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Research Article

VIRTUAL LEARNING ENVIRONMENTS. A PROPOSAL FOR ITS EVALUATION

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ABSTRACT

The learning environments facilitate to those who are in it, the promotion and reinforcement of the feelings of security, dignity and solidarity, involving actions, experiences, attitudes and multiple relationships with the environment and the infrastructure necessary for the accumulation of the purposes that are made explicit in any educational proposal.

This article proposes an instrument in a Checklist format to evaluate any platform as a Virtual Learning Environment, responding to four spaces or general indicators: Information Space, Mediation/Interaction Space, Instructional Design Space and Exhibition Space. Likewise, criteria are used according to the functions and activities carried out by the advisor and virtual student. These in turn arise from the analysis and interaction of the consultants achieved in discussion forums and portfolio activities through collaborative work.

It is classified as a qualitative research, descriptive in nature, as it is not limited to data collection, but also refers to and analyzes the interaction of the consultants achieved in the discussion forums and portfolio activities through the collaborative work of the course "Virtual Learning Environments" developed in a virtual learning environment.

INTRODUCTION

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

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

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.

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UNESCO (1998) in its World Education Report notes that virtual learning environments are a whole new form of Educational Technology and offer a complex array of opportunities and tasks to educational institutions around the world, the environment of Virtual learning defines it as an interactive computer program of pedagogical character that has an integrated communication capacity, that is, is associated with New Technologies.

"A Virtual Learning Environment is the set of environments of interaction, synchronous and asynchronous, where, based on a curricular program, the teaching-learning process is carried out, through a learning management system" LópezRayón, Escalera, Ledesma 2002.

For Monroy *et al* (2013) they refer that a learning environment is the gathering of factors within the set of interactions between individuals affect, for the purpose of learning. These factors are physical, psychological, technological, content, interaction and very important the efficient communication.

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

- Facilitate the promotion and reinforcement of feelings of security and dignity to those who are in it.
- Promotion and reinforcement of the experiences, attitudes and multiple relationships with the environment and the necessary infrastructure for the

accumulation of the purposes of an educational proposal.

- It refers to the physical environment.
- It also refers to the interactions produced in the learning environment.
- It is based on a need.
- Consider the general psychological processes and principles of learning.
- Consider the nature of the contents and processes required for their learning.
- Should consider the characteristics of who you are targeting.
- It is a defined environment.
- It is a moving environment.
- It can be in presence or virtual.

Thus, these learning environments benefited from the incorporation of technologies and the internet, are strengthened in Distance Education, where activities are developed without physical presence between students and counselors, on a platform with the use and help of various media with a particular instructional design.

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

In that sense, the means, instruments, materials, a certain methodology and the interaction between the participants do not guarantee the learning and that they have optimal results, Avila and Bosco (2001) refer that these contribute to the realization of a determined way, requires for this, the process of construction, assimilation, understanding, responsibility, and determination on the part of the student.

Students then learn certain content, develop skills, creativity and skills, where they interact with the reality of the context where it is developed, using reason, making value judgments, proposing strategies or solving problems.

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 A. *et al*. (2007), points out that autonomous learning refers to the student's degree of intervention in the establishment of his/her objectives, procedures, resources, evaluation and learning moments, from the active role they must have in face of the 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 meaning.

Marti (2000) states that it is the intellectual process, through which the subject implements cognitive and metacognitive strategies, sequential, objective, procedural and formalized to obtain strategic knowledge. This process is governed by principles of action such as: a manifest interest in reasons that motivate the deliberate action; the 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 the personal potential of self-regulation.

For Martínez, (2005), autonomous learning is a process where students self-regulate their learning and become 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 concrete aspects of their own learning, and not only in solving a specific task, that is, to guide the student to question, to review, to plan, to control and to evaluate their own learning action.

Based on the above, then we can affirm that the autonomous learning is favored with the interaction between the participants, where the messages and the contributions, when being exhibited and shared in the platform, allow the students to receive from their messages contributions, feedback, doubts, refutations, questions, congratulations, etc., where it allows the student to reflect, analyze and deepen the contribution, and with it the ability to modify or debate and defend the content of their messages, all this is supposed to allow them to experience a learning.

It is for this reason that Distance Education, and specifically virtual learning environments, must be addressed in a profound way, to identify what is happening inside the environment, how activities are performed on the platform, if the planned learning is what is being developed, and especially if the spaces available to the platform are desirable for the achievement of these learning and objectives.

Then, the spaces that have the Virtual Learning Environment, specifically in the platform where educational programs are developed, in this case we will refer to the Educación Media Superior and Educación Superior of the System of Virtual University (SUV) of the University of Guadalajara (UdeG), it is indispensable to investigate them, since there is no physical presence of a teacher, advisor, facilitator or teacher who guides, transmits or orient the contents; as well as students are not subject to a predetermined schedule, facilities or 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.

