

Proposal of an instrument to evaluate interaction spaces in a VLE

Propuesta de Instrumento para evaluar espacios de interacción en un VLE

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Abstract

A virtual learning environment is conceived as an interaction space that ease the realization of mediated activities by technology, in this case the internet; besides using multimedia materials, learning objects, social networks, among others; which have changed imminently the traditional education. In this article an instrument is proposed in a checklist format, to evaluate any platform that has interaction spaces such as a Virtual Learning Environment, in this case responding to four spaces or general indicators: information Space, Mediation / Interaction Space, Instructional Design Space and Exhibition Space. Criteria are used according to the interactions and activities carried out by the consultant and virtual student. These, in turn, come up from the analysis and interaction of the advisers achieved in the discussion forums and portfolio activities through collaborative work. It was situated as a qualitative research, with a descriptive nature since it is not limited to data collection only, but also it refers and analyzes the interaction of the advisers achieved in the discussion forums and portfolio activities through the collaborative work of the workshop course "Virtual Learning Environments" developed in a virtual learning environment.

Instrument, Evaluation, Spaces, Interaction, VLE

Resumen

Se concibe un ambiente virtual de aprendizaje como un espacio de interacción que facilita la realización de actividades mediadas por tecnología, en este caso el internet; además de utilizar materiales multimedia, objetos de aprendizaje, redes sociales, entre otras; los cuales han cambiado de manera inminente la educación tradicional. En este artículo se propone un instrumento en formato Lista de cotejo, para evaluar cualquier plataforma que cuente con espacios de interacción como un Ambiente Virtual de Aprendizaje, en este caso respondiendo a cuatro espacios o indicadores generales: Espacio de Información, Espacio de Mediación/Interacción, Espacio de Diseño Instruccional y Espacio de Exhibición. Se utilizan criterios de acuerdo a las interacciones y actividades que realiza el asesor y estudiante virtual. Estos a su vez surgen del análisis e interacción de los asesores lograda en los foros de discusión y actividades de portafolio mediante el trabajo colaborativo. Se sitúo como una investigación cualitativa, de carácter descriptivo ya que no se limita sólo a la recolección de datos, sino que refiere y analiza la interacción de los asesores lograda en los foros de discusión y actividades de portafolio mediante el trabajo colaborativo del curso taller "Ambientes de Aprendizaje Virtuales" desarrollado en un ambiente virtual de aprendizaje.

Instrumento, Evaluación, Espacios, Interacción, VLE, Plataforma virtual

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Introduction

Belloch (2012) addresses that an environment is a combination of resources, interactivity, support and structured learning activities, which in order to develop them we must know the strengths and limitations of the computer support or virtual platform to use.

In a preliminary way, a virtual learning environment can be conceived as a space where activities are carried out using technologies, such as the Internet, multimedia materials and learning objects, among others, which at the same time have significantly changed traditional education.

These environments favor situations for the student to apply knowledge, experiences and new elements that form processes of analysis, reflection, and understanding, but above all of appropriation of contents, where the distance aspect is present, that is, without a physical presence.

The virtual platforms have been transformed into a significant strategy in Education, using technology, providing students with autonomy, in the sense of meaningful learning, and that probably by encouraging this allows for virtual interaction with their teacher, causing stimuli and responses. direct, that without a doubt this should be expected to meet the objectives of the program.

The platforms are adaptable to the characteristics and needs of the user since they have different roles, teachers, tutors, administrators and students, thus enabling communication and interaction between student, teacher and tutor.

Valencia, Huertas and Baracaldo (2013) refer, that within the framework of the ICT competency standards for teachers proposed by UNESCO (2017) in their book: Teachers and their virtual learning, addresses that an interesting contribution are educational initiatives using virtual learning environments, by building a different form of Educational Technology, such as the use of the Intel Educar Portfolio that starts from a pedagogical approach and flexible teaching strategies to contextualize according to different fields.

Where virtual learning defines it as an interactive computer program of a pedagogical nature that has an integrated communication capacity.

