

MonSys - Monitoring System for Students and Tutors of Postgraduate Courses of UNASUS / UFMA in Distance mode using Moodle

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Abstract

The e-learning courses are supported by technological tools that compensate for some limitations, as the distance itself, temporality and emotional issues, among others. It is important that a distance learning course has a proper Learning Management System (LMS) that really supports the teaching / learning process. The work is justified given the need that monitoring teams have to process the information on the courses that are stored in Moodle, which, despite being in a single database, are difficult to recover, but are of great importance to help the monitoring process of the students and tutors. The aim of this paper is to present and evaluate MonSys - Monitoring System of tutors and students - from the implementation of a Monitoring Coordination at UNASUS / UFMA - Open University of SUS of Federal University of Maranhão, in two virtual post-graduation courses using Moodle. To evaluate the MonSys, we measured the time spent by monitoring technical staff of UNASUS / UFMA to process information from Moodle, compared with the time taken to retrieve this information via the MonSys. Using the MonSys, it becomes possible to monitor the students and tutors of the Moodle Learning Management System courses through the online mode, and in a faster way, requiring less effort from the monitoring team for the generation of useful information and allowing greater control and better development of the course. According to the results, the reduction of working time of the monitoring team and the increase in the ability to monitor the access and performance of students and tutors in postgraduate courses were significant, given the demands of UNASUS / UFMA.

Keywords

Learning Management System, Moodle, Monitoring

Introduction

The e-learning courses are supported by technological tools that compensate for some limitations, as the distance itself, temporality and emotional issues, among others. It is important that a distance learning course has a proper Learning Management System (LMS) that really supports the teaching / learning process. The most used Learning Management System is Moodle, which provides numerous features and activities to be used in the teaching / learning process in both classroom and distance learning modalities.

As students, tutors and teachers access Moodle, all data is stored and eventually turn into a real database, which can be used to manage the elements of the e-Learning in accordance with the needs of each institution. Thus, Moodle has the entire history of the students, teachers and tutors, but it is necessary to retrieve online information for the monitoring of this history to be effective. This information is scattered in the pages or predefined reports within Moodle, demanding more time and work of a technical team to properly monitor the courses.

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The aim of this paper is to present and evaluate MonSys - Monitoring System of tutors and students - from the implementation of a Monitoring Coordination at UNASUS / UFMA - Open University of SUS of Federal University of Maranhão, in two virtual post-graduation courses using Moodle.

The study follows the structure of the Revision Theory, presenting the basics of e-learning, LMS and Monitoring. Then we present the MonSys - Monitoring System of UNASUS / UFMA, and details of its modules. Below we detail the methodology used in this work and its results. Finally we describe the completion of the work, from the study and the references cited.

Theoretical Grounding

The e-learning can be defined as a "teacher-student relationship, or a pedagogically mediated teaching and learning, multimedia, composed of various instructional materials and tutorial guidance. This applies to both traditional educational environment and such as those that use new technologies" (Riano, 1997, p. 20).

Distance Learning has specific characteristics, disrupting the concept of presentiality as an indispensable factor in the process of teaching and learning. For e-learning, the pedagogical act is no longer centered on the figure of the teacher, and no longer assumes that learning only happens when a class is performed in the presence of teacher and student.

Its design is based on the fact that the teaching-learning process can be seen as seeking "an autonomous learning, independent, in which the students govern their own learning and becomes the center of the entire system" (Riano, 1997, p. 21).

Moran (2002) describes e-learning as a teaching-learning process, mediated by technology, in which teachers and students are not in the same place at the same time. Bentes, (apud IAHN, 2002) points out, symbolically, the components of e-learning as the tips of a star, to help in understanding.

They are interrelated in an integrated manner, with the support of ICT - Information and Communication Technologies, which enables the effectiveness of the educational process at the same time that conquest and fix its position in education (Figure 1). This means that a star with less than five points does not shine, so, it does not exist.

