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Original Article

# Construction of social knowledge through e-learning: limits and possibilities in the teaching of Physical Culture

# Construcción del conocimiento social mediante e-learning: límites y posibilidades en la enseñanza de Cultura Física

# Construção do conhecimento social por e-learning: limites e possibilidades no ensino da Cultura Física

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## ABSTRACT

At present, the interest of educational systems is in the management of learning based on virtual platforms, especially in how the construction of social knowledge from e-learning is encouraged. The purpose of the article was to contribute to thistopic, by reflecting on the behavior of the use of e-learning in the teaching-learning process of physical culture, from a study of the professors of the Physical Culture career, in Ecuadorian universities. A quantitative investigation was carried out using methods and techniques that allowed to gather information for the respective analysis in the Physical Culture degree, at the University of Guayaquil, exploring through a survey of teachers and students, as well as systematic observations of the teaching-learning process in the e-learning platform and the didactic experiences that are used in the race, which has been able to leave in evidence aspects inherent to the possibilities and limitations of e-learning in the teaching of the mentioned race, since e-learning has had a wide reception in university education because it facilitates in students the appropriation of knowledge, development of skills and attitudes that will allow them to function in the social context.

**Keywords:** knowledge construction; physical culture; e-learning; teaching learning process.

## RESUMEN

En la actualidad, el interés de los sistemas educativos se sitúa en la gestión del aprendizaje, basada en las plataformas virtuales, sobre todo, en cómo se propicia la construcción del conocimiento social desde el e-learning. El propósito del artículo fue aportar a este tema, al reflexionar acerca del comportamiento que tiene la utilización de e- learning en el proceso de enseñanza-aprendizaje de la cultura física, a partir de un estudio a los profesores de la carrera de Cultura Física, en universidades ecuatorianas. Se realizó una investigación cuantitativa, con el empleo de métodos y técnicas que permitieron recopilar información para el respectivo análisis, en la carrera de Cultura Física, en la Universidad de Guayaquil, explorando, mediante encuestas, a docentes y estudiantes, así como observaciones sistemáticas al proceso de enseñanza-aprendizaje en las plataforma e-learning y las experiencias didácticas que se utilizan en la carrera, lo cual ha podido dejar en evidencia aspectos inherentes a las posibilidades y limitaciones del e-learning en la enseñanza de la mencionada carrera, puesto que este ha tenido una amplia recepción en la educación universitaria ya que posibilita en los estudiantes, la apropiación de conocimientos, desarrollo de habilidades y actitudes que les permitirán desenvolverse en el contexto social.

**Palabras clave:** construcción del conocimiento; cultura física; e-learning; proceso de enseñanza aprendizaje.

## SÍNTESE

Atualmente, o interesse dos sistemas educativos está na gestão da aprendizagem baseada em plataformas virtuais, sobretudo na forma como se promove a construção do conhecimento social a partir do e-learning. O objetivo deste artigo foi contribuir para este tema, refletindo sobre o comportamento do uso do e-learning no processo de ensino e aprendizagem da cultura física, com base em um estudo de professores de cultura física em universidades equatorianas. Foi realizada uma pesquisa quantitativa utilizando métodos e técnicas que permitiram a recolha de informação para a respectiva análise na carreira de Cultura Física na Universidade de Guayaquil, explorando através de um levantamento de professores e alunos, bem como observações sistemáticas do processo ensino-aprendizagem nas plataformas de e-learning e as experiências didáticas utilizadas na carreira, Isto tornou evidentes aspectos inerentes às possibilidades e limitações do e-learning no ensino da referida carreira, uma vez que o e-learning tem tido um amplo acolhimento no ensino universitário, uma vez que facilita nos estudantes a apropriação de conhecimentos, o desenvolvimento de competências e atitudes que lhes permitirão desenvolver-se no contexto social.

**Palavras-chave**: construção do conhecimento; cultura física; e-learning; processo ensino-aprendizagem.

## INTRODUCTION

The pedagogical discussion developed by current education systems warns of the need to recognize that the technological imprint and the dynamics of social processes are generating a necessary change in the teaching-learning process, by incorporating information and communication technologies that, consequently, promote the use of methodologies oriented to respond to the needs of society and facilitate the adaptation of teaching to the individual and group rhythms of students.

Within this framework, social learning theories identify, as social knowledge, the development of relevant skills for life, from which they privilege self-knowledge, interpersonal communication, independence and autonomy. From this reference, at the different educational levels and the subjects included in the curriculum, they express the purpose of contributing to them with the application of virtual environments in the teaching-learning process.