In that sense, López and Bellusci (2012) report that UNESCO by including objectives for the strengthening of teaching capacities, using Virtual Learning Environments, as a teaching-learning modality to improve the quality of learning provides a series of advantages to the operation of his teaching practice.

On the one hand, it promotes high levels of interactivity and fluid communication and, on the other, it creates collaborative work, where participants interact multidirectionally and learn from everyone.

In the same way, to address the concept of Virtual Learning Environment (VLE), Coll and Monereo (2008), they say that it is necessary to place it in dimensions of computational learning analysis from the perspective of pedagogy, such as the epistemological orientation, the psychological and educational reference models, the knowledge domain, the role of the teacher and student and the original design of the activities to be carried out.

Starting from these, for the present investigation two work concepts were taken, the first one refers to the concept of Computer-Based Learning Environments (CBLE), and the second, to the concept of virtual learning environments (VLE).

Authors such as: Acevedo (2005); Greene, Moos and Azevedo (2011) report that CBLE is a powerful tool to improve learning, develop metacognitive and self-regulation skills.

Likewise, López and Hederich (2010) point out that CBLE have certain advantages to traditional teaching methods, in which they mention: potential for students to be autonomous and learn at their own pace; ability to interact between participants, and ability to articulate different formats simultaneously in the presentation of information.

Thus, a VLE, Coll and Monereo, (2008) describe it, to the organizations, communities, activities and practices that operate and take place on the Internet; and its potential is stressed by allowing communication between users, similar to that carried out face to face. They present it as an information space made for an educational process and that allows communication between participants to be developed by developing the theme established for learning.

For Monroy et al. (2013) report that a learning environment is the gathering of factors within which the set of interactions between individuals affect, in order to achieve learning. These factors are physical, psychological, technological, content, interaction and very important efficient communication.

They mention that the characteristics of learning environments are varied, but they can be referred to as follows:

- a) It can be presence or virtual.
- b) They provide to those who participate in it, the motivation and reinforcement of feelings of security.
- c) It refers to the physical environment.
- d) Promotion and reinforcement of experiences, attitudes and relationships with the environment and the infrastructure necessary to fulfill the purposes of an educational proposal.
- e) Consider the characteristics of the participants.
- f) Promotes interactions between participants in the learning environment.
- g) It is based on a need for improvement and learning.
- h) It is a moving environment.
- i) Consider the general psychological processes and principles of learning.
- j) Consider the nature of the contents and processes required for your learning.
- k) It is a delimited environment.

Thus, these learning environments, whether they are called VLE or CBLE, are favored with the inclusion of technologies and the internet, strengthen virtual education, where activities take place without the physical presence between students and advisors, in a platform with the use and help of various media and with a specific instructional design.

In that sense, that he considers the psychological principles of learning, Tobón, Prieto and Fraile (2010) refer, that he has his fundamental initiations in the psychology of learning and in sociology.

Likewise, the virtual learning environment has involved ways of working where technology and interaction between the participants are implemented, developing lessons in online courses where planning, instructional design, monitoring and evaluation are required.

In that sense, the instruments, means, materials, a stipulated methodology and the interaction and mediation between the participants, do not guarantee the learning and the optimal results, Ávila and Bosco (2001) refer, that these contribute so that it is carried out in a way determined, but required for it, the process of construction, assimilation, understanding, responsibility, and determination by the student.

In this way, students learn certain content, develop skills, creativity and competencies, where they interact with the reality of the context where it develops, using reason, making value judgments, proposing strategies or solving problems.

This way of learning is based on a self-control of one's own knowledge, Marti (2000) states, which is the intellectual process, through which the subject implements cognitive and metacognitive, sequential, objective, procedural and formalized strategies to obtain strategic knowledge. This process is governed by principles of action such as: a manifest interest in reasons that motivate deliberate action; recognition of previous learning experiences; the establishment of new relationships between learning - work - everyday life, as well as between theory and practice; the identification of intrinsic motivation and the development of personal self-regulation potential.

