

The value of ICTs in the flipped classroom for teaching tourism in higher education institutions in Ecuador

El valor de las TIC en el aula invertida para la enseñanza del turismo en las instituciones de educación superior en Ecuador

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Abstract

This research analyzes the causes that generate the conditional use of ICT's in processes of tourism education in Institutions of Higher Education (IHE) of Ecuador. A descriptive methodology, based on literary analysis and criteria, was applied to 30 IHE teachers in the territorial area 3. It is concluded that there is a low development of ICT skills by the professionals surveyed, as well as the proposal of suggestions to be applied in the didactics called flipped classroom.

Keywords: flipped classroom, ICT, tourism, education.

Resumen

Esta investigación analiza las causas que generan el uso condicionado de las TIC'S en procesos de enseñanza del turismo en Instituciones de Educación Superior (IES) del Ecuador. Se aplicó una metodología descriptiva, basada en análisis literario y en criterios a 30 docentes IES de la zona territorial 3. Se concluye que existe un bajo desarrollo de habilidades TIC's por parte de los profesionales encuestados, así como el planteamiento de sugerencias para ser aplicadas en la didáctica denominada clase invertida.

Palabras clave: clase invertida, TIC, turismo, enseñanza.

1. Introduction

Teaching - learning methods in the last decade have evolved in an accelerated way due to a series of factors, among which the constant development in information and communication technologies (ICTs) prevails, tools that have allowed to break down barriers and expand the spectrum of the unknown for a world of information without limits, a fact that has made a difference in the processes and procedures between teachers and students, always seeking to improve and increase interest in researching, analyzing and designing projects and / or innovative and systematic products that contribute to sustainable development, and in this way contribute to one of the pillars of (UNESCO, 2005) such as the ability to identify, produce, process, transform, disseminate and use information with a view to creating and expanding the knowledge needed to human development; for this reason, the study on the value of the Information and Communication Technologies (ICT) implemented in the flipped classrooms as a new educational system evokes the strengthening of meaningful learning in the students

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of the Tourism Career, mainly of the Higher Education Institutions that are located in the territorial zone 3 of Ecuador, reflected in those who build the knowledge, skills and abilities.

In Ecuador, the tourism sector contributes 2.2% of the Gross Domestic Product (GDP) (Ministerio de Turismo [MINTUR], 2020), ranking third in non-oil exports in the country and with the highest growth projection. Being a versatile activity, the interest in venturing into project management, promotion and dissemination of natural and cultural attractions, generates a considerable impact in the selected study area, which motivates a potential demand from students who wish to professionalize in careers related to the tourism and hospitality sector with the purpose of becoming job generators, tourism promoters and diffusers of the benefits that the provinces of Cotopaxi, Tungurahua, Chimborazo and Pastaza have, belonging to zone 3, denoting a degree of importance for the central region of the country.

Based on the aforementioned context and with current trends in technological modernization, it is recurrent to generate a symbiosis of knowledge that leads to broadening the educational spectrum of those who are part of the academic sector, with the purpose that the student can expand and / or strengthen their learning through flipped class.

The improvement of academic experiences, student interactivity, a higher level of concentration and participation, as well as transparency in the evaluation processes are estimated as the benefits obtained through the application of flipped classroom processes, where gamification becomes the key element to increase student achievement.

In another vein, the application of ICTs in the tourism field in short term has made it possible to improve job skills and quality of life in rural and / or community areas, considering that in central Ecuador it is a space where the growth of agrotourism and ecological tourism activities has been concentrated, exemplified in the greater accessibility of information, virtual training processes and constant advice from the academy to the needs of the population.

According to the educational model of the eight (8) Institutions of Higher Education in which the study was conducted, it is identified that all fall within the pedagogical and andragogical constructivist model anchored to the good use of ICT, a fact that must be reflect in the learning environment provided by the teacher through e-learning strategies, m-learning and e-training, each contributing to “the student build their learning autonomously and in turn the interaction between teacher and student is more personalized” (Hamdan, McKnight, McKnight, & Arfstrom, 2013) ensuring that “learning is no longer about knowing things, but about knowing how to manage information, knowing how to think about new problems and new ways of solving them, that is, learning to make decisions about one’s work” (Tourón, Campión, & Díez, 2014).

