Individual Factors that Encourage the Use of Virtual Platforms of Administrative Sciences Students: A Case Study

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ABSTRACT
Higher education Institutions have incorporated into their educational processes the virtual learning platforms use, in their search to answers to the dynamic and changing needs of young students, thus students have practical training in the use of information technologies and communication (ICT) in their curses. However, few studies have been developed in developing countries to understand the motivating factors of the virtual learning platforms use of undergraduate students.

Based on this need, this research aims to examine the individual factors that encourage the virtual platforms use in university students from the city of Medellin, taking as a case study the population of undergraduate students of management sciences from the Universidad Autónoma Latinoamericana, the Institución Universitaria Escolme and the Instituto Tecnológico Metropolitano.

The proposed methodology is descriptive type through a quantitative methodological design, where a self-administered questionnaire was used as instrument and applied to 270 university students from the city of Medellin. Between the main results it is observed although most of undergraduate students have used virtual learning platforms and have low frequency platforms use per week. In addition, it is noted that the factors who have influence in the positive attitude of respondents to the virtual learning platforms use are the innovative personnel, ability for self-learning, and self-efficacy and personal perception.

Keywords: University students, Attitude, virtual learning platforms, encouragement

BACKGROUND
Abbad, Morris & Nahlik (2009) consider e-learning refers in general sense to any learning that is electronically activated. In a more specific sense, e-learning refers to that learning more focused and enabled by the digital technologies application. It becomes to any learning that is based on the Web. In other words, e-learning is a distance education, where students learn through the Internet, without face to face contact with their teachers, who are usually in a different location (Teo, 2010).

E-learning is considered as an alternative to learning, is becoming as widespread method in higher education institutions worldwide, according Garrison and Anderson (2003, cited by Persico, Manca, & Pozzi, 2014), in many cases, the aim is to determine a profound change in the way which teaching and learning take place in universities. The e-learning has taken into account in educational centers in recent years, considered as a new paradigm in modern educational methods, which changes the behavior of individuals in function of technological advances of the 21st century (Calli, Balcikanli, Calli, Cebeci & Seymen, 2013).

In this sense, in recent decades universities have gained much experience in the application of Information and Communication Technologies (ICT) in education management. However, Lu (2012) suggests that the adoption of e-learning remains relatively new to many universities and therefore these are faced to new challenges in e-learning management systems building, complicating their integration into existing information systems in the campus.

For Teo (2011) e-learning is one of the most productive pedagogies in modern educational practice, with great potential to obtain impact on teaching and learning, which is limited by the physical location and various social needs, and other aspects. In many developing countries, where universities are concentrated in major cities, those interested in professionally training have difficulties to accessing on-campus education, where have direct contact with teachers and have the appropriate learning materials, due to the impossibility to commute to urban centers, which makes the availability of learning resources limited to the town where they are. Then, the e-learning appears as an alternative to increase the coverage of education. E-learning allows students located in a secluded or inaccessible places learning from instructors who are elsewhere, overcoming the physical limits and in many cases, the lack of time. Thus, e-learning has the potential to provide equity in access to higher education.

According to Bouhnik and Marcus (2006; cited by Calli, et al., 2013), the four fundamental benefits of e-learning are: the freedom to decide when to take each lesson online, the decreasing dependence on the availability of teacher's time; the freedom to express thoughts and ask questions without limitations, and the accessibility to online course materials whose effectiveness will be largely determined by the student. Furthermore, they add to the four above benefits, other proposed by Capper (2001) specifically for education, such as the advantages in terms of time, place, interaction, collaboration and modern teaching methods. Also, it supported by Liaw and Huang (2007), who emphasize three important elements to consider when the e-learning environment is developed: environmental characteristics, collaborative activities (learning), and the characteristics of the students.

On the other hand, e-learning has as disadvantage the complexity of its implementation, because the availability of a technological infrastructure is not sufficient to determine the uptake with new approaches, whether in the case of teachers or students, and even online universities, which have no experience in the tradition of on-campus teaching. Innovative methods often fail to be adopted because of various reasons such as the university staff that should be trained not only in the use of technology, but also in new methods of online collaboration, in other words, teaching tools in accordance to this type of teaching, and the organization of the university must be suitable for the purpose, including student expectations and learning habits can explain the success or failure of online learning environments (Piskurich, 2003; cited by Persico, Manca & Pozzi, 2014).