For this, in a Virtual Learning Environment, where the student is responsible for their development and progress in the program they are studying, autonomous learning is decisive. Valle, Núñez, González-Penda, Rosario, Rodríguez, and González (2007) pointed out that autonomous learning refers to the degree of student intervention in establishing their objectives, procedures, resources, evaluation and learning moments, from the active role that they must have in the face of current training needs, in which the student can and should contribute their previous knowledge and experiences, from which it is intended to revitalize learning and give it significance.

For Martínez (2004), autonomous learning is a process where the student self-regulates their learning and becomes aware of their own cognitive and socio-affective processes. This awareness is what is called metacognition. The pedagogical effort in this case is oriented towards the formation of subjects focused on solving specific aspects of their own learning, and not only on solving a specific task, that is, orienting the student to question, review, plan, control and evaluate your own learning action.

According to the above, it can be affirmed that autonomous learning is favored with the interaction between participants, where messages and contributions, when displayed and shared on the virtual learning platform, allow students to receive contributions, feedback, doubts, refutations, questions, congratulations, among other manifestations, in addition to allowing the student to reflect, analyze and deepen the contribution, and with it the power to modify or debate and defend the content of their messages, and all this it is supposed to allow you to experience a learning.

That is why, virtual education and specifically virtual learning environments must be taken care of in a deep way, to identify what is happening inside the environment, how the activities are carried out on the platform, if the planned learning They are the ones that are being developed and in a special way, if the spaces available to the platform are desirable for the achievement of these learning and objectives.

Martín & López, (2012), comment that given the possibilities of establishing synchronous and asynchronous communications between the different members of the learning community, offering contextualized and meaningful experiences for the student.

They say that a virtual space is an interactive environment based on the Internet, with real scenarios that have been formed using virtual reality technologies.

The technology used to develop these spaces is called VRML which stands for Virtual Reality Modeling Language. It is a virtual reality modeling fundamentally adapted for the Internet that allows you to define 3D objects and combine them in scenes and worlds, where you can incorporate animations, multimedia elements, where interactions play a determining role.

Thus, the spaces that the Virtual Learning Environment has, specifically in the platform where educational programs are developed, in this case it refers to those of Higher Secondary Education and Higher Education of the SUV of the UdeG, it is essential to investigate them, since no there is a physical presence of a teacher, advisor, facilitator or teacher who guides, transmits or guides the contents; as well as students are not subject to predetermined schedules, facilities and transfers; that is to say that knowledge is approached in a flexible way, which also adjusts to the needs and availability of time according to the student regardless of age, social status or personal status; resulting in autonomous learning.

Even though in these environments, the center is the student and autonomous learning, the teacher, who within the SUV model, is called an advisor, continues to be a determining figure in the student's learning, because in addition to being an expert in his area and in the subject that he advises, he needs to have theoretical knowledge and technical and pedagogical skills to be able to propitiate and motivate student learning.

Likewise, it serves as a mediator of the educational process in the field of planning, in work dynamics, in instructional design and in learning strategies with the aim of knowledge construction.

This leads us to the adviser to achieve this mediation with optimum quality, must manage the platforms in an organized, clear and concrete way. But in addition to this type of teaching profile, what will have to contain the spaces of the platforms that allow to meet these quality standards in learning management? For Boneu (2007) there are four basic and essential characteristics that any platform such as a Virtual Learning Environment should have:

- **Interactivity:** make the person using the platform aware that he is the protagonist of his training.
- **Flexibility:** a set of functionalities that allow the e-learning system to have an easy adaptation in the organization where you want to implement, in relation to the institutional structure, the study plans of the institution and, finally, the contents and pedagogical styles of the organization.
- **Scalability:** the ability of the e-learning platform to work equally with a small or large number of users.
- **Standardization:** Possibility of importing and exporting courses in standard formats such as SCORM (Sharable Content Object Reference Model) which are a set of standards and specifications that allow the creation of structured pedagogical objects.