Even though in these environments, the center is the student and the autonomous learning, the teacher, who within the model of the SUV, is called an advisor, continues to be a determining figure in student learning, as well as being an expert in its Area and in the subject that advises, needs to have theoretical knowledge and technical and pedagogical skills to be able to propitiate and motivate learning in the student. It also serves as a mediator of the educational process in the field of planning, work dynamics, instructional design and learning strategies for the purpose of knowledge construction. This

leads us to the consultant to achieve this mediation with optimal quality, must manage the platforms in an organized, clear and concrete manner. But what will have to contain the platforms that allow to meet these quality standards?

For Boneu (2007) there are four basic, and essential, characteristics that any platform like a Virtual Learning Environment should have:

- *Interactivity:* get the person who is using the platform is aware that is the protagonist of their training.
- *Flexibility:* a set of functionalities that allow the e-learning system to have an easy adaptation in the organization where it is wanted to implement, in relation to the institutional structure, the study plans of the institution and, finally, to 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:* Ability to import and export courses in standard formats like SCORM (Sharable Content Object Reference Model) that are a set of standards and specifications that allows to create 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 refers to in the following way:

- "The information space is where the various types of inputs to be processed are found. In this space you can present the information organized or to be inquired by the students.
  The information can be provided by various means: exhibitions, documents, databases, images, graphics.
- The interaction space is one in which situations are arranged so that the subjects of the 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, performing exercises, problem solving.
- The exhibition space is characterized by being a space for the circulation of the products of learning, for the socialization of its results. In this space students express the achievements of their effort and in turn expose what they find in the products of others. (2004, p.10).

Development

Based on the above, for the present study, the following research questions were formulated:

1. Does the platform as a virtual learning environment of the SUV have defined spaces?
2. Does the platform as AVA of the SUV in its High School and Higher Education courses present the information organized?
3. Does the mediation and interaction that is given on the platform as AVA of the SUV in its Bachillerato and Higher Education courses contain sufficient elements for the exchange of information of all kinds?
4. Does the instructional design of the courses hosted in an AVA of the SUV in its courses of Bachillerato and Higher Education, present sufficient elements to process all type of information?
5. Can the advisor and student evaluate the interaction spaces of the virtual learning environment of the SUV?

Context

The present study was carried out in the Virtual University System of the University of Guadalajara, with 40 advisers who teach both in High School General by Interdisciplinary Areas and in Higher Education Programs, during the period from August to December of 2016.
It consisted of a course-workshop where the consultants would discuss how to manage virtual learning environments to favor and induce students' learning.

For this study, the criteria for selecting the participating consultants were to be a High School General teacher by Interdisciplinary Areas and adviser of any degree program offered in the SUV; have a minimum of three years of teaching experience and knowledge about virtual environments.

METHODOLOGY

It is classified as a qualitative research, descriptive in nature, as it is not limited to data collection, but also refers to and analyzes the interaction of the consultants achieved in the discussion forums and portfolio activities through the collaborative work of the course "Virtual Learning Environments" developed in a virtual learning environment.
To express Danhke, (1989) quoted in Hernández, Fernández and Baptista, (2006, p. 102) "These studies measure concepts, collect information, data (variables), dimensions, components of the phenomenon to investigate."
From the analysis of the consultants participating in the workshop course, an instrument was designed under the format "Checklist to evaluate Virtual Learning Environments", using as indicators the spaces from the perspective of communicative processes, referred to by Chan (2004), that is to say: informative, interactive, production and exhibition. With some adaptations to the same taking into account the agreements of the advisers.

RESULTS

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.

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

The following is the instrument in its final version:

Checklist to Evaluate Virtual Learning Environments

Please answer according to your perception, marking with a cross (X)