In this sense, it is the duty of every teacher to overcome the educational crisis, moving from the traditional model in the classroom to new pedagogical models, and to link reality with the demands of the 21st century, through the support and interactive use of ICTs, emphasizing in the promotion of intellectual habits in students, who must transform information into meaningful and functional knowledge, it is for this reason that insists on the importance of using the flipped classroom as “a system that reverses the traditional method by a constructivist system” (Tourón, Campión, & Díez, 2014) who in turn affirms that the key is not in what is taught, but how it is taught; understanding that the student is the one who takes responsibility for his own learning, and in turn does not require the teacher to be the center, but the guide that promotes his education.

A descriptive methodology is used in the current research, divided two parameters, the first corresponding to content analysis and the second to a structured survey conducted to tourism career teachers of the Higher Education Institutions located in the territorial zone 3 of Ecuador.

Within this context, it has been identified that the problem is eradicated in the pedagogical methodology that the teacher uses during his classes, a statement that is evidenced by the results obtained through the use of research techniques, such as the survey, an instrument that was applied to thirty (30) professors of the tourism career in eight (8) Universities, identifying that the main difficulty in the implementation of ICTs in the classroom is due to the scarce incorporation of e-learning strategies reflected by the lack of time to organize the tasks using the virtual environments of the University like Moodle System, Edmodo or Google classroom; and on the other hand, it was identified that few teachers use m-learning strategies to encourage study outside of class, either through the use of Brainscape, PorposeGame or Quizlet; mobile applications that project individual, participatory and cooperative learning independent of time and place.

2. Methodology

The current research incurs a descriptive methodology, bifurcated in 2 aspects, the first one corresponds to a content analysis carried out by means of the review of researches about the variables flipped classroom and ICT in Tourism, said researches have source in the academic seekers as Academia.edu., Refseek, Google Academic, Scielo, Redalyc, ERIC, as well as Scopus, Latindex, Web of Science, which were carried out from August 15 to October 10, 2018.

In a second aspect, a structured survey was applied to a universe of 30 teachers of the tourism area belonging to the Universities located in the territorial zone 3 of Ecuador (provinces: Cotopaxi, Tungurahua, Chimborazo and Pastaza) whose data were processed through the form of Google Drive to analyze the following proposed variables determined in the instrument: active learning, use of ICTs, difficulty in the use of ICTs, web pedagogical applications. The teacher's educational profile was analyzed through the statistical software SPSS-vs.24, determining the mean, standard deviation and kurtosis, and a descriptive analysis was applied to the aforementioned variables.

3. Results

Regarding content analysis, it has been identified that in the United States, the success of the flipped classroom model has allowed to reduce dropout rates, improve student performance, increase dedication time, deepen education, innovate in interactive learning activities based on teams in the classroom where the student is the one who builds their learning, and consequently improve student-teacher communication and interaction, managing to generate critical thinking. Based on this background, the literature refers to active learning which, according to (Wasserman, 1999), includes learning based on case studies, causing interest in students to comprehensively analyze various problems and induce them to strive for obtaining a deeper understanding; while, the Learning Based on Challenges (LBC), integrates elements of research, interdisciplinarity and learning oriented to the students. The LBC builds an active learning environment (Tobón, 2008), on the other hand, cooperative learning replaces the structure based on great production and competitiveness; the teacher becomes an engineer who organizes and facilitates team learning, instead of just filling the minds of the students with knowledge (Johnson, Johnson, & Holubec, 1999); thus, problem-based and / or project-based learning (PBL) also requires a great deal of time and effort on the part of both students and teachers (Liu, 2004) (McGrath, 2002) (Mennin, Gordan, Majoor, & Osman, 2003) on the contrary, the laboratory practice or called training learning leads students to develop skills related to the acquisition of a series of skills in order to face daily problems in the workplace (Hodson, 1994); finally, it was analyzed that learning for mastery learning without being confused with competency-based education, should be based on: a) Establishing an evaluation system based on criteria, and b) Emphasizing feedback and the implementation of corrective activities during learning.

