VIRTUAL LEARNING ENVIRONMENTS IN ACCOUNTING EDUCATION

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Abstract

There have been problems with teaching methodologies present in accounting education since they are considered obsolete and repetitive, and both teachers and students are dissatisfied with them and recognize the importance of promoting a more active participation of students, where teachers are not seen only as a designer, manager and evaluator of the educational process through the exposure of their knowledge, neither the student as a recipient of knowledge transmitted by teachers a nor passive spectator in the class. To support this change, in recent years, both nationally and internationally, the use of virtual educational platforms has expanded through e-learning programs, in mixed learning systems and integrated into classroom teaching as a tool to support students' learning. Therefore, this paper will analyze the contribution of virtual learning environments to improving the teaching process in Public Accounting programs.

Keywords: *Accounting education, ICT, virtual learning environments, Moodle, pedagogical strategies*

1. INTRODUCTION

Comprehensive accounting education requires attention to the development of cross-cutting knowledge. However, in order for the student to develop such knowledge or cross-cutting competencies, a change in the traditional paradigm of education is paramount, moving the leading role from the activity of the teacher to the active participation of the student in the teaching-learning process, which in turn implies incorporating suitable pedagogical methods that promote an active role on the part of the student (Betegón, Fossas, Martínez, & del Mar, 2010). In response, technology has been incorporated into education based on the will of teachers, recognizing that this is a tool to strengthen classroom training.

Thus, authors such as Del Moral, Villalustre y Neira (2014), Rojano, López and López (2016), Mansilla, Muscia & Ugliarolo (2013), Boillos (2016), González, Benchoff, Huapaya & Remon (2017) and Camós, Lion & Guglielmone (2018), highlight in their texts that technology is an additional tool to printed means and traditional practices that enables a greater interaction of students with content, where consultation tools and immediate reference to concepts and documents needed in the learning process facilitate students' approach, reflection and application of knowledge. From this perspective, Del Moral et al. (2016) recognize three (3) levels of technology integration into the educational process, ranging from zero integration by the teacher, an intermediate level of document search and consultation, and the third level regarding the training of students in the domain of technology.

Rojano et al. (2016) and Mansilla et al. (2013), from the supervision of official (platforms forums) and unofficial (social networks) communication channels gather the perceptions of teachers and students around these tools, concluding that the communication given by students on social networks facilitates learning processes by consolidating in a communication channel where interaction with peers leads to generating questions associated with the topics, however, the issuance and perception of answers is associated with linking virtual sources of consultation or opinions of the students themselves for the solution of doubts without an effective guide.

Del Moral et al. (2014) and González et al. (2017) recognize that teachers who integrate ICT into their class dynamics, proposing teamwork methodologies, autonomy in the students and the substitution of consultation in textbooks by the presentation of knowledge through digital means, strengthen the academic performance of students, developing platforms that offer the possibility to plan content, configure interfaces and feedback, and evaluation mechanisms based on the experiences by teachers and students, linking the digital tool and the teaching experience. As benefits of technological tools in education, the authors point to reducing the time in which students carry out tasks and the use of

academic resources by them, as well as implementing improvements from the measurement of the performance of an activity, as well as the articulation of Continuous improvement schemes (Plan, Do, Verify and Act), which strengthen student feedback through pre-established questions whose answer options are correct, partially correct and incorrect, combining feedback tools such as images, concept maps, videos, texts, etc.

Thus, technology is articulated to the learning process in order to improve the learning environment and resources of the student, and teachers who articulate ICT to their classes motivate students to present thematic contents in an innovative way to their peers, generating autonomy and guiding them in the mastery of communicative technological tools and the thematic contents of the class, allowing the construction of new communication channels, where collaboration between students and even the request for timely feedback between teacher and student allow an agile interaction, consolidating discussions and strengthening the teaching processes (Rojano et al., 2016; Mansilla et al., 2013). Likewise, a point of analysis on these communication channels is the supervision exercised and the openness of students to question themselves and to request feedback, from both peers and the teacher himself.

