed to pass to a two-direction scheme where the student actively participates in his learning process (Villanueva and Casas, 2010).

Among limitations posed by the use of social networks in learning, it is worth to mention the existing association between them and use of leisure time; therefore, it is important to develop creative methodologies for their use for education purposes, (Levis, 2011). In addition, student access to social networks and information available in Internet, does not ensure that students may develop new skills; such process requires training for development of competences (Villanueva and Casas, 2010). Also, deficiencies in teacher training for educative use

of social networks, turns into a factor that causes resistance to change, and resistance to introduction of these networks in teaching (Abarca, 2013).

Twitter is a service available since 2006, which at first used to invite users to share in 140 characters what they were doing, and it later it changed to invite them to share what was happening. Users may also exchange information they receive through such means, by allowing them to arrange publications by key words using etiquettes accompanied by the symbol numeral (#). Although Twitter was not intended for construction of communities, improvements in aspects such as search and labeling by users, it has facilitated capability for conversation and cooperation.

Using Twitter for academic purpose is a possibility that has raised researchers' interest, since students using this technology in their daily life trend to be motivated, similarly to use it within the academic context, when they avail of the necessary technical skills. In education scope, its use has evolved in terms of exchange of information obtained from another channels (Ortega, 2011). There have been many attempts in higher education to apply social means to directly support teaching, and for other purposes (Conole, and Alevizo, 2010).

Twitter has two special characteristics which make it different from other type of similar services, which is the limit in the number of characters, (140), which may be used in each message, and how relationships among users are established, since at not requiring any friendly relationship to interact with others, it is possible to establish relationships with unknown users, thus facilitating, in the educative context, to contact specialists regarding specific topics, and access real and updated information related to the area of study, which improves learning contents and student performance (Clarke, 2012).

In addition, such limitation posed by the use of characters, (140), develops the ability of synthesis, allows better communication between students and teacher (Chen and Chen, 2012), promotes information exchange (Grace, 2013), facilitates cooperation and contributes to develop communication skills (Siemens and Weller, 2011). Twitter is also an ideal tool to expand learning beyond classrooms, and improves development of synthesis ability, by assisting students to summarize their ideas (Ortega, 2011).

Virtual communities created through Twitter may be of various types; an account of the class containing the individuals registered in such class, to publish all information to be delivered to the students, and from the platform, the teacher may track development of the involved activities. By means of key words attached to messages of interest written by any member, in order to share information on group basis.

Individuals registered in any group may communicate among themselves and with the teacher in order to build the learning society.

Taking into account the possibilities provided by use of this tool to improve teaching, this research is approached in order to learn about current status of Twitter use in learning, by higher education students, and see whether there is any difference between genres.

Materials and methods

In order to perform the investigation, a structured survey was designed, according to stated objectives, taking into account qualitative variables associated to probabilistic patterns, multinomial and binomial. The survey was submitted for judgment of experts in order to verify pertinence of questions, and the proposed methodology.

The technique used to select individuals participating in the study was named random sampling, of proportions and stratified by genre. A reliability rank of 95% was used, and a maximum permissible error of 8,88%, where P and Q estimated standards adopted the value of 50%, in absence of previous studies on Twitter use by university students in Medellin city. The age of the students ranked between 17 and 31 years. The definitive size of the sample was 125 students of the School of Agricultural Sciences of Antioquia University, selected at random according to the above criterion of stratification, and using uniform distribution.

The survey was applied through voluntary participation of the students. The data base was prepared in a spread sheet according to the form designed in the survey, and a strict quality control was exercised in the three stages of the research process, in order to ensure results and conclusions produced at the light of such information.

For data statistical analysis, it was used the multi-varied method of Manova variance, with orthogonal canon contrast, establishing dimensionality of multi-dimension comparison, by means of criterion of maximum verisimilarity, observing the maximum significant own value; the study was performed with variable qualitative responses expressed in percentage. The analysis was complemented by means of single-varied and two-varied frequency distributions, through contingence charts, using Chi-Dos technique to determine the statistical relationship among crossed variables. SAS statistical package version 8.2 was used. The following technical sheet shows the characterization of the sample used in the study.