One of the main characteristics of the Virtual Learning Environments from the perspective of communicative processes, is that they must have very limited spaces, which Chan (2004) refers to as follows:

- “The information space is where the various types of inputs to be processed are located. In this space you can present the information organized or to be inquired by the students. Information can be provided by many different means: exhibitions, documents, databases, images, graphics.
- The interaction space is one in which situations are arranged so that the subjects of information exchange information of all kinds: opinions, products of their work, doubts, projects, creative expressions.

- In the production space there are tools and devices for information processing, exercise, problem solving.
- The exhibition space is characterized by being a space for the circulation of learning products, for the socialization of its results. In this space the students express the achievements of their effort and in turn expose what they find in the products of others”. (p.10).

Thus, there is a need to identify the spaces that have the platform where different SUV educational programs are developed and offered, in addition to creating an instrument that helps evaluate the expected quality standards of learning management in the different programs offered.

Developing

1. Context

The present study was carried out with 40 advisors who provided advice in different disciplinary areas both in the General Baccalaureate for Interdisciplinary Areas and in SUV Programs of the UdeG, during the period from August to December 2017.

The advisors participated in a course-workshop where they would discuss how to manage virtual learning environments to favor and induce student learning. The criteria for selecting the participating advisors were those of being an advisor to either the General Baccalaureate for Interdisciplinary Areas or any Bachelor Program offered in the SUV; have teaching experience, minimum of three years and know concepts about virtual environments.

Thus, two of the teacher trainers who taught this course decided to deepen the information of the same because it is an essential topic to promote quality in the management of learning in virtual environments, therefore, they were given the task of formulating the following investigation questions:

- a) Does the platform as a virtual learning environment of the SUV have defined spaces?

- b) What will have to contain the spaces of the platforms that allow to meet the expected quality standards in learning management?
- c) Does the platform as VLE of the SUV in its Baccalaureate and Higher Education courses present the organized information?
- d) Does the mediation and interaction that occurs on the platform as VLE of the SUV in its Baccalaureate and Higher Education courses contain enough elements for the exchange of information of all kinds?
- e) Does the instructional design of the courses hosted in a VLE of the SUV in its Baccalaureate and Higher Education courses present sufficient elements to process all types of information?
- f) Can the advisor and the student evaluate the interaction spaces of the virtual learning environment of the SUV?

Based on the foregoing, the research objective was to design an instrument under the "Checklist" format that favors the evaluation of the Virtual Learning Environments of the academic programs offered by the SUV of the UdeG.

2. Methodology

It was located as a non-experimental, descriptive-transversal research, with a mixed approach. According to Danhke, (1989). "Descriptive studies seek to specify the properties, characteristics and important profiles of people, groups, communities or any other phenomenon that is subject to an analysis" (Hernández Sampieri, Fernández and Baptista, 1998, p102).

2.1. Techniques and instruments for data collection

This study was not only limited to the collection of data, but also refers to and analyzes the interaction of the advisors achieved in the discussion forums and portfolio activities through the collaborative work of the workshop course "Virtual Learning Environments" developed in a virtual environment Learning.

For this, Content Analysis is used, which according to Berelson (1952), is a research technique that aims to be objective, systematic and quantitative in the study of the manifest content of the communication.

Content analysis (CA) is both a field of study and an analysis technique. As a field of study, it stands out for its multidisciplinary and for the heterogeneity of currents and traditions that converge in it.

In this technique different sciences coincide, such as linguistics, sociology, anthropology, social psychology, cognitive psychology, political sciences, communication sciences, pedagogy, etc., but, within each of these sciences, currents can converge very different from each other.

In that sense, Santander (2011), says that the AC, is within the social disciplines and bibliometry that focuses on the study of the contents of communication, is the study of materialized human communications. Thus, when exploring texts it is possible to know not only their meaning, but information about their mode of production. Treats the texts not only as granted signs of a meaning produced by its issuer, but as indications that say about that same issuer, or generalizing, indications about the mode of production of a text.

