# Study to implement virtual learning environment in the institution Compartir Suba

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*Abstract*— ***Until the early XXI century was often considered as a distinction if someone had computer knowledge. Currently considered a negative factor not to have them, in fact, analyzing educational hindsight usually in countries at all levels of education are beginning to permeate, and there is increasing demand for people who need knowledge in ICT (information and communication technology). Meanwhile and specifically analyzing secondary education, which aims to empower young people to integrate into society, provide a sufficient basis for them to start college and is also the one that produces the greatest impact on young people and that she begins to develop a personality, so is taking institutions to try to give the widest possible skills and values to their students.***

***Keywords: Virtual Learning Environment (VLE), education, e-learning, ICT (information and communication technology).***

## I. INTRODUCTION

With the support of ICTs (information and communication technology), different approaches have been developed so that students are competent in the activities and situations that arise in certain areas of the workplace [1].

In a study on U.S. competitiveness in science and technology, as requested by the joint commission of Congress of the United States of America, to a committee of independent experts from the scientific community, secondary and higher education, of work and safety, mentioned the danger that the population does not have sufficient knowledge in the ICT (information and communication technology) to contribute to society. It is also argued that the internal and external economy depends increasingly on these areas, but primary and secondary schools do not seem to be able to train enough students with interest, motivation, knowledge and skills they need to compete and thrive in the world [2].

On the other hand, in education, information technology is not only important for the development of technologies, in fact, for years has been begun to use a term that even today is used and continues to transform, which have accompanied the word "Informatics" two new words, forming something called the information Technology and communication (ICT). Among the latest trends in educational approaches, ICT have contributed largely to develop education systems that allow people non-presentiality.

In these approaches, one of the most prominent is the e-learning (educational method currently used in virtual learning environments), which allows for a more enjoyable communication between teachers and students, it provide materials with various learning activities, content and management, for optimum knowledge. In education, this approach offers the opportunity to act with respect to the coordinates of space and time, which is a historic occasion that expands in recent years with relative ease [3].

Currently in Colombia this approach in educational institutions do not have a high maturity, however, is being addressed, as it helps to enhance the learning of both teacher and student through asynchronous or synchronous communication. These approaches require special technology platforms to be deployed in an educational setting.

This type of approach has been growing thanks to ICT and new learning methods, since it makes available to people who are connected to the internet network, the opportunity to learn and expand knowledge that have been gained over the educational process. These are not intended as a replacement for common lessons, but provides support for both the teacher and the student, both must have an interaction.

In this sense and analyzing the context of the schools in the city of Bogota [4], in this paper, social practice mode, we conducted a study for the implementation of a virtual learning environment for the subject of systems that allowed those involved (teachers and students), improve some aspects regarding the information Systems subject. Through the study, was presented a prototype that was implemented in the Institution Educative Compartir, placed in Suba. For all of the above in the development of this project will explore some e-learning tools and standards, state of the art of the e-learning, among others; that these virtual learning environments must take, in order to apply them in the implementation.

This work has been done to implement a Virtual Learning Environment (VLE) to improve the knowledge of systems in the Institution Educative Compartir Suba; to carry out this study was necessary the investigation of the needs, information sources, software, and infrastructure of the Institution Educative Compartir Suba. For this purpose also did research over the history, tools, advantages and disadvantages of the e-learning, methods of education, and deployments of VLE in the Foundation Compartir to get a starting point; to achieve the best information on how it

would the prototype. The prototype would be scalable and extendable if it would be required for other studies.

## II. BACKGROUND

In the developments that have taken education and distance learning, have contributed prominently the Information Technologies and communication, this influence has been noticing with different terms that distinguish each of the following specializations of learning, through the successive learning approaches: d-learning (distance learning), e-learning (electronic learning - e-learning), m-learning (mobile learning), and t-learning (for those processes that use the television, especially digital television as a means of communication).

Each of the learning approaches mentioned above are anglosajones, which are associated with the nature of the support and means by which information is being conveyed. The terms corresponding to the influences that society has with corresponding revolutions industries (18th and 19th century), electronics (decades 1980-1990), wireless (20 century).

According to the influence he had society with the industrial revolution, education and distance learning was born in northern Europe and America in the late XVIII and early XIX centuries. It was no accident that began distance learning with the development of industrial technologies, especially postal communication and transport. Even today, distance education would not be possible in a society that had not acquired a certain level of industrialization [5].