Technical sheet

Genre	%	n	Program	%	n	Semester	%	n
Male	44.0	55	Zootechnics	30.4	38	Third	10.4	13
Female	56.0	70	Veterinary Medicine	53.6	67	Fourth	58.4	73
			Aquiculture Eng.	16.0	20	Fifth	5.6	7
						Sixth	25.6	32
Total		**125**			**125**			**125**

	Average	Deviation	Cv	Máximum	Mínimum
Edad	21.2	4.05	19.0	31	17

Variables used	Type ofvariable	Probabilistic distribution
Knowledge	Qualitative	Binomial
Tenency	Qualitative	Binomial
Use frequency	Qualitative	Multinomial
Use purpose	Qualitative	Multinomial
Genre	Qualitative	Binomial
Age	Quantitative continuous	Normal
Program	Qualitative	Multinomial
Semester	Qualitative	Multinomial

Source. Own preparation

Results

Regarding knowlege, 98% of questioned students, report that they know what Twitter is. However, just 8% understand that it is a microblog service; 74% associates it to a social network, and 16% to a program for messages. A significant relationship was noted between genre and understanding about what Twitter is ($p<0.05$); men hold a higher practical level of this tool (Table 1).

Table 1. Percent distribution of knowledge on Twitter, by genre

Genre	¿What is twitter?				
	Messaging	Micro Blog	Social network	All	Do not know
Male	5.4	10.9	60.0	20.0	3.7
Female	2.8	5.7	48.5	42.8	0.2
Chi-Dos test			**0.0447**		

Source. Own preparation

Asked about perception of the students on the use of this tool in learning, 7.6% considered it as very useful; 48.1% useful, and 44.8 little useful. Regarding holding a Twitter account, 52% hold an account in this microblog service. These results reveal that

student acquaintance about Twitter and its usefulness for learning is deficient, therefore its use is low.

When a crossing of variables associated to genre and perception on usefulness was performed, a significant relationship ($p<0.05$) was found; men have a higher perception of Twitter usefulness in learning. It was not found any association ($p>0.05$) ($p>0.05$) between genre and possession of this tool (Table 2).

Table 2. Percent distribution and perception of Twitter usefulness by genre

Genre	Possession		Usefulness	
	Si	No	Very usefull	Little useful
Male	50.9	49.1	67.3	32.7
Female	45.7	54.3	45.7	54.3
Chi-Dos Test	**0.5639**		**0.0161**	

Source. Own preparation

Regarding frequency of the use of Twitter, 69.8% of questioned students uses this service on occasional basis; 16.6% once a week, and 16.6% daily. No association was found, ($p>0.05$), between genre and frequency of Twitter use (Table 3).

Table 3. Percent distribution of frequency of Twitter use by genre.

Genre	Frequency of use		
	Daily	Once a week	Occasionally
Male	12.9	22.6	64.5
Female	20.0	5.71	74.3
Chi-Dos Test	**0.2003**		

Source. Own preparation

In terms of use purpose, 43% of questioned students uses Twitter as an information source; 33.9% for recreation; and only 10.7% for learning. (Table 4).

Table 4. Percent distribution of purpose of using Twitter

Purpose	Percentage
Learning	10.7
Information sharing	4.6
Information source	43.0
Recreation	33.9
All of the above	7.8

Source. Own preparation

No relationship was found ($p>0.05$) between genre and purpose of using Twitter.

A low percentage of students sharing information through this means. About 33% of those interviewed uses Twitter for personal recreation. (Table 5).

Table 5. Percent distribution of Twitter use by genre

Genre	Purpose				
	Learning	Information sharing	Information source	Recreation	All
Male	6.6	3.3	53.3	33.3	3.5
Female	14.3	5.7	34.2	34.2	11.6
Chi-Dos Test			**0.4323**		

Source. Own preparation

At relating frequency variables of Twitter use and purpose, no relationship ($p>0.05$) was detected. (Table 6).