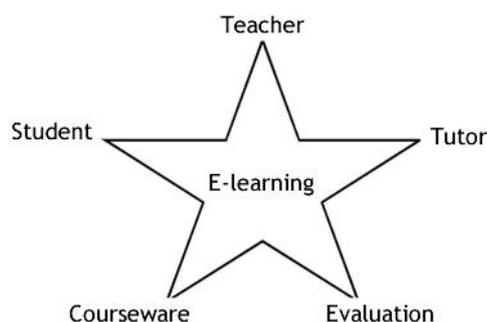


Figure 1: The components of e-Learning - Source: Bentes, (apud IAHN, 2002)

One of the main actors of e-learning is the tutor, who must guide the students in activities, not only showing the right answer, but offering new possibilities of information, interpretation, reflection, understanding and knowledge construction. From this perspective, it is essential that the tutor is aware of his role, which is not only master the content worked, but to know "why" and "the significance of the proposed."

According to Emerenciano et al (2001), "the tutor should establish a relationship with the students in order to create a cordial, human and provocative atmosphere, to help solving doubts of the learning process, as long as provide feedback about academic work done, always motivating students .

The importance of the role of the tutor in e-learning is due, among other things, the fact that he is the immediate contact of the students, being the representative of the institution offering the course, being the representative of the institution offering the course, which will provide the tools students need.

In order to enable all components to be integrated to each other and so that the tutor can play the role entrusted to him in a satisfactory manner, several ICTs are used in distance learning. Among them is the Learning Management System (LMS), which enables the development of more flexible activities in terms of time, space and rhythm.

This provides teachers and tutors the ability to create and conduct distance learning courses, through activities that require the action of the student, such as searching for materials of consultation and participate in evaluation and training activities, following the teaching plan.

The LMS is composed of several tools that enable the publication, interaction and evaluation of resources and activities in the teaching and learning process, as books online, tagging, wikis, chats, forums, journals, quizzes, assignments, among others. For example, a teacher and / or tutor can provide materials, texts, videos, audios and activities. Students access these resources from any location with Web access, exchange ideas, materials, information, answer activities and forums, and interact with tutors, among others. Thus, the LMS enables activities that promote these actions and possibilities are proposed, but requires the centralized model, which emphasizes the transmission of knowledge, is abandoned, becoming a shared process in which the teacher acts as a member of the group, leaving the community the leadership of intervention, monitoring and construction of knowledge activities.

According to Ribeiro et al (2007), the LMSs:

"[...] Provide participants with tools to be used during a course to facilitate the sharing of study materials, hold discussions, collect and review tasks, record notes, and promote interaction, among other features. They contribute to the better use of education and learning."

Moodle is among the most popular LMS, translated into several languages and used in hundreds of countries. Despite having a lot of tools, several data must be processed into information, which is quite time consuming and work of a technical team that collaborates with the coordination of the course, concentrating efforts to monitor students and tutors and guide them on how to participate in a distance learning course.

Monitoring is an essential task for the investigation of extreme situations and to promote improvements in teaching and learning in e-learning. Especially taking into account students who have difficulty participating in problem-solving dialogue, in activities that require synchronous or asynchronous interaction mediated by LMS.

Under the pedagogical point of view, monitoring requires systematic observation of progress of activities, in accordance with the key objectives and concepts. "The reporting allows all the information gathered to be used in making decisions for improving student performance, a task for teachers and tutors to make" Barttle (2007).

MonSys – Monitoring System

The MonSys - Monitoring System was developed in PHP with MySQL database and uses the tables in the Moodle database to retrieve the information needed for monitoring the activities of students and tutors.

The MonSys is designed to monitor the performance of tutors and student activities in Moodle, in accordance with the guidelines established by the UNASUS / UFMA Monitoring Coordination. For example, the number of accesses of tutors and students, students' grades, activities that were not evaluated by the tutors and activities not posted by the students. The MonSys has only one type of user are the technicians who track and monitor students and tutors in Moodle. The MonSys has only one type of user: the technician who accompanies the students and tutors in Moodle.