Regarding the use of ICTs, (Grosbeck, 2009) identifies that teachers have the duty to select the most appropriate ICT tools for their educational purposes, so that the student becomes effective and efficient in teaching /

learning; while for (Adukaite, Van Zyl, & Cantoni, 22016) the multiple uses and implications of ICTs in tourism education in South Africa are not clear and are little theorized as an area of research.

On the other hand, the difficulty in the use of ICTs, according to (Behera, 2013) judge that it is the lack of self-discipline that is the main reason for the higher dropout rates in e-learning programs compared to conventional programs; likewise, it must include the logistical and technological requirements, and the need for more time for the preparation of e-learning materials (Afifi, 2011).

In the case of pedagogical web applications used in tourism, there is a range of possibilities considering that they manage to integrate knowledge, skills and abilities, through e-learning, e-training and m-learning, through attractive learning environments, free and flexible. This new e-learning 2.0, is based on the application of web tools (blogs, wikis, podcasts, social networks) and has its pedagogical foundation in the theories of connectivism (Baelo Álvarez, 2009).

In turn, according to the application of the structured survey, a total of 30 responses were obtained by the research faculty of the universities under study. For its validation, outliers, lost data and distribution of all variables were measured in order to purify the data found. Initially, the majority of research teachers surveyed come from public Universities (83.3%), compared to 16.7% of teachers working in private Universities. Of this percentage, the significant number of respondents correspond to the Technical University of Ambato (43.3%) and the Army Polytechnic Superior School ESPE, Latacunga Headquarter (16.7%); finally, in relation to years of service in their institutions, there is a 46.7% of teachers who have performed their duties between 10 to 20 years, followed by those who have worked between 5 to 10 years (33.3%). Then, the statistics corresponding to the teacher's educational profile and the visualization of the variables referred to in Table 1 and Table 2 respectively are shown.

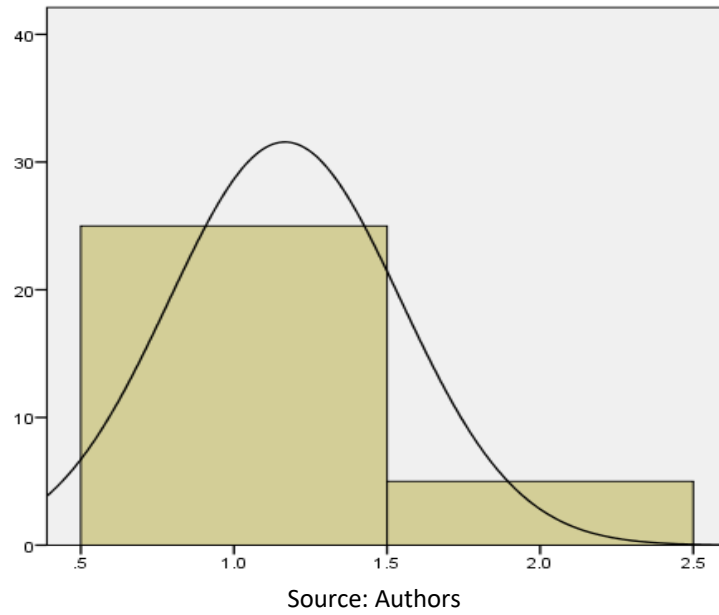
Table 1
Descriptive Statistics Related to
the Teacher's Educational Profile

| | Character | Service | University |
|--------------------------|------------------|----------------|-------------------|
| Media | 1.17 | 3.17 | 2.67 |
| Standar deviation | 0.379 | 0.986 | 2.057 |
| Kurtosis | 1.657 | 0.189 | 0.398 |