Table 6. Percent distribution of frequency and purpose of Twitter use.

Using frequency	Purpose of use				
	Learning	Information sharing	Information source	Recreation	All
Daily	18.1	0.0	36.3	27.2	18.4
Weekly	0.0	11.1	55.5	22.2	11.2
Occasionally	14.2	0.0	35.7	42.8	7.3
Chi-Dos Test			**0.5976**		

Source. Own preparation

The multivaried analysis of variance, did not find any statistical difference between genres, between semester, and between academic programs, either ($p>0.05$) (table 7).

Table 7. Multivaried analysis of variance related to genre

Statistical Test	Genre	Semester	Programs
	P Value	P Value	P Value
Wilks' Lambda	0,5572	0,2815	0,4354
Pillai's Trace	0,5572	0,2815	0,4354
Hotelling-Lawley T	0,5572	0,2815	0,4354
Roy's Greatest R	0,5572	0,2815	0,4354

Source. Own preparation

Discussion of results

Results of this study show that for the context of Antioquia University, the student of Agricultural Sciences have slight knowledge on Twitter use as a microblog service, and relate it more as a social network. In this same sense, University students show scarce knowledge on advantages of using Twitter for learning purposes, therefore it is occasionally used; it was found that only 52% are affiliated to this service. Evans' (2013) findings in British context show that just 40% of higher education students used this tool.

It was found that usefulness perception on using this tool for learning purposes is low, since only 55.2% of interviewed students consider it as useful or very useful. In this sense, Evans' (2013) findings show that students refer as outstanding aspects of using Twitter in learning, as being a good means to collect information, facilitates communication with the teacher, and information exchange with other students; in turn, Clarke (2012), found that Twitter use at the classroom improves cooperative learning and student performance. Ortega and Banderas (2011) evaluated a group of university students, and did not find any learning space using Twitter as a studying aid; in this sense McCool detected that success of Twitter implementation at the classroom depends on the teacher ability to define goals, and guide the students in achieving it.

In addition, there is a low frequency of Twitter use, since a high percentage of students (69.8%), occasionally uses it. These results agree with Grace's et al (2013) findings, that about 66% of university students uses this means on occasional basis. Therefore, it is important to provides space at higher education institutions, for teachers to exchange experiences in front of creation of new ways of technology for teaching and learning, since findings made by Lewis and Rush (2013) reveal that there are a few innovator teachers, who explore technology, and then introduce it to the classroom. Taking into account that it is not a decision made from the institution, but by the teacher, this situation calls for a process of information and formation for teachers to use this tool as a teaching means which allows to motivate the students to use this channel to improve their learning.

The main use of Twitter by the students is as an information source (43%), this result agrees with Evans's (2013) findings. Therefore, it is important to promote strategies to support teachers to share methods of creative use of this technology to improve learning, in issues such as communication interaction between students and teachers, development of communication skills to summarize ideas. In this sense, Thoms' (2012) findings showed that students stress on matters such as social interaction, information exchange and community construction as important elements in their learning process.

According to correlation between genre and usefulness perception, men hold a better perception on Twitter usefulness in learning, which is also associated to a better awareness on this technological tool than women; regarding difference between genres, Sainz (2012) found that women are less interested in areas of information systems and communication. However, no statistical difference was found between genres ($p>0.05$).

Conclusions

University students show Little use of Twitter in learning; this situation coincides with a great percentage of them, who, although they know it, do not properly understand its purpose, and therefore, do not know how to use it. In addition, students using this tool, do so in a low frequency; these reasons suggest the need of implementing strategies to promote its use, and understand its benefits in improving education quality, taking into account that its use is associated to motivation factors in which the teacher plays a very important role in guiding the students in the use of this technological tool. It is inferred that to introduce Twitter in the classroom as a pedagogic tool, a better effort is necessary to make students understand the advantages and usefulness of this technology in their formation process.

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