Sayago (2014) refers that the CA should be used as an analysis technique for two reasons:

- a) Because the object of study asks for it, that is, because it is the most appropriate mode for its analysis.

This is a justification, focuses on the methodological, of an ongoing research process.

- b) Because it is decided to carry out a work of discourse analysis and, then, it is based on the choice of the analysis technique and, then, a theme is chosen that fits the possibilities that this technique opens to us.

This one focuses more on the practice of research in a general way, as a way to develop and instruct a theoretical-methodological expertise.

The AC is implemented, as a study technique of materialized human communications, to analyze its meaning and information regarding its mode of production.

Using this technique allowed researchers to objectify information through systematization that refers to the possibility of coding the content that is analyzed; taking into account, from a quantitative approach, the frequency of occurrence of certain words linked to the defined spaces of the virtual platforms that would help meet the expected quality standards in learning management.

This serves to determine that this technique is of a mixed nature, where from the qualitative point of view, it is not only descriptive in nature, since the objectivity that the analyst must have, leads him to use inference, where from a mental evaluation between different concepts, allow to draw a logical implication.

Thus from the quantitative point of view, the data can be coded manually or digitally; the latter linked to powerful application software. In our particular case, the coding was done manually because it is a relatively small sample, where the frequency of occurrence of certain types of content was counted.

2.2. Methodological procedure

During the course development, teacher trainers talked about virtual learning environments, citing several authors; therefore, the participating advisors at the time of carrying out their activities, already had, in addition to their experience, a theoretical basis on this subject. In the workshop course two spaces for communication were promoted: discussion forums and portfolio activities; Thus, some of the most significant activities of the course deposited in these spaces were:

1. Participating advisors were asked to, according to their experience, issue a list of ideas about what they understood by virtual learning space.
2. They were also asked to describe which and how many virtual spaces were suitable for the SUV context.

3. In addition, they were asked to describe what elements each of the virtual spaces should have, so as to allow the evaluation of VLE, in this case, those that contain the academic programs offered by the SUV of the UdeG.
4. Once the collaborative work that involved the analysis and interaction of the advisors, both in discussion forums and in portfolio activities, was carried out, the researchers proceeded to carry out a content analysis manually, where diverse concepts and approaches on what is a virtual space and whose information ordered and classified by researchers, concluded in the following definition of the concept of virtual space:

“Technological medium in which an interactive environment is located that fosters an educational relationship mediated by ICT and whose contents serve as support for the Virtual Learning Teaching Process (PEAV)”.

5. This definition, according to the authors of this research, led to a focus on the activities that contributed to the fulfillment of the objective, immediately the participating advisors were asked to define which and how many virtual spaces were suitable for the SUV context, resulting in the following:
 - a) Expert groups were formed to discuss the spaces that best suited their context, in addition to assessing their functioning in the virtual education platform in which they carry out their teaching practice. Consequently and based on the previous information of Chan (2004) and with some adaptations in the names and functions, by unanimous decision of both the researchers and the participating advisors, the following was obtained:
 - a) Information Space: it presents sufficient information about the planning and development of the course, the organization and scheduling of all learning activities that the student will have to execute.

- b) **Mediation / Interaction Space:** it presents the functions of orientation, motivation, organization and management of the teaching and learning process from the figure of the advisor and the interaction with the student. In addition, the analysis, synthesis and appropriation of information to obtain significant learning is promoted and encouraged..
 - c) **Instructional Design Space:** it presents the methodology used in the course: objectives, competencies that are intended to be achieved, clear and objective writing of instructions that contain the activities that meet the congruence of the objective and competence to be achieved. The digital teaching resources (digital books, notes, notebooks, instructions, audiovisuals, blog, web pages, multimedia, simulators, wikis, learning objects, among others) will also be presented in this space..
 - d) **Exhibition Space:** it presents access and flexibility to the interaction between students and advisors through the design of the educational platform, its design and automation. All this to ensure that students reach high levels of metacognition.
6. Once defined what a virtual space is and how many were suitable for the context of the SUV, as well as the enunciation of each one, the participating advisors were requested, in collaborative work through the forum on the virtual platform where they took After the mentioned course, a series of elements or characteristics that each previously defined space should have is listed.