Precisely considering the disadvantages that entailed to the risk of failure in the implementation of an e-learning environment, a number of research articles have been developed, some of them approach the subject from the study of critical success factors of e-learning. To identifying some of these critical factors Selim (2007) found a variety of different authors' contributions, for example found that Papp (2000) explores distance education from a macro perspective and suggests some critical success factors that can help universities and teachers in developing e-learning environments, which include intellectual property, the suitability of the course for the e-learning environment, the construction of the course, the course content, the technological infrastructure, where the bandwidth, hardware reliability, network security and accessibility, and how to measure the success of the course are critical variables, which Benigno and Trentin (2000; cited by Selim, 2007) propose to focus on two aspects, the first assesses the learning, and the second evaluates the performance of students. In this case, factors such as the characteristics of the student, the student-student interaction, the effective support of tutors or facilitators, the quality of learning materials, and the learning environment and information technology used are considered.

Another critical success factor (hereinafter CSF) is the student commitment in learning models, even with the possibility of communication in real time, anytime and anywhere, students must be motivated and committed, because in courses based on e-learning, students take responsibility for their learning speed (Selim, 2007).

In the same field of technological aspects, Volery and Señor (2000) identify three critical factors in e-learning: the technology, considering the ease of access and navigation, interface design and the level of interaction; the teacher attitudes toward students, their technical competence and the teacher interaction in the virtual classroom; and the previous use of technology from the student perspective.

In the same way, Soong Chan, Chua and Loh (2001) through a multiple case studies, verify that the critical aspects of e-learning are: human factors such as the technical competence, the mentality of e-learning and level of collaboration of the instructors and students, and the perception of information and technology infrastructure. Therefore, they recommend that all these factors should comprehensively be considered by the adopters of e-learning. Govindasamy (2002) in his research discussed seven parameters of e-learning quality: the institutional support, development of courses, teaching and learning, course structure, student support, teachers support, and evaluation. At same year Helmi (2002) concluded that information technology, market demand, and schools and universities are the motivating forces of e-learning.

Additional to the e-learning description concept, advantages, disadvantages and critical success factors, Ong & Lai (2006) consider that gender differences also play an important role in e-learning, despite is a relatively new technology. Then, it suggested that gender differences in e-learning have to be examined.

METHODOLOGY

For this article was conducted a descriptive field research based on a quantitative methodological design, which involved in the application of a self-administered questionnaire to 250 undergraduate students of management sciences at Universidad Autónoma Latinoamericana, the Institución Universitaria Escolme and the Instituto Tecnológico Metropolitano, where students were selected through a non-probability sampling criterion. Students should be undergraduate enrolled students for the 2014-02 semester. The questionnaire included dichotomous questions and Likert scale questions in a level 5th (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree) designed to measure each of the constructs and factors specified in the proposed model (see Figure 1).

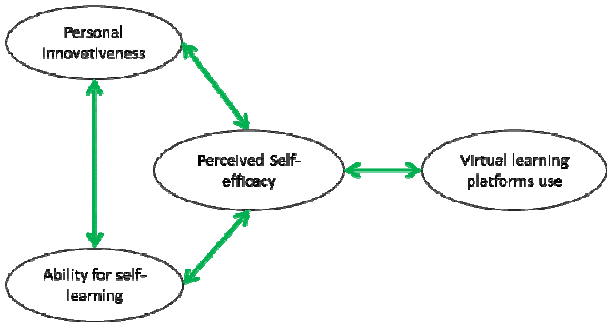

Figure 1 Proposed model.

This model searches for exploring the relationship between personal innovativeness factors, the ability for self-learning and self-efficacy and personal perception of surveyed students. It is important emphasizing the factors discussed in the proposed model are not directly observable constructs, so many questions were developed and compiled to identify each evaluated constructs.

ANALYSIS OF RESULTS

Initially, there are a predominance of women in surveyed students (54.4%) compared to men (43.6%). Likewise, it is important to note that the highest percentage of respondents is in a range of age over 26 years (48.4%), because most of the institutions surveyed are focused on people immersed in work context.

On the other hand, a related characterization was performed with the enjoyment of taking fully virtual curses Vs frequency of weekly use of e-learning tool available in each institution. The results are shown in Table 1.