In particular, higher education foresees that its students, through the curriculum, can produce and transmit scientific knowledge and, at the same time, appropriate the necessary tools for the construction of the social knowledge they need to achieve individual and collective progress, in order to contribute to the realization of social changes. This mission legitimizes the responsibility that universities have with society.

The educational experiences in recent years show the capacity of Higher Education in the world to respond, in a sustainable manner, to the scientific, technical and social changes that the world is experiencing. The intentionality of the curricula weighs knowledge focused on personal and professional development that allows a responsible, committed and transforming citizen and to achieve this promotes the use of new methods, media and learning spaces, which warn the inclusive and social orientation that characterizes the era in which we live (Gamboa Alba, S., & Carballo Poma, R. (2010).

Very much in line with the above, Chacón, G., & Freddy, A. (2016) in their research, refer that:

> "the use of technologies provides an effective environment, where students and teachers can perform different teaching and learning activities that cannot be experienced with basic Learning Management Systems or other educational applications" (p. 3).

In this, information and communication technologies become an opportunity to teach and learn the knowledge, skills and attitudes needed to participate in positive social transformations, as well as to foster the social mobility of their graduates.

In particular, the value given to virtual platforms to expand the social dimension of knowledge is noteworthy, since both the contents and the activities that can be carried out on them are carriers of the ideology of the socio-cultural context in which they are developed. The content of the conversations, depending on the time and place, shows the orientation assumed by the interpretation of the discourses on scientific and technological progress, the development needs of society and the values that should be present in the conversational and discursive activity that learning in the information and knowledge society demands (Fernández, Álvarez and Mariño,2013, p. 283).

An approach to the particularities of this process in Ecuadorian universities requires consideration of the theoretical and methodological framework in which the initiatives to promote the realization of this objective are carried out, endorsed in the Regulations of the Academic Regime in force in the country and published by the Council of Higher Education (Ces, 2019), from which the assessment of the possibilities and limitations of the use of e-learning platforms in the construction of social knowledge in higher education is privileged.

Based on the above proposals, and from the performance of the profession of their authors in teaching and research processes that participate in Ecuadorian Higher Education, directly linked to Physical Culture and Information Technology, scientific questions arise that motivate their proposal, namely

What relationships can be improved in Physical Culture and its learning, through new technologies, what educational technologies and what contents of the pedagogical culture are feasible to integrate, as well as how to develop social knowledge in the context of new technologies?

## E-learning potential in the construction of knowledge

Considered a web application that integrates a set of tools for online teaching-learning, the e-learning platform is presented as an opportunity to facilitate educational processes in the complex social context in which one lives, learns and works. Due to its objective, the use of this platform allows the creation and management of teaching and learning spaces, based on the communicative interaction of teachers and students, aimed at the acquisition of one or more academic and social skills (López, Miguel, and Fernández-Pampillón, 2008, p. 42). These are the reasons why it is assigned potentialities to be used, both in non-attendance teaching (e-learning) and/or a teaching in which Internet teaching is combined with experiences in the attendance class (Onrubia, 2016, p. 4).

From these purposes, the design of the teaching-learning process is organized based on the didactic relationships established between teachers and students, activities and scenarios, thus forming a didactic model in which information and communication technologies are assumed as tools in the construction of scientific and social knowledge of those who participate in these systems.

These platforms are designed with solid didactic foundations that have been previously experienced in real environments and that have proven to improve the effectiveness of learning processes and, due to their characteristics, are based on the model of socio-constructivist learning in which the student is the protagonist of his/her own learning, cooperating and collaborating with the group to build new knowledge, above all, of a social nature (Gamboa and Carballo, 2010, p. 230).

Coinciding with this position requires a pedagogical and didactic analysis of this issue. In this regard, we can see an approach centered on the methodological level, from which it seems obligatory to address the characteristics, implications and mutual relations that underlie the potentialities of e-learning and the construction of social knowledge. However, this relationship also alerts us to the challenges that its use implies for university education in the context of today's society, above all, by revealing the specificities that characterize its concretion in university educational practice.

In principle, recognize that e-learning is a teaching-learning system that, by its organization and presentation facilitates the active role of the student in the process of exposure to the contents, selection of the paths and rhythms of their exploration, as well as an attractive (text and illustrations) and dynamic medium (sound, animations, video) that enables the relationship with other people and access to it. Its added value lies in the possibility of experiencing a sense of freedom, choice and a high level of control over interaction, to the point of becoming a producer of content, increasing the knowledge base and strengthening links, in a collaborative learning space (Gewerc, 2009, p. 72.).