In this way, a list of evaluation criteria was generated for each of the spaces, possible to be evaluated by the consultants whose practice is teaching learning in virtual environments.

7. Through content analysis, the researchers, prior coding of the data thrown, built an instrument under the format “Checklist to evaluate Virtual Learning Environments”.

3. Results

Through collaborative work, the general indicators that were included for the design of the Checklist to evaluate Virtual Learning Environments were: a) Information Space, b) Mediation / Interaction Space c) Instructional Design Space and d) Exhibition Space . The following figure shows the interaction and conformation of each of these spaces in a Virtual Learning Environment (VLE).

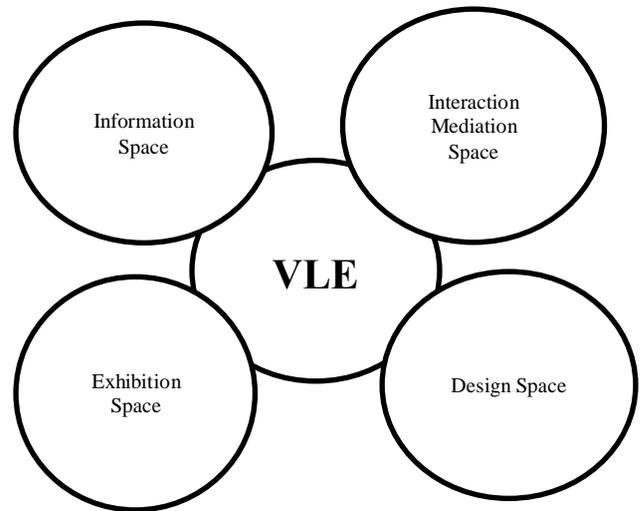


Figure 1 Virtual spaces in a VLE
Source: Self made

Likewise, evaluation criteria were used according to the functions and activities performed by the consultant and virtual student. These in turn arise from the analysis and interaction of the advisors achieved in the discussion forums and portfolio activities through collaborative work.

Below is the Checklist tool, with the evaluation criteria for each of the proposed virtual spaces, in its final version:

Indicators	Evaluation criteria	Yes	No
Information space	1- Information is presented on the platform, sufficient and relevant information about the planning of the course, as well as its development.		
	2- They display the course information in an organized and scheduled manner.		
	3- The platform has graphics and images that make the information more attractive.		
	4- The graphics and images are sufficient, relevant and clear.		
	5- Present videos that complement the information.		
	6- There is congruence in the videos with the object of learning and they have a great quality in both the audio and the images.		

Indicators	Evaluation criteria	Yes	No
Mediation / Interaction Space	7- The advisor fulfills the functions of orientation, motivation and organization of the learning process in a timely manner.		
	8- The advisor plays the role of analyst and guide.		
	9- Instructs, advises and evaluates the advisor to his students in a timely manner.		
	10- The advisor performs the role of instrumenter and intercom, planning and facilitating the use of available teaching resources.		
	11- The advisor manages the learning groups.		
	12- Select and use technological resources according to the established objectives (email, forums, chat, netmeeting, wikis) as support for communication and interaction with students (synchronous and asynchronous).		
	13- The work of a planner and manager is carried out in the development of the course by the advisor.		
	14- The advisor organizes the group work and facilitates coordination among the members.		
	15- The consultant facilitates intellectual / conceptual work techniques for collaborative network study.		
	16- The advisor motivates and ensures that students work at an appropriate pace.		
	17- The advisor promotes and encourages the analysis, synthesis and appropriation of information to obtain meaningful learning.		
	18- Information is provided to the student about the progress of study by the advisor.		
	19- The advisor organizes the interaction clearly defining the roles of the student and advisor.		
	20- Promotes work in the group, between students and advisor, favoring the development of arguments and strengthening collaborative and cooperative work.		
	21- The advisor encourages, stimulates, integrates and conducts student participation.		
	22- The advisor energizes the formative action and the group work.		
	23- The advisor provides timely feedback adding value to the activity carried out by the student.		
	24- Upon feedback, the advisor respectfully suggests proposals to improve the activity delivered by the student.		
	25- Questions or messages are answered by the advisor within 24 hours to the students.		
	26- The advisor suggests extra teaching material (apart from the one that comes in resources).		
	27- The advisor uses videoconferencing to explain doubts.		
	28- The advisor uses teaching resources with different formats (video, graphics, maps, tutorials, among others)		
	29- The advisor promotes metacognition.		
	30- The advisor recovers the previous knowledge of the students.		
	31- The advisor determines the evaluation criteria, qualitative and quantitative and informs students in a timely and clear manner.		