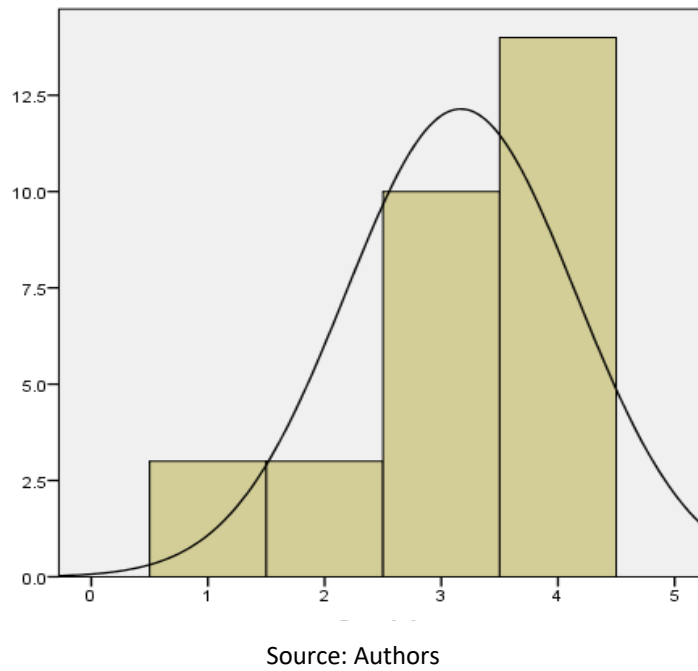
Source: Authors

It is evident that for the variable character, there is an average of 1.17 with a standard deviation of .379, presenting a kurtosis of the platicuric type, which means that the presented values show a low concentration around its average. Similarly, the service variable presents an average of 3.17 with a standard deviation of .986 and kurtosis of .189, which corresponds to the aforementioned typology. Finally, the university variable shows an average of 2.67 with a standard deviation of 2,057 and platicurtic kurtosis of .398. Graphically, the referred data are presented in the following histograms.

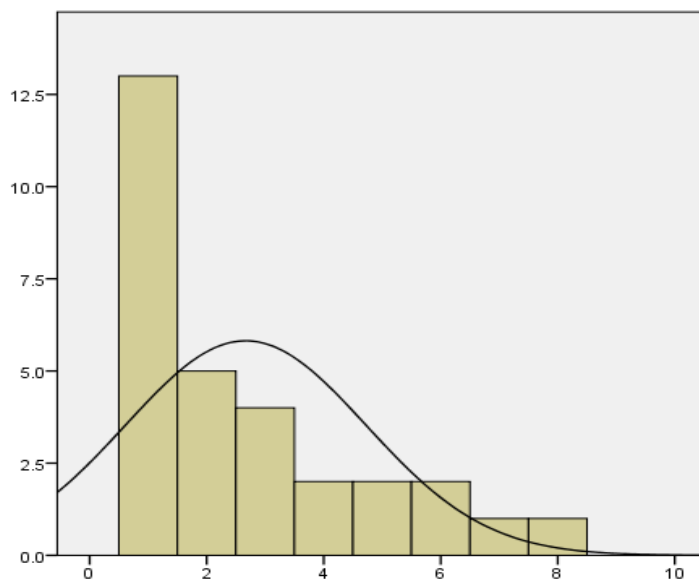
Graph 1
Character Histogram



Graph 2
Service Histogram



Graph 3
University Histogram



Source: Authors

Table 2
Teacher's Educational Profile

| Variable | | Frequency* | Percentage** |
|-------------------------|-------------|------------|--------------|
| Character | Public | 25 | 83.3 |
| | Private | 5 | 16.7 |
| University | UTA | 13 | 43.3 |
| | ESPE | 5 | 16.7 |
| | Indoamerica | 4 | 13.3 |
| | UEA | 2 | 6.7 |
| | UNIANDES | 2 | 6.7 |
| | ESPOCH | 2 | 6.7 |
| | UTC | 1 | 3.3 |
| | UNACH | 1 | 3.3 |
| Years of service | <3 | 3 | 10 |
| | 3 to 5 | 3 | 10 |
| | 5 to 10 | 10 | 33.3 |
| | 10 to 20 | 14 | 46.7 |