However, e-learnig also implies the efficient and creative handling of skills related to access to information, knowledge management through different channels and digital supports, from which information and communication technologies (ICT) have been incorporated as support tools in the construction of knowledge. Although the teaching-learning process, mediated by the computer, shares formative purposes with other learning models, it is necessary to recognize that e-learning becomes an opportunity for the construction of social knowledge, since students become active learning protagonists, working in a collective, synchronous and asynchronous way.

Taking advantage of the possibilities of this teaching system offers opportunities for reflection, exchange and discussion of the content being learned; it broadens the interactions from a framework of cognitive and affective relationships measured by the computer, which become significant for all participants, to the extent that it is possible to expand the full communicative relationship with others, through collaborative learning networks and respond to the continuous and rapid changes of the information society.

Thus, the relevance given to social interactions, which take place in the teaching-learning activities, offered by e-learning, values the possibilities to favor a virtual collaborative environment different to the one produced in a face-to-face environment. It is necessary to take into account that students share a common space. The specific conditions of the virtual space allow access to forms of relationship that ensure the exchange of messages and dialogue, from which the elaboration of knowledge takes place, in a collaborative way.

According to this position, one of the most significant aspects of e-learning for the construction of social knowledge is associated with the conditions for the creation of learning communities on the web. These potentialities have made possible the dissemination and use of this platform in the university environment from which it is intended to improve the academic work of teachers and students, optimize available technological resources, make the academic offer more flexible to meet all the needs and potential of students and, consequently, improve the quality of the training process.

However, together with the advantages provided by the use of e-learning in the teaching-learning systems, it also faces limitations that become didactic challenges that must be addressed, above all, by the changes it promotes, both in the role of teachers, as in the ways of learning, in the ways of sharing and communicating knowledge, in the times and spaces in which learning happens.

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## The limitations and chalanes of e-learning in Higher Education

The change in educational orientation that promotes e-learning in higher education is identified with the role of the teacher and the students; the former have the responsibility to guide students in a wide range of sources of information and knowledge that must be selected, evaluated, adapted to guide students in the collaborative construction of knowledge, which is generated in a framework of meaningful interactions for learning. Now, the teacher goes from being a facilitator who proposes tasks, problems or projects and promotes motivations in the students to achieve that they can build the significant knowledge for them and for those with whom they share the same learning space.

Then, as the role of the student and the teacher in the interactions that take place in the virtual learning environment expands, the construction of knowledge becomes increasingly social, to the extent that it constitutes an experience of collaborative work and group communication, from which a greater contextualization and social relevance of learning is achieved and contributes to the creation of a culture focused on the growth and development of citizens.

From this perspective, the direction of the teaching-learning process through e-learning becomes increasingly social insofar as it provides opportunities for the interactions between the teacher and the participants to provide relevant information for life and to foster the development of reflective and critical thinking; independence and autonomy in decision-making consolidate the need to participate and collaborate in the socialization of the knowledge that each one builds from the interpretation and attitudes they assume in the face of the scientific, technological and social problems and situations they face.

These considerations have led to making e-learning a challenge in higher education, since the concept assumed must respond with objectivity and contextualization to questions such as: at what time, what objectives and what type of learning, we want to achieve. These decisions inform the didactic rationality that is followed when reflecting on what contents, with what resources and what activities can be carried out. The limitation in this sense is identified with the possibilities that teachers have to make the most appropriate decisions. (Mondéjary Vargas, 2006) Likewise, it should be taken into account that the experience in the use of e-learning in teaching and learning, in higher education, also responds to the purposes and academic possibilities of the subject it teaches, as stated by López and Hernández, (2016) on:

> "The teacher must then face a process of analysis to assess the potential of the platform to meet the training objectives, but it is a requirement to establish the correspondence of these with the epistemological rationality of the subject and the characteristics of students depending on the program to be taught. (p. 8)

It is in this network of relationships that the teacher must identify the type of social knowledge that is being built and the strategies that will be used to achieve it, which endorses the potential of this type of platform to meet the training objectives of this educational system. In this regard, it is noted that this type of platform facilitates the management, organization of knowledge, the use of hypertextual representations and the acquisition of information through simulations that facilitate the fulfillment of the objectives of this educational level.

Overcoming these limitations is necessary to ensure the extension and sustainable use of the e-learning platform. Teachers can solve these issues to the extent that they achieve mastery of the knowledge of the discipline they teach and are prepared to solve the didactic issues that often cover up the deficit of information and knowledge of the advantages that this platform offers them.