Understanding that ICTs generate significant contributions for Colombian education at a general level, not only for the accounting field, Colciencias (2018) published the Regional Call 804 for R&D projects that contribute to the strengthening of virtual training in the Department of Antioquia, West; wherein it is stated that " different entities interested in educational innovation issues such as UNESCO and OEI (2014), posit a series of trends in education in Latin America where the integration of ICTs is put forward as an opportunity to make changes to the schooling format but above all as a necessary horizon for the development of the region" (p. 6)

Moreover, in recent years, both nationally and internationally, the use of virtual educational platforms has expanded in distance learning programs (e-learning), in semi-face-to-face systems (e-blended learning) and integrated into face-to-face teaching as a tool to support students' learning (Betegón et al., 2010). This is because the need for a change in the traditional teacher-student roles has become evident, where the teachers are seen as a designer, manager and evaluator of the training process through the exposure of their knowledge, and the student reproduces the knowledge transmitted by teachers aa a passive spectator in the class.

This change has been generated through the inclusion of ICTs in the teaching-learning processes and the conscious design of virtual learning environments as support for teaching, providing guidance and support to students in consultation of complementary materials, the realization of knowledge self-assessments, consultation of different information formats, and complementary interactive activities.

In short, promoting the active participation of students without neglecting the relevance of books to multimedia means, that is, taking the best of each modality (face-to-face and virtual). In fact, "The development of new Information and Communication Technologies (ICT), and the Internet has led university education to the use of so-called virtual educational platforms. This calls for a profound structural change in the curricula, as well as an innovative adaptation of content and methodologies, providing new tools for teachers to improve the quality of their knowledge and the way it is transmitted, allowing continuous monitoring of students and their progress. (...) is a "giant step" in the field of higher education, while it seeks to encourage the active participation of students, facilitating cooperative learning between teachers and students, making up for the disadvantages that traditional classroom classes entail, such as lack of time and space, as well as the bad consequences of an essentially passive learning" (Bethegón et al., 2010, p. 276). Therefore, it is essential to analyze the contribution of virtual learning environments to the improvement of the teaching process in Public Accounting programs, which is the objective of this paper.

2. CHALLENGES AND CONTRIBUTIONS OF VIRTUAL LEARNING ENVIRONMENTS

At the international level, few universities do not have a virtual campus to engage distance-learning processes or to support face-to-face teaching. Software systems for virtual platforms are widespread and more teachers are making use of these systems to support their teaching techniques (Gómez & Professor, 2017)

There are multiple Learning Management System (LMS) that enable the creation of a Virtual Learning Environment (VLE). Among all web applications for the development of VLE, Moodle is the most widespread and widely accepted web application (Bogdanovic et al., 2014). However, there are many other proposals such as BlackBoard, Claroline, NetCampus, Phoenix Pathlore, Profe, Saba, Symposium, Toolbook, Ucompass, vCampus, Virtual Training, Virtual-U, Web Course in a Box, WebBoard, WebCT or Whiteboard, among others (Romero & Troyano, 2010). All of them aimed at enabling a virtual environment to engage distance-learning processes with the highest quality, in the e-learning, b-learning modalities and as support to traditional face-to-face teaching.

In their study, Valenzuela & Pérez (2013) made a comparison of the four platforms most used in Spanish universities in relation to their technical and didactic tools, to wit: WebCT Campus Edition 6.0, Moodle, LNR and Sakai, and found that there are no major differences in pedagogical resources available (type of software, instructional standards, instructional design tools, modifiable interface, file exchanges, bookmarks and offline work) to prefer one over the other with the aim of designing activities to promote self-regulated learning.

However, this document emphasizes Moodle considering that it is the most widely accepted and disseminated internationally, due to its character as a free software platform. This makes it more accessible compared to other private ones, which entail high maintenance costs for universities (Valenzuela & Pérez, 2013). Furthermore, Moodle is thus far the most used platform, with more than 37 million users, and applied in the construction of more than 48,198 sites registered in 212 countries (Castillo, Larios and Ponce, 2010; Lamas, Massié and Quero, 2010).

The Moodle platform (Modular Object-Oriented Dynamic Learning Environment) is inspired by social constructivist pedagogy and is based on the belief that students build knowledge from their active participation in their own process (Casales, Castro & Hechavarría, 2008)

However, it is extremely important that the implementation of ICT and specifically of virtual platforms such as Moodle in education be carried out in a conscious and responsible way, since according to Pérez (2003), there are certain risks or shortcomings in the implementation of systems or technological elements when addressing educational problems if it implemented thoughtlessly, without a good preparation of the students and the teaching staff for its use, which has led to the design of digital websites attractive to the eye but lacking content (Pérez 2003), or to the use of LMS, including Moodle, as mere documentary repositories (Olmos, Martínez, Torrecilla & Mena, 2014).