Figure 02 below shows the user login screen. The user doesn't need to create another account to access it. All he needs to do is enter the Moodle access data, which means that the MonSys already has integration with the Moodle database for user authentication, which facilitates access.

In order to access a trial version of MonSys, simply enter the following address <http://www.unasus.ufma.br/beta/central/>; user: testeadmin; and password: 123456.



Figure 2: MonSys’s User login screen

After the user logs, he can see the initial screen of the system, with options such as: courses, users and notifications, and the categories of courses created in Moodle (Figure 03).



Figure 3: MonSys’s initial screen

Courses Module: this area is designed to manage the information of the courses and their respective disciplines (rooms) within the LMS. In this module the user can:

- view the courses (number of students, beginning date, location, closing date).
- get a summary of the course (start date, number of ratings, number of accesses, average number of accesses);
- view the students’ grades in each discipline;
- view tutors’ access in the discipline, according to an specified number of days;
- view students’ access in the discipline, according to an specified number of days.

As can be seen in Figure 04 below, the Courses Module lists registered rooms and presents a summary of information such as room name, number of students, course start date, if it is visible or hidden, its status and the date scheduled for closure.

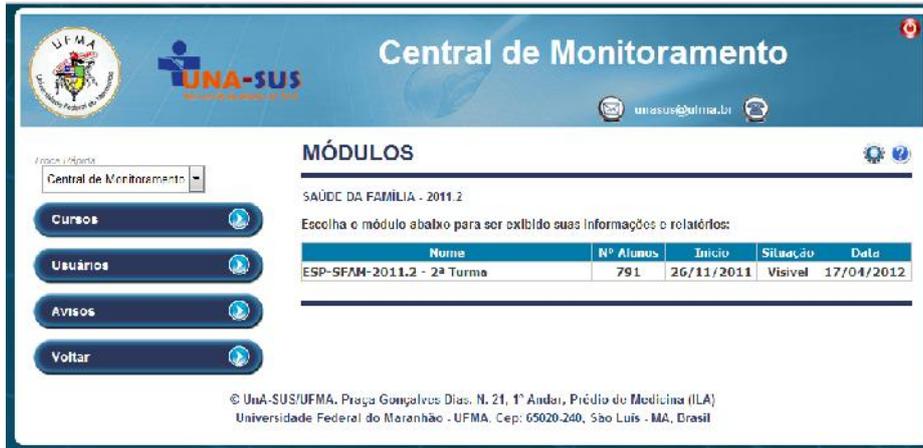


Figure 4: Courses Module lists registered rooms

When the user clicks inside the room, he can see the summary of the discipline or course in a virtual classroom of Moodle, with information such as the start date, number of students, number of ratings, average number of accesses since the room was opened (Figure 05).



Figure 5: Courses Module - view summary information of a course or discipline in a virtual classroom of Moodle

In this module the user can see, beyond the summary, four tabs with information about this course or discipline, as also shown in Figure 05, which shows students' grades in all course or discipline activities. An important detail to note is that we use a hidden activity for the record of classroom activities, and the Moodle calculator for processing the final grade of the student. The online activities have a weight of 40%, while attendance is worth 60% of grade.

Tab Tutor-Access has an option that make a list by the amount of days on which they didn't access Moodle. The MonSys user can configure the number of days according to his needs (Figure 06).