The didactic decisions will depend on the degree of knowledge and skill in the handling of the platforms and the disposition that it has to change its methods of teaching and to face the advantage of the possibilities of the virtual tools, in the process of teaching learning. But, at the same time, it is necessary to recognize that the teacher values change as an additional burden to his/her usual activity and tends to justify the lack of disposition to get actively involved in this process, with the problems he/she faces, especially those related to the lack of time, the insufficiencies in the development of computer skills, the diffuse quality standards for e-learning and the lack of official recognition of the teachers' activity, when elaborating the didactic material he/she demands.

Therefore, it is not a question of recognizing the advantages of this platform, but of knowing how to discover and experiment with new didactic approaches to advance in the profitable, sustainable and quality use of e-learning technology, in correspondence with the pedagogical model assumed by the educational institution. As referred by Obando in his research:

> "Teaching and learning (...) in a virtual learning environment, encourage interaction and distribution of teaching presence. This should be promoted from the cognitive and affective aspects, since in the case studied the dimension of management of meanings is emphasized, which generates few opportunities to promote management corresponding to the affective and social part, factors necessary for the construction of knowledge in today's information society" (p. 40).

With the commitment to contribute to the understanding of this topic and to clear up the conceptions that are interwoven around the analyses and reflections that university professors possess, an opinion study was carried out with professors of the Physical Culture career in order to facilitate their task.

## MATERIAL Y METHODS

The experience of the authors, as university professors of the Physical Culture career, allows us to confirm that in the last decades, professors have assumed the irreversibility of the didactic change that the Ecuadorian university has today; however, this global appreciation also makes clear the need to unveil the potentialities and limitations with which the concretion of initiatives and didactic proposals have been generated, supported by the e-learning platform that is used for the construction of social knowledge in students.

Sharing the interest in this topic, a quantitative research was carried out, using methods and techniques that allowed the gathering of information and its analysis in the Physical Culture career at the University of Guayaquil. Due to the didactic specificity of its programs and the orientation of the practical tradition of this area of knowledge, restrictions in the evaluation and use of e-learning can be appreciated. Therefore, it was decided to explore, by means of a survey, teachers and students,

as well as systematic observations of the teaching-learning process in e-learning platforms and the didactic experiences used in the career, especially, in the possibilities and limitations with which this type of resource was used.

The study was based on the deliberate selection of a sample of 98 university teachers (60 % of the population), representing the diversity of training and experience as university teachers. However, it also considered the willingness and commitment to participate in the process.

For the study, the information obtained through the questionnaire and observation was triangulated, in which the concepts and practices of implementation of curricular projects based on the e-learning platform were investigated, taking into account the availability of technological resources and the possibilities of interconnectivity available. A discussion group was used as a compulsory exercise to promote the analysis of the results of the questionnaire.

Inferential statistics procedures were used to draw conclusions about the analysis of the data collected in the research sample, as well as its determination, the mean and frequencies of the data that provided the following results.

## RESULTS AND DISCUSSION

The results warn that 100 % of the teachers recognize the value of e-learning, emphasizing that the training purposes of this type of platform are aimed at turning students into active learning protagonists and promoting collaborative work in the construction of knowledge, stimulating the development of reflection, exchange and discussion of content. At the same time, 87 % of the teachers emphasize that, by favoring a virtual collaborative environment and accessing forms of relationship that ensure the exchange of messages and dialogue, knowledge is elaborated and learning communities are created on the web, which broadens the possibilities of social relations.

However, a group of teachers (60 %) considers that they are not prepared to take on this type of teaching model, as they warn that they have limitations in technological skills (55 %) and do not know the procedures for working on the platform (68 %). In addition, they consider that the subjects they teach have few possibilities for using e-learning (40 %) and 35 % declare that they do not have much time to opt for this working methodology.

When exploring the potential of e-learning-based teaching, they consider that they recognize the importance of the use of information and communication technologies in the teaching-learning process and identify that the use of virtual environments is a demand and a need for higher education because it creates possibilities for serving the greatest number of students; it broadens the spaces for interaction and opens up the possibilities for each student in the process of building knowledge.

Also, they recognize that the interactivity that is generated in the teaching-learning activities using e-learning, is very valuable to achieve respect for learning rhythms and promote critical reflection on various topics and authors, in an environment of collaboration and cooperation, training and ongoing interaction that allows to emphasize the formation of values and social learning as autonomy, self-confidence and communication.

The position of teachers regarding the possibility of using this type of platform is positive; however, it tends to be conservative, especially when they insist that the subjects being taught require a period of attendance and warn that it is difficult for them to be able to modify the conception with which they were trained and have been teaching for some time.

In this regard, they emphasize the demonstrative character and development of physical and methodological skills that include the professional performance of the physical culture teacher. However, they refer to the usefulness of the platform as a means of maintaining open communication between students and teachers, which makes it possible for the teaching-learning process to be adjusted to students' times and needs.