Therefore, “these systems must also have adequate support for the correct development of the platform and maintenance of the same. This requires a sound teacher training, as well as ensuring the quality of the educational material provided” (Gómez & Professor, 2017, p. 251).

In this sense, it is key to the success of ICT-supported teaching, specifically in VLE, for Moodle to allow:

- The teacher to continuously monitor the students, through the possibility of creating exercises and self-assessment tests, the visualization of student participation in communication resources such as forums, academic chat, among others, visualize the consultation of the number of interactions or times that the student has accessed the system, time spent, among others, both at the individual and group level.
- Interpersonal communication is encouraged that enables the dialogue between all the stakeholders involved, teacher-student and student-student, through resources such as help desk, chat of concerns, etc.

- Collaborative work among students is promoted through the use of different applications to share information and students can make joint content creations.
- Evaluation and self-assessment exercises are created.
- Different types of learning resource are shared such as videos, audios, guides, readings, infographics, videoconferences, practical tutorials, hypermedia, etc.
- The feedback of students' results and progress is encouraged.

In the same vein, we must continue to ensure that the teaching-learning process mediated by VLE is aimed so that "the student learns to learn", which will be achieved by teachers: a) using various resources as the basis of the learning process, b) developing teaching materials, c) creating activities which allow the linking of theory with practice for the development of capacities for autonomy and responsibility.

The design of virtual courses in the e-learning, b-learning modality or as support to face-to-face teaching should aim for: the students to be able to assimilate the knowledge that the teacher seeks to transmit, deploy creative capacity, consolidate a critical position, and develop their own thinking while promoting an active role in them. To that end, shared materials should encourage the learner to research other sources of information and documents referred to in the course, the practical application of what has been learned and the relationship between concepts. It is worth noting that, for face-to-face programs, it is not a question of implementing an option for "distance learning" (e-learning), but of incorporating an ICT-based training model, combining different pedagogical resources without casting face-to-face teaching aside (Betegón et al., 2010).

3. PEDAGOGICAL INNOVATION IN ACCOUNTING EDUCATION

When carrying out an inquiry into the breakthroughs regarding the use of VLE in the field of accounting education, it was found that there are few pieces of research that address this specific topic, only Labarca, Navarro & Suárez (2013) describe the construction of VLE in order to encourage interaction, play, creativity and collaboration between students, and of latter with teachers in spaces described by distance education. All in order to improve their academic performance, since from a set of surveys they were able to conclude that the training of accountants lacks significant learning and that the knowledge acquired is different from those required in companies. Thus, to address these shortcomings, they propose two models, a synchronous one wherein the student through lectures and real-time chats with peers and teachers builds knowledge based on questions, concerns, arguments and counterarguments; and an asynchronous model, which aims to promote student autonomy, wherein the latter exposes questions, concerns and experiences for the entire community or with the teacher via email. As a result, students recognize that this methodology facilitates the acquisition of knowledge useful to the company since teachers offer training in the domain of accounting software while motivating critical theoretical positions on International Financial Reporting Standards (IFRS). Thus, the text constitutes a call for accounting training in technology that guarantees both technical and theoretical mastery through pedagogical models that foster active participation by students.

The remaining research on the implementation of technology in accounting education presents different positions around the essentiality of training in the mastery of technological tools by the accountant, and the recognition of his role as a professional immersed in a changing social, political and economic reality that demands robust ethical and theoretical knowledge (Moreira & Córdoba, 2015). On the other hand, some research, such as that by Gandía & Montagud (2011), Barreto, Cárdenas & Mondragón (2011), and Herrador & Hernández (2016), have tried to analyze approaches to accounting education aimed at students' reaction to ICT tools implemented in the training process or pedagogical methodologies implemented in the training of accountants, in order to develop an active role on the part of the student. Therefore, two perspectives are glimpsed in the analyzed research, one in which the approach of technology to accounting education is located as a labor requirement that displaces the essential role of accountants in a changing social and political reality, and the second, which approached the pedagogical methodologies and the reaction of agents (teachers and students) participating in the educational process

to ICT tools implemented. The second perspective is of the interest of this document, while the use of VLE to improve and enhance the teacher-student relationship would be framed under this perspective.