Indicators	Evaluation criteria	Yes	No
Instructional Design Space	32- The methodology used in the course allows students to reach high cognitive levels.		
	33- Complies the course with the learning of the skills necessary to be part of the knowledge.		
	34- The learning objectives are well defined.		
	35- The instructions were written in a clear and objective way that does not allow misinterpretation.		
	36- They present information that implies different forms of relationship with the environment.		
	37- The instructions for carrying out learning activities are in accordance with the objective that is intended to be achieved.		
	38- The instructions present a logical order.		
	39- Learning activities are sufficient for the achievement of skills.		
	40- The didactic resources are congruent with the objective that is intended to be achieved.		
	41- Sufficient resources are presented for carrying out the activities.		
	42- The teaching resources have relevant quality and provide value for learning.		
	43- Designed activities promote metacognition		
	44- The designed activities allow to recover the previous knowledge of the students.		
	45- Evaluation criteria are presented for each of the activities.		
	Exhibition Space	46- The platform is friendly in its navigation and allows quick access to information.	
47- There are adequate spaces on the platform that allow interaction between students and advisors.			
48- Presents the flexibility platform to modify the content modules of a course that is already online.			
49- Information organization is presented in chronological order.			
50- The platform elements are displayed quickly.			
51- There are tools and spaces to provide feedback.			
52- The platform allows subsequent delivery of tasks			
53- The platform allows you to attach several files, as well as edit them when you want to modify.			
54- The design of the platform is friendly and allows the incorporation of blogs and wikis for collaborative work.			
55- The platform is updated automatically.			
56- The platform has forum spaces to resolve doubts immediately.			
57- The platform has chat.			
58- The platform allows the design of relevant evaluation instruments.			
59-It has adequate spaces that allow the student to consult their own progress.			
Totals			

Table 1 Instrument to evaluate interaction spaces in a VLE

Source: Self made, based on Chan M.E. (2004). Trends in educational design for digital learning environments

This analysis achieved success thanks to the interaction activities that ICTs offer, as well as the capacity in the teaching-learning process offered by the forums and the portfolio, and the participation of students and advisors through socialization and discussion on virtual platforms, are a relevant and recurring theme in virtual education (Stacey and Rice, 2002; Cabero, 2004; Solomon, 2000; Harasim et al. 2000; Garrison and Anderson, 2005).

The study shows the power of communication that ICTs have in virtual education, in addition to the use of a mixed methodology in the construction of collaborative knowledge in a network, allowed the characterization of the evaluation criteria with the corresponding indicators in an appropriate manner (Hmelo-Silver, 2003, p. 398; Pungambekar and Luckin, 2003, p. 310).

Conclusions

An effective analysis and discussion of the participants was achieved both in the forum and in the contents of each of the activities delivered in the portfolio.

It was concluded in a definition of the concept of virtual space, this undoubtedly facilitated the context of the advisors to continue with the definition of virtual spaces, which would be taken as indicators and in turn, as a basis for defining the criteria that make up each of these spaces.

According to a thorough analysis of data obtained from the answers that the participating advisors offered and the systematization of the same, the objective of the investigation was fulfilled, which consisted of designing an instrument under the "Checklist List" format that favors the Evaluation of the Virtual Learning Environments of the academic programs offered by the SUV of the UdeG.