Indicators	Evaluation criteria	Yes No
Information Space	1. Information is presented on the platform, sufficient and pertinent on the planning of the course, as well as its development. 2. To present in an organized and scheduled way the information of the course. 3. The platform has graphics and images that make the information more attractive. 4. Graphics and images are sufficient, relevant and clear. 5. They present videos that complement the information. 6. There is congruence in the videos for the purpose of learning and present a great quality in both audio and images.	
Mediation / Interaction Space	7. The consultant fulfills the functions of orientation, motivation and organization of the learning process in a timely manner. 8. The advisor acts as analyst and guide. 9. Instructs, advises and evaluates the adviser to his students in a timely manner. 10. The advisor performs the role of instrumentator and intercom, planning and facilitating the use of available didactic resources. 11. The advisor manages the learning groups. 12. Selects and uses technological resources according to established objectives (e-mail, forums, chat, netmeeting, wikis) as support for communication and interaction with students (synchronous and asynchronous). 13. The work of planner and manager is carried out in the course development by the adviser. 14. The consultant organizes the work in group and facilitates the coordination between the members. 15. The consultant facilitates intellectual / conceptual work techniques for collaborative network study. 16. The counselor motivates and ensures that students work at an appropriate pace. 17. The consultant promotes and encourages to analyze, synthesize and appropriate information to obtain meaningful learning. 18. Information is provided to the student about the progress of study by the counselor. 19. The advisor organizes the interaction clearly defining the roles of the student and advisor. 20. Encourages work in the group, between students and advisor, favoring the development of arguments and strengthening collaborative and cooperative work. 21. The adviser encourages, stimulates, integrates and drives the students' participation. 22. The advisor dynamizes the formative action and the work in group. 23. The adviser feedbacks timely giving value to the activity carried out by the student. 24. When feedback, the advisor suggests respectfully proposals for improvement to the activity delivered by the student. 25. The doubts or messages are answered by the advisor before 24 hours to the students. 26. Suggests the advisor extra teaching material (other than the one that comes in resources). 27. The consultant uses videoconference to explain doubts. 28. The consultant uses didactic resources with different formats (video, graphics, maps, tutorials, among others) 29. The counsel or promotes meta cognition. 30. The counselor recovers the previous knowledge of the students.	
Instructional Design Space	31. The assessor determines the evaluation criteria, qualitative and quantitative and informs the students in a timely and clear manner. 32. The methodology used in the course allows students to reach high levels of cognition. 33. Meets the course with the learning of the necessary competences to be part of the knowledge. 34. The learning objectives are well defined. 35. The instructions were drafted in a clear and objective manner that does not allow misinterpretations. 36. Present information that implies different forms of relation with the environment. 37. The instructions for carrying out learning activities are in accordance with the objective to be achieved. 38. The instructions have a logical order. 39. Learning activities are sufficient for the achievement of goals. 40. The didactic resources are congruent with the objective that is intended to achieve. 41. Sufficient resources are presented for carrying out the activities. 42. The didactic resources present pertinent quality and contribute value for learning. 43. The activities designed 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 a quick access to the information. 47. There are adequate spaces on the platform that allow interaction between students and advisors. 48. The platform presents flexibility to be able to modify the modules of content of a course that is already in line. 49. Information organization is presented in chronological order. 50. The elements of the platform are displayed quickly. 51. There are tools and spaces for feedback. 52. The platform allows later delivery of tasks 53. The platform allows to attach several files, as well as to edit them when they 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 updates 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 his own progress.	
TOTAL		

Elaborated by Morales, R. (2016), based on: Dimensions of the Checklist adapted from Chan, María Elena. (2004) .Trends in educational design for digital learning environments.

CONCLUSIONS

After the analysis and discussion of the participants in both forum and in the portfolio, the final version of the instrument presented was achieved thanks to the contribution of ideas, elaboration of multiple activities and participation in forums, thus achieving the conjunction of all that information the classification of multiple criteria in each of the four indicators shown in the first column.

In a second stage will proceed to the application of itself. The design was designed so that both advisers and students could answer, taking care of the sense of the language and its writing.

We think that it can be very useful to improve the spaces of an AVA, since the diversity of criteria that this instrument presents include in a detailed way what according to the perception and experience of the participating consultants

would require the SUV platform as a virtual environment Learning.

We know that there are many aspects that should be evaluated in an AVA, however, keeping the platforms updated is a guarantee that the student will acquire the skills effectively and with optimal quality.

It is important that with the results obtained those involved in these virtual learning spaces take into account the following aspects to improve them:

Difficulties arising from the operation of digital communication channels

- Slow transmission of information, especially observable when receiving compressed or real-time multimedia documents.
- Unexpected interruption of communication.
- High cost of flat rates.
- "Delay" effect in audiovisual communication in real time.
- Frequent failures in information servers.
- Interruptions in the electricity supply.

Difficulties derived from the technological-educational quality of the information

- Obsession for the generation of literary content.
- Carelessness 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 charts and graphs.
- Existence of communicative noise (poor figure-background interaction, inadequate vocabulary, blurry visual texts, unfocused multimedia or problems with acoustic, reception, etc.).

Difficulty derived from the methodological and organizational design of the training action

- Obsession with the transmission of content.
- Neglect of objectives related to the social and ethical formation of citizens.
- Tendency to use behavioral methodologies.
- Obsession for efficiency in the acquisition of knowledge.
- Tendency to the evaluation of results, forgetting in many cases the analysis of the processes of knowledge construction.
- Excessive tendency towards the use of systems of monitoring, evaluation and automatic tutoring.
- Neglect in the design of instructional strategies based on the design of "many-to-many" intercommunication activities aimed at promoting the creation of shared knowledge.
- Progressive demotivation and occasional abandonment of the learning process in those cases in which the methodological and organizational designs do not favor the establishment of interpersonal (convivial and online) relationships between students and teachers and between students. "(Torres and Ortega, 2003).

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