Source: Authors

For the survey interpretation results, it was classified according to 4 variables: Active learning (7 items), Use of ICTs (6 items), Difficulty in the use of ICTs (6 items) and web pedagogical applications (10 items), allowing to dimension the current situation of the value of ICTs in tourism education. In the first instance, the variable “active learning” is considered, evidencing that 56.7% of teachers apply learning strategies based on case studies and problem-centered learning, demonstrating traditional teaching in the delivery of knowledge in the tourism career, corroborating this statement with 3.3% of the results related to the application of inverted classes (made through the use of technological resources).

In the same order of ideas, the variable “use of ICTs” shows that the practice of a traditional education in tourism has a tendency of systematic decrease, evidenced in 36.7% of the respondents, around the use of technological tools for the teaching of their classes, which corresponds to 60% of the teacher’s object of study. These results allow us to contribute the assertion of (Sánchez, 2002), who refers to the fact that “curricular integration of ICTs is the process of making them entirely part of the curriculum, as part of a whole, permeating them with the educational principles and the didactics that make up the gear of learning”.

Regarding the variable “difficulty in the use of ICTs”, it is evident that 33.3% of the respondents state that there is a lack of time to organize tasks through technology, as well as 20% consider that few students have access to the use of a netbook or Smartphone at the moment of receiving classes, identifying a problem so that the use of ICTs can project optimal results and guarantee an adequate cognitive level of the students.

Finally, according to the “web pedagogical applications” variable, 70% of teachers use digital resources such as Prezi, Powtoon, Gocanqr or EDpuzzle as a main technological resource for the classes preparation in the tourism career, to detriment of another type of applications inherent in virtual education, evidencing the limited knowledge facing of current educational trends. This problem converges within the five statements referred by (López, Olveria, & Martínez, 2003) who express that the integration of ICTs are tools of daily work in education, being the object of study of this research, within the tourism career, however, the limitations generated are due to the following factors:

1. “The limitation in access to technologies.
2. The speed of technological advances.
3. The absence of effective coordination of actions in favor of receptivity in the field of NNTT.
4. The scarce investment in pedagogical research to safely face the challenges of learning in the new situation.
5. The need for effective planning from the educational administration regarding the accessibility, receptivity and flexibility in the new demand for education”.

4. Conclusions

This research allowed to be a literary reference axis for the analysis of the assessment of the use of ICTs in its implementation in the flipped classroom in tourism, considering its study in four variables (active learning, use of ICTs, difficulty in the use of ICTs and pedagogical web applications) which, through their analysis, have identified that teachers have limited use of ICTs in the teaching process. Despite these findings, there are potential identified tools that can be used to promote a constructivist learning in the tourism career through the use of user-friendly technological resources that in turn cause a better academic performance through a deepening of research by teachers and students.

The carried out research aims to be a reference to be applied in other disciplines of a professional educational nature that wish to apply study models of flipped classroom in the teaching-learning processes, considering the 4 study variables and their application for each particular case.

The actions used in the academic design are personally promoted by each professor, in order to strengthen other areas in the student, while as an academic institution, very few have seen it necessary and urgent to allocate a budget for the implementation of these strategies considering that now, after the global health declaration, it has become a necessity and not a luxury.

The assessment of ICTs envisages a promising future for the optimization of constructivist education, as long as the interest from the teacher is reflected in its use, training and application of the new technological tools will allow that a flipped classroom become a source of integral education in the tourism area.

Finally, complementary research is estimated around the level of impact that the application of certain technological tools can influence students so that teachers can integrate them into a new teaching methodology called flipped classroom.

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