Emphasis was placed on what each virtual space contributed, resulting in the following:

a) Information space Present sufficient and organized information about course planning.

b) Mediation / Interaction Space. It presents the functions of orientation, motivation, organization and management of the teaching and learning process from the figure of the advisor and the interaction with the student. In addition, the analysis, synthesis and appropriation of information to obtain significant learning is promoted and encouraged.

It is concluded that the advisor fulfills the following functions:

- Guidance, motivation and organization of the learning process in a timely manner.
- Of analyst and guide.
- Instructs, advises and evaluates the advisor to his students in a timely manner.
- Performs work of planner and manager in the development of the course.
- The advisor organizes group work and facilitates coordination among members.
- Organize the interaction by clearly defining the roles between the student and the advisor.
- It promotes work in the group, between students and advisor, favoring the development of arguments and strengthening collaborative and cooperative work.
- The advisor provides timely feedback adding value to the activity carried out by the student.
- Answer questions or messages from the advisor within 24 hours to the students.

c) Instructional Design Space. It presents the methodology used in the course:

- With the methodology used, students reach high cognitive levels.
- The course meets the learning of the skills necessary to be part of the knowledge.
- The learning objectives are well defined.

The design was designed so that both advisors and students could answer it, taking care of the sense of language and its writing.

Although in a first attempt this format will be applied for the assessors to evaluate, it will also be feasible to apply to students who generate learning in these environments. In this way, by having an evaluation of these spaces, then strategies that favor the management of learning in virtual environments could be issued.

d) Exhibition space The consultants answered the following, so it can be concluded:

- The platform is friendly in its navigation and allows quick access to information.
- The platform has adequate spaces on the platform that allow interaction between students and advisors.
- The platform elements are displayed quickly. And it has tools and spaces to perform the feedback.
- The platform allows subsequent delivery of tasks
- It has adequate spaces that allow the student to check their own progress.

Based on what was obtained in the course-workshop, and according to the results, specific conclusions were obtained to be able to significantly improve the work within a platform, and specifically to improve the spaces of a VLE, according to the perception and experience of the participating advisors.

It is recognized that there are many aspects that would have to be evaluated in a VLE, however, keeping the platforms in force is a guarantee that the student acquires the competences effectively and with optimum quality.

The researchers suggest that once the reference instrument has been applied, by those involved in these virtual learning spaces, take into account the following aspects to improve them:

a) *Difficulties arising from the operation of digital communication channels:*

- Slow information transmission, especially observable when receiving compressed multimedia documents or in real time.
- Unexpected interruption of communication.
- High cost of flat rates.

- Effect "delay" in audiovisual communication in real time.
- Frequent failures in the information servers.
- Interruptions in the power supply.

b) *Difficulties derived from the technological-educational quality of the information:*

- Obsession for the generation of literary content.
- Neglect in the aesthetic quality of graphic and multimedia design.
- Excessive presence of linear text.
- Little creativity and semantic neglect in visual texts and especially in photographs.
- Incorrect approach to schemas and graphics.
- Existence of communicative noise (poor background-figure interaction, inadequate vocabulary, blurred visual texts, unfocused multimedia or with acoustic reception problems, etc.).

c) *Difficulties arising from the methodological and organizational design of the training action:*

- Obsession for the transmission of content.
- Neglect of objectives related to the social and ethical training of citizens.
- Tendency to use methodologies of a behavioral nature.
- Obsession for efficiency in the acquisition of knowledge.
- Tendency to evaluate results, forgetting in many cases the analysis of knowledge construction processes.
- Excessive tendency towards the use of automatic monitoring, evaluation and tutoring systems.
- Neglect in the design of instructional strategies based on the design of "many to many" intercom activities aimed at promoting the creation of shared knowledge.
- Demotivation and occasional abandonment of the learning process in those cases in which instructional design does not favor the development and understanding of activities.

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