Research on the implementation of ICT tools and pedagogical methodologies in accounting education processes, in addition to the way agents (teachers and students) associated with the training process react, falls within the text by Gandía & Montagud (2011), who analyzed the results on the learning of the implementation of innovative practices in the training of accounting students, practices such as "... cooperative work, problem-based learning, role-playing, puzzle group dynamics, the development of seminars and workshops, the use of an individual and group academic tutoring system, the search for information in databases and internet and reporting..." (p. 679), recognizing that it produced significant improvements on the academic performance of students because educational innovations were introduced.

For their part, Herrador & Hernández (2016) point out that despite the fact that students value positively the implementation of ICT tools into the educational process, and that there is a direct influence between access to knowledge networks via ICT where students and their teachers participate and the academic performance obtained by students, this access to networks and the implementation of ICT tools to the training process are not statistically determining factors, that is, they are not determinant on their own, but require the creation of an interactive virtual environment where the student has an active role and use the resource, since it can become a multimedia dissemination of traditional knowledge methodology, which is based on the use of paper.

For the Colombian field, Barreto, Cárdenas & Mondragón's (2011) text identifies the opinions of teachers and students regarding the use of Wikis and accounting software (Active, Peopleware, SAP, World Office), as well as the incorporation of ICT through forums, virtual repositories for training, videos; recognizes that there is a willingness of both to motivate the incorporation of these tools, placing ICT as a permanent and transversal training need, since society requires accounting professionals skills to respond to their needs. However, such training is a means, but not an end, as it requires constant renewal and innovation to respond to the changing realities of society and the environment. Likewise, the implementation of ICT implies transforming what it is to teach and learn; therefore, the student ceases to be a recipient of knowledge, and becomes a manager of his learning, while the teacher is placed as the guide in the development of this process (Barreto et al, 2011).

Finally, Barreto et al (2011) point out that in national public accounting programs the appropriation and use of technologies is incipient, since they fall to the use of office tools that will be used and necessary in the workplace, but not in the use of applications that develop competencies and skills for preparation and presentation of accounting information, as well as for the determination of business controls, such as possible uses of creativity and the generation of business processes supported by ICT; however, this type of training requires the active participation of teachers, requiring continuous training for them for the development of skills in the management of ICT and the recognition of a pedagogical use of ICT.

4. CONCLUSIONS

Technology responds to the new needs of society, which is why technological knowledge is one of the bases to be addressed by current education. Thus, throughout this document, ICTs, the use of VLE and their influence on training and learning were analyzed, identifying that these should be integrated into educational processes under the guidance of teachers in order to achieve the results expected and needed by organizations and society in general.

Despite the fact that ICTs in education were developed to facilitate and incorporate a larger population into educational processes, they have proposed new learning dynamics for students and new ways of linking knowledge between agents: teachers and students. Consequently, students are exposed through technology to knowledge thanks to new ICT tools and pedagogical methodologies, where the generation of new tools and the articulation thereof to training processes are erected as a research area susceptible to being addressed under different disciplines and branches of knowledge, including the field of accounting education.

Among the recognized difficulties to motivate the articulation of ICTs in classrooms, we identify the absence of technical knowledge in the use and creation of technologies for pedagogical purposes, as well as in the strengthening of self-learning processes with technologies by teachers, since the will of these around their mastery of technologies would enable a better implementation and would not lead to the conception of technology as a conduit that reduces the student's effort and time in the classroom, but improves his ability to analyze and generate proposals and solutions by freeing him from routine processes that can be automated.

Then, by delving deeper into the analysis of the ICT articulation processes in the training of public accountants at the national and international level, a disjunction arises between the relevance in the mastery of technological tools to meet the needs of the work environment, and the implementation of technological tools that promote better-academic-performance accounting education by students, who can play a social, economic and political role in a changing reality that demands the use of technology.

In view of the above situation, the analyzed documents allow us to identify that the training of accountants in the domain of technological tools is represented as a demand from the labor market to higher education centers, on which researchers such as Boillos (2016), Barreto et al (2011), among others, clarify that the training in technological tools must be accompanied by pedagogical methodologies that enhance not only the mastery of the tool itself but also its understanding in the practicing of accounting..

Lastly, we describe the need for an active role on the part of the teacher that leads to the empowerment, renewal and constant training of the technological domain for teaching its students, and the use of technology in classroom sessions, where the dynamics and pedagogical methodologies implemented ensure better academic results and a constant improvement in trained professionals. In the case of accounting education, it is recognized that research has been developed under unarticulated efforts by researchers and there is little research regarding the use of virtual learning environments.

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