Table 1 - Frequency of use vs Virtual Courses

	Frequency of use				
Liking for virtual courses	**More than 6 times a week**	**5 to 6 times per week**	**Never**	**DK/NA (Don't know / No answer)**	**Total**
Yes	38,0%	10,0%	7,6%	0,0%	55,6%
No	23,2%	6,8%	8,0%	1,6%	39,6%
Total	61,2%	16,8%	15,6%	1,6%	95,2%

Source: compiled from data collected in the survey applied

First, it is observed about 56% of students express an enjoyment for fully virtual courses, compared to 40% do not. It is important to note that the percentage of this and other analyzes do not reach 100%, since all questions were not answered in the survey.

On the other hand, it is identified that there is a tendency for students to enter the platform more than 6 times per week, 61% said this alternative, compared with 31% who makes 5-6 times or not. In this regard, it is important

to identify the participating institutions of measurement and strategies to increase levels of use of e-learning platforms.

For purposes of this research, personal innovativeness factors, ability to learn independently and self-efficacy and personal perception are taken into account to assess student motivation over the virtual platforms use. Below is presented an analysis carried out for each one of them (Table 2).

Table 2. Personal innovativeness factors

	Strongly agree	**Agree**	**Neither agree nor disagree**	**Disagree**	**Strongly disagree**
I like learning about new information and communication technologies (ICTs)	40,0%	43,2%	11,2%	2,8%	1,2%
I believe between my classmates, I am of the first to try new technological tools	19,2%	29,2%	31,2%	12,4%	2,4%

Source: compiled from data collected in the survey applied

This factor is oriented to assess students' attitudes toward the new technologies use by their own choice. For the case study of this paper, through two questions of self-administered questionnaire to students were evaluated. First, the enjoyment to know new information and communications technology was researched, where it is observed that about 83% are agree and strongly agree that this reflects their attitude. This result is important and very relevant to determine the use of learning platforms while these are based precisely on the new ICT.

Furthermore, students were asked if they were the first to try the new technology tools versus their classmates, and in this scenario the acceptance rate is not highlighted, only 48% expressed identification with this aspect. These two elements show an interesting contrast, while they manifest enjoyment for new information and communication technologies, and there is no evidence of interest in being the first to use these new technologies more than their peers.

Table 3 shows the results for self-learning factor. This factor becomes important to establishing incentives of virtual platforms use, being one of the key success factors identified in the literature to ensure a proper implementation of these platforms.

Table 3. Self-learning factor

	Strongly agree	**Agree**	**Neither agree nor disagree**	**Disagree**	**Strongly disagree**
I think using the virtual platform in subjects, improve my abilities to learning	18,0%	46,4%	20,0%	9,6%	3,2%
I like to be independent in my learning speed.	31,2%	46,4%	14,0%	5,6%	1,6%

Source: compiled from data collected in the survey applied

In this regard, it is important to emphasize the two results that can be seen. About 77% of students are agree and strongly agree with the enjoyment to have an autonomous speed in their learning processes. However, only 64% of students express that the use of these platforms improve their abilities on learning. These two elements become interesting, because the participant institutions of the measurement have a self-learning characteristics in their learning students' processes, but they do not show a direct improvement in their subjects supported on platforms, making it a challenge for universities in the sense of designing strategies for their students that actually they perceive as a contribution in their learning processes.

Finally, the factor of self-efficacy was assessed, and it was found more stable results in the questions associated. Table 4 shows the 75% of surveyed students are agree and strongly agree with having the appropriate tools to improve their learning processes with the help of the virtual platform. This result is interesting if is compared with the showed results in Table 3 related to the perception of improvement of learning abilities with the use of these platforms, since they recognize their abilities to improve their educational processes, but not yet identify that improvement. This comparison confirms the challenge that higher education institutions surveyed have, while their students confirm that they have the required abilities, but not evidence an improvement in their learning abilities. In the same vein, it is interesting that these institutions implement strategies to get the best benefit from the abilities that students report having to use the university virtual platforms.

Table 4. Perceived Self-efficacy

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I have the appropriate abilities to improve my learning using the virtual platform.	21,2%	54,0%	16,8%	3,6%	2,4%
I have the required knowledge to use virtual learning tools available on the virtual platform.	26,0%	47,6%	13,2%	8,4%	2,4%

Source: compiled from data collected in the survey applied

On the other hand, it is observed that about 73% of students confirm that they have the required abilities to using virtual platforms. This result could not be more explained above. Not only they have the abilities but they have required knowledge to using these platforms. In this sense, the future outlook for the participating institutions is very positive and has numerous possibilities to encourage and increase the use and success results in the use of virtual platforms in their students.