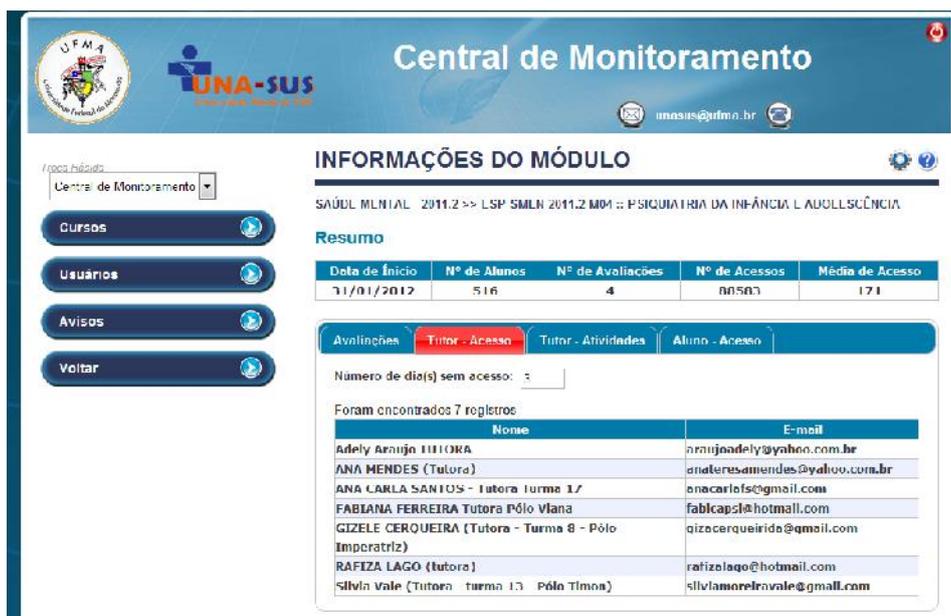


Figure 6: Courses Module - Preview of tab Tutor – Access

Tab Tutor - Activities offers the possibility of listing the tutors who did not rate at least one of the activities of students in the Moodle class (Figure 07).

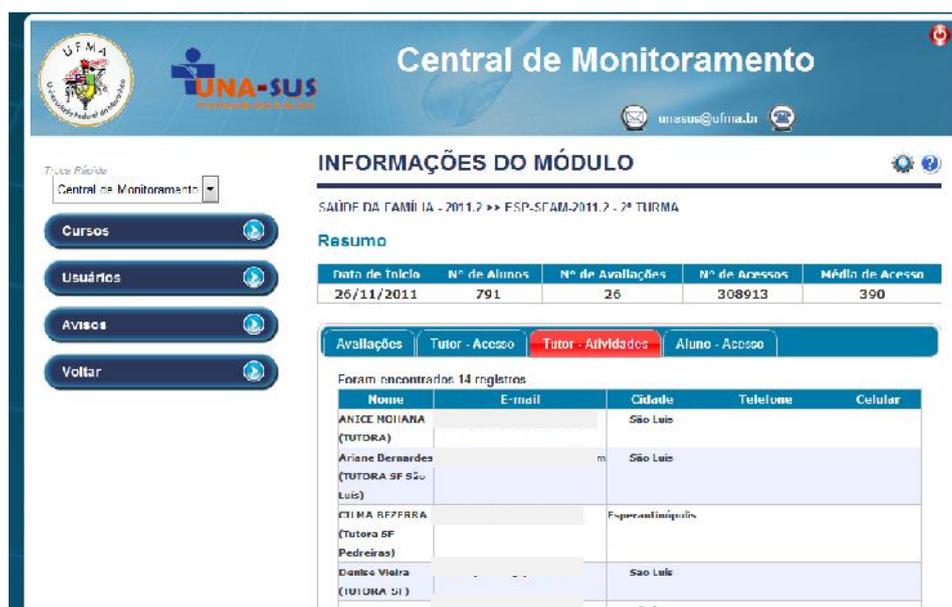


Figure 7: Courses Module - Preview of tab Tutor – Activities

Finally the tab Student - Access of the Courses Module offers a list of the students from their number of accesses, according to the number of days they were without accessing Moodle. The MonSys user can configure the number of days as needed (Figure 08).



Figure 8: Courses Module – Preview of tab Student – Access

User Module: MonSys area to list the names and logins of users of Moodle.