Throughout the boom that had begun in educational institutions on distance learning, Bernard Luskin, president and professor of Applied Psychology, sculpted the term e-learning and beginning Coastline Community College (University without walls), using the TV channel KOCE-TV as a medium. At middle of the decade of the 80s, access to course content became possible in many university libraries. Luskin said the "e" should be interpreted as "exciting, energetic, enthusiastic, emotional, and educational excellent" in addition to "electronic". [6]

Moreover, since the creation of the computer, ICT has boomed and revolutionized all fields in society. One area that has been most benefited is education, since it began to incorporate virtual environments, which are a support to teaching and student learning. The use of ICT has transformed much of the traditional teaching spaces has led to the birth of new learning methods such as virtual learning environments, for creating and managing learning, where teachers and students can interact so as to improve the training process.

However, the e-learning begins to position itself as an educational approach, which uses ICT as a means of deploying content for learning.

In Colombia the e-learning since 2010 has grown by 165% according to figures from Expoelearning (Event high importance in Colombia on this issue). Currently the country, more than 70 e-learning companies offer their services, these companies are classified according to three main groups: national (created in the last five years), mixed (Spanish and Colombian capital, or another country), and foreign (Spanish business delegations, French, German, American). As particular data in the coming years will increase this figure, reaching more than 100 companies will attend the growing demand for online training [7].

## III. CASE STUDY

Moodle stands for "Modular Object-Oriented Dynamic Learning Environment." It is one of the most commonly used today because it is open source, helps educators create learning communities. This type of tool, also known as LMS (Learning Management System). LMS is one of the most popular and is currently living an explosive phase of expansion. Its community of users and developers is very large and is characterized by its enthusiasm for the system.

Its modules are: [8]

- Tasks: in this module records the date they have been uploaded, you can send tasks out of time, but the teacher can clearly see the delay time for each particular task, can be assessed to the entire class (grades and comments).

- Check: used to refer all matters relating to the course.

- Forum: is a space where students can interact dynamically with the head of the virtual classroom, where this can ask questions about a particular topic of the course.

- Journal: are private information between student and teacher. Each journal entry can be motivated by an open question, the whole class can be assessed on a page with a single form for each journal entrance, teacher comments are attached to the entry page of the newspaper and sent mail notification.

- Questionnaire: teachers define a database of questions that may be used in different questionnaires, such questionnaires are articulated according to the topics in the course views.

- Resource: supports the presentation of a large number of digital content tools such as Word, PowerPoint, Excel, Flash, video, sounds, etc. Files can be uploaded and downloaded from the management server and perform the same as the head of virtual learning classroom.

- Survey: Surveys are provided ready-made and proven as instruments for analyzing online classes. You can genérate reports that include graphics surveys.

- Wiki: the teacher can create this module for students to work in groups on the same document. The wiki serves as a basis for maintaining constant communication with members of a study group. [9]

**Table 1:** Hardware Requirements for moodle

| Characteristic | Description |
|---|---|
| Disc | 10 GB |
| RAM | 2 GB |
| CPU | Intel dual core |

**Table 2:** Software Requirements for moodle

| Characteristics | Description |
|---|---|
| Operative System | Windows XP |
| Web Server | Apache HTTP Server 2.4.4 |
| Data base | MySQL 5.6.12 |
| PHP | PHPMyAdmin : 4.0.4 |

The Blackboard Learning System is a virtual learning environment and course management system developed by Blackboard Inc. It is a Web-based server software which features course management, customizable open architecture, and scalable design that allows integration with student information systems and authentication protocols. It may be installed on local servers or hosted by Blackboard ASP Solutions. Its main purposes are to add online elements to courses traditionally delivered face-to-face and to develop completely online courses with few or no face-to-face meetings [10].
The Blackboard Learning System provides users with a platform for communication and sharing content.

**Communication**

- Announcements: Professors and teachers may post announcements for students to read. These can be found under the announcement tab, or can be made to pop-up when a student accesses Blackboard.
- Chat: This function allows those students who are online to chat in real time with other students in their class section.
- Discussions: This feature allows students and professors to create a discussion thread and reply to ones already created.
- Mail: Blackboard mail allows students and teachers to send mail to one another. This feature supports mass emailing to students in a course.

**Content**

- Course content: This feature allows teachers to post articles, assignments, videos etc.
- Calendar: Teachers can use this function to post due dates for assignments and tests.
- Learning modules: This feature is often used for strictly online classes. It allows professors to post different lessons for students to access.
- Assessments: This tab allows teachers to post quizzes and exams and allows students to access them via the internet
- Assignments: This features allows assignments to be posted and students to submit assignments online
- Grade Book: Teachers and professors may post grades on Blackboard for students to view.
- Media Library: Videos and other media may be posted under this function.[11]

Within the e-learning tools investigated, this project will develop with Moodle, as it is one of the most used tools worldwide. Universities, communities, schools and teachers use this tool, as it helps to communicate and relay information to students, and would be helpful to enhance learning of the Institución educativa Compartir sede suba.
To develop the site were used different plugins offered by moodle like their templates, for modification and use of templates dreamweaver software was used.
For some of their activities are used the system SCORM (Sharable Content Object Reference Model) is a set of standards and specifications for creating structured teaching objects. This system has also used Reload (Reusable e-Learning Object Authoring and Delivering) that allows the creation of SCORM packages with greater ease and accessibility is free software created in java.
The course is an introduction to software engineering, using the Java ™ programming language. Where students would learn the fundamentals of Java programming language.