When examining the relationship between these conceptions and their experiences in the application of e - learning, they warn that they have received information in the course of training, that they have shared the results of other teachers and that they have informed themselves in a self-taught way about the demands established by the current pedagogical model; but, they still do not systematically develop experiences of this didactic model and there is a certain lack of knowledge about how to use web 2.0 tools such as blogs, wikis, social/professional networks or discussion forums.

As for the resources offered by the platform, it is remarkable that teachers recognize the possibilities of intertextuality and communication; they assume that these are the most important knowledge that e - learning fosters; but, only 34% of teachers recognize that this platform can contribute to the construction of social knowledge. This consideration, when analyzed in-group discussion, is related to the academic intent attributed to it and the sectarian vision with which they analyze the teaching-learning content.

The seventy-eight percent of the teachers expressed that they are interested in preparing themselves to implement e-learning in their academic work, since it not only allows them to optimize the use of available technological resources, but also improves the quality of their work by making time more flexible, deepening and adapting the academic offer to the needs and potential of the students.

In this respect, they recommend that courses be organized for them and that they be trained to use the e-learning platform. They insist that there are no instructions or manuals that allow them to appropriate the theoretical and didactic considerations that support the use of this type of platform for the teaching learning of subjects in the Physical Culture career. They also add a complaint related to the existence of difficulties in access and availability of the network that may affect the development of virtual activities.

In view of the discussion about the possibility of using e-learning in the career, 98 % of the teachers assure that it is more appropriate to use the mixed model that combines its use in presential and virtual activities, above all, if we take into account that the Sciences of Physical Activity and Sport have as a tradition that the teaching-learning process, due to its technical procedural and attitudinal character, is developed in a determined context or physical environment. However, 100 % accept the idea that there are subjects in which students can analyze, reflect, develop and examine their abilities through some contents through this virtual platform.



By identifying the type of content that is likely to be addressed by e-learning, teachers have an open mind. In this sense, they identify that theoretical and methodological issue of subjects of the general cycle Language, Research Methodology, Languages or Computing, as well as with subjects of the profession, such as Physiology of Physical Education and Sport, Didactics of Physical Education or specific sports contents. These subjects can be included in activities supported by this platform; 98 % maintain their position in which they should be combined with face-to-face activities, especially practical ones, in which they develop skills for teaching and learning physical culture. However, 62 % state that they can be used for curricular assessment of all subjects.

By recognizing the advantages of e-learning in expanding the training possibilities of interaction between the teacher and other participants and diversifying access to academic knowledge, responding to the needs and potential of students, teachers see the contribution of virtual environments to exercise reflective thinking and encourage the development of independence, collaboration and autonomy as learning that can be developed in higher education.

However, in this framework, the didactic nature of the decisions, in correspondence with the objective, contents and activities that are designed to favor e-learning, is not only based on the access to technology and the disposition of the professors to use them; it is evident that a limitation to achieve it is in the lack of preparation for the handling of the platforms and, in particular, to change the teaching methods that will allow the optimal use of the virtual tools in the teaching-learning process.

By way of conclusion, it is suggested that the transition to computer-mediated teaching models increasingly expands the possibilities of using resources or applications that facilitate the exchange of ideas and knowledge in an attractive manner, while at the same time promoting the development of proposals that can be shared with others.

In particular, e-learning is having a wide reception in university education, by ensuring that it provides the student with the appropriation of knowledge, skills, attitudes that allow them to develop in the live context and in their own way. The contribution of this platform to the construction of social knowledge is based on them.

However, it should be borne in mind that the e-learning contribution is based on the role attributed to didactic decisions and the preparation of teachers to direct the teaching-learning process.

The study carried out with professors of the Physical Culture career at the University of Guayaquil revealed that the professors of the Physical Culture career confirm the advantages that e-learning has in the training process of university students, above all, to develop skills and values related to the handling of virtual environments useful for self-learning of subjects related to knowledge management, the construction of social knowledge; but they warn that there are limitations referred to the rationality of certain contents of the curriculum that require face-to-face activities, which is why they bet on a mixed didactic model.

In correspondence with this situation, teachers draw attention to the limitations that still exist among the teaching staff in the management of e-learning resources and the connectivity difficulties they may face. This justifies the teachers' claim about the need to promote courses and indications that allow them to learn how to support the technological and didactic process of e-learning in Higher Education.

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**Conflict of interests**:

The authors declare not to have any interest conflicts.

**Authors' contribution**:

The authors have participated in the writing of the work and analysis of the documents.