ANALYSIS OF RESULTS OF PROPOSED MODEL

At first, the Cronbach's alpha was applied, which evaluates how the questions and constructs are related (Oviedo & Campo-Arias, 2005). This value should be close to or higher than 0.7 in order to generate a high reliability of the measurements of constructs. In this case, the alpha values swing between 0.710 and 0.806 (average 0.754), so it is considered an appropriated indicator (Table 5).

Table 5. Reliability indices of the scale applied.

Factor	Alpha
Personal Innovativeness	0,746
Ability for self-learning	0,710
Perceived Self-efficacy	0,806

Source: compiled from data collected in the survey applied

To quantify the existed relation between model's variables, Cramer's V coefficient was used (Seo & Gordish-Dressman, 2007) because this allows concluding about the statistical independency of the variables in an independent way of the number of categories of the analyzed variables. Table 6 shows a consolidated of interdependence between the proposed model's factors using Cramer's V coefficient.

Table 6. Cramer's Coefficient – Correlation

Cramer's Coefficient – Correlation				
	Personal Innovativeness	Ability for self-learning	Perceived Self-efficacy	Virtual learning platforms use
Personal Innovativeness	1,0	0,326	0,415	--
Ability for self-learning	0,326	1,0	0,429	---
Perceived Self-efficacy	0,415	0,429	1,0	0,405
Virtual learning platforms use	--	---	0,405	1,0

Source: compiled from data collected in the survey applied

Table 6 shows that there is a strong relation between "ability for self-learning" and "perceived self-efficacy" (0,429), between "personal innovativeness" and "perceived self-efficacy" (0.369) and an average relation between "ability for self-learning" and "personal innovativeness" (0.326). The relation of the total sample of surveyed students toward the proposed model in the methodology can be visible in the figure 2.

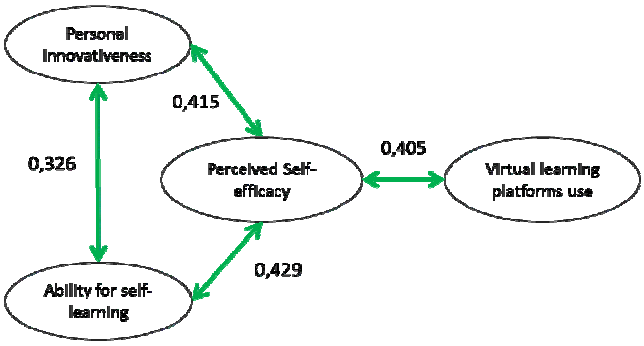

Figure 2. Proposed model results.

The results corroborate the point made by Agarwal and Prasad (1998) about the influence of personal innovativeness in the use of information technology. Moreover, it is confirmed the statement by Lu, Yao and Yu (2005, p. 245), who argue that "Behavioral sciences and individual psychology, however, suggest that social influences and personal traits such as individual innovativeness are potentially important determinants of adoption as well, and may be a more important element in potential adopters' decisions". The issue raised by Swingle and Vieta (2012) is also confirmed. They state that self-efficacy is established as one of the factors behind the adoption of virtual learning technologies and the future academic success of students in virtual training programs. It becomes a future work to evaluate how these factors influence the academic success of students in virtual classes.

CONCLUSIONS

It is important to note that a low usage platforms by surveyed students of the participating institutions. This use is measured on the entry frequencies in virtual platform. In this regard different alternatives for encouraging user to entry at platforms should be established, so there is the possibility that various features and advantages offered can be explored and internalized better.

While it is note a marked tendency in students of these institutions toward the abilities and required knowledge to use virtual platform. A high recognition compared to support provide by these tools in the learning processes of users is not observed. To such an extent that, it is important that self-learning factor is stimulated, while it becomes one of the relevant factor for students to generate motivation on the use of virtual platforms.

It is observed though obtain results that the personal innovativeness presents important elements in students' motivation toward the virtual platform use, while show a high degree of affinity with the exploration of new information and communication technologies. However, it is important to note that there is no a strong tendency to be between the first students to explore these tools. Therefore, it is important obtain an environment which users feel strong motivation to interact with these platforms in the moment that are incorporated into the learning process and thus, increase its use and enhance the results that may occur.

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