Alerts Module: area to configure the alerts to students and / or tutors who do not access the LMS for a certain period of days. In this module, the user can:

- create, edit, view and delete alerts;
- enable or disable warnings;
- determine the number of days without access and the message that will be sent to tutors and / or students.

Settings Module: area to set some parameters of MonSys. In this module, the user can:

- tab General - set the parameters of the site, the e-mail and the SMTP server for sending e-mail notifications through the Notices Module.

Methodology

The MonSys has been tested by a qualified monitoring team of the UNASUS/UFMA - Federal University of Maranhão - in two post-graduation e-learning courses during the period of 30 days. Both courses have 46 tutors and 1.390 health care students, distributed in 15 presence support poles in the state of Maranhão, Brazil.

In order to evaluate the MonSys, we measured the time spent by technical monitoring team of the UNASUS/UFMA in processing information from Moodle, compared to the time taken to recover the same data through the MonSys.

A pilot study was conducted by a technical specialist and team member of the UNA-SUS/UFMA's Monitoring Coordination, in order to generate the preliminary results of one of the post-graduate sensu lato courses in health offered in the distance. This course is currently in its sixth module, and has 590 students and 19 tutors. It is available on the Moodle of UNASUS / UFMA, and uses a structure of a class (course) for each module in a single category in Moodle, and the resource Groups to carry out the division of work among the tutors.

Measuring productivity of the Monitoring team was done by timing, which is determining the amount of time through chronometric surveys. In addition, we measure the physical effort expended, to compare the performances of economy of motion introduced in a job.

According to Xavier and Silva Seine (2001), by means of timing, one can determine the amount of time required to perform an operation, by measuring the working time spent in elementary operations. According to Barnes (1999), to determine the execution time of an operation, one must take into account the speed at which the operator or technician performs the operation.

The evaluation of the duration of activities in the Moodle environment was made so that the task was timed at normal time, according to the speed of Monitoring team technician. In this study, we used only one technician, so it was not necessary to compare his speed and knowledge with another professional.

During a week of May 2012, specific measurements were performed, using a stopwatch to track the time spent by the technician of UNASUS / UFMA's Monitoring team to do the processing of student information through Moodle, measuring the normal time for the execution of the activity.

Later, during another week, we timed the time spent by the same technician to do the processing of student information through the Monitoring System (SIM).

The same physical environment, hardware and software were used for the study.

Results

As a result, we obtained the times of measurement regarding the specific steps undertaken. Using the VLE (Moodle), were recorded 21m53s for the processing of information of "students' access to the module 6" (Activity A), and 44m18s referring to the "sending activities of Module 3" (Activity B). With the Monitoring System, the measured times were 09m51s and 17m21s respectively.

The comparison between the data collection instruments used allowed observing a decrease in the time spent by the Monitoring System in processing activity, rather than the performance of Moodle. There was a reduction of 54.99% of the time spent on data collection of the variable "Activity A", and 60.9% about the "Activity B".

Further, improvement was observed significant improvement in the following daily UNASUS / UFMA's monitoring of courses through Moodle:

- quick identification of students and tutors with access difficulties or problems to attend.
- reduction in the time of the search for students and tutors who do not access the Moodle;
- reduction in the time of the search for students who didn't do a certain activity in a Moodle course;
- reduction in the time of the search for tutors who did not address a particular activity in a Moodle course;

Conclusion

The MonSys provides the ability to monitor students and tutors on courses based on Learning Management System Moodle in an online and fast way, requiring less effort from the monitoring team to generate useful information for greater control and satisfactory progress of the course.

As shown by the results presented here, reducing the time spent by the monitoring team of UNASUS / UFMA and greater access and monitoring the performance of students and tutors in postgraduate courses were significant in view of the demand.

As future work we are implementing new screens in the MonSys, according to the needs of the monitoring coordination; statistical analysis of time spent