**Objetives:**

- Learning a language computational development - JAVA
- Learn about Oriented Object Programing-OOP

- Learn to analyze and develop solutions for solving a problem.
- Learn to think sequentially to the solution of problems - "Algorithms"
- Learn to use computational tools for understanding and troubleshooting later.

**Goals:**

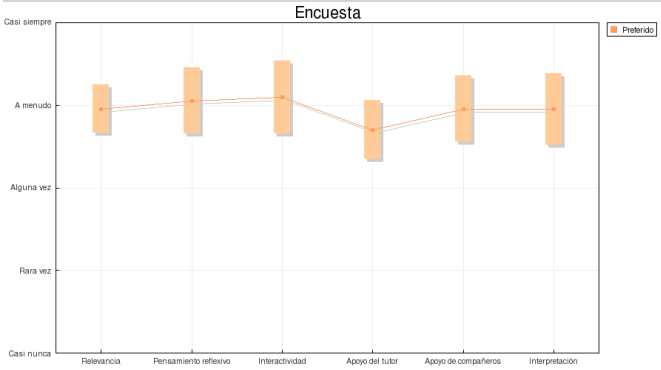
- Enable students to develop small applications in the Java programming language.
- Give tools for students to be competitive in solving computational problems.
- Prepare students who do not have the experience or information on computer science, for easier entry to these sciences.

Prepare students so they can be used computational methods in problems of life.

## IV. ANALYSIS AND RESULTS

With the tests conducted in this research was achieved observing that the implementation would help the students to have a better performance in their studies.

Figure 1: results of the survey of promt of the feelings




Students do not seek much help from the tutor, and think that interactivity is an important part of the development process.

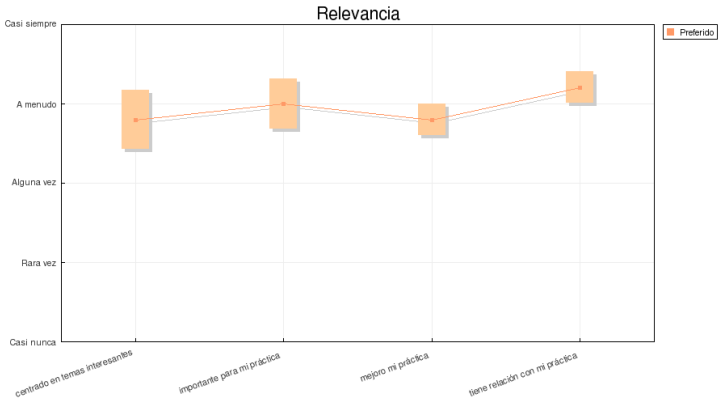



Figure 2: Relevance is good have this kind of tools

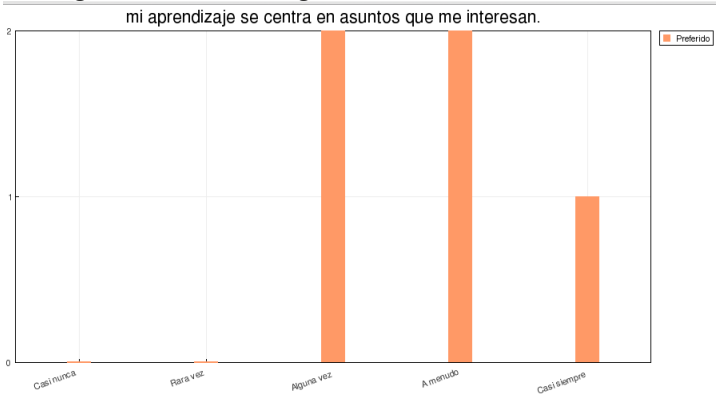



Figure 3: The information is improtant over issues that i like


Figure 4: The information is improtant over issues that would help in my life



Many chose to be of great importance for further development and entry into higher education.

## V. CONCLUSIONS

- After obtaining the results and analyze them could glimpse the efficiency and effectiveness of a virtual learning environment, it empowers students in all aspects that are being explored and reinforced through human-computer interaction.
- After considered all important aspects such as standards and specifications governing the e - learning worldwide, one of the standards work was the SCORM.
- When the study was identified which aspects were not that communication between student and teacher was more enjoyable and that the student is more competent in using new approaches such as e - learning.
- Be able to design a prototype virtual learning environment for the subject of systems, where gathered the most important issues of programming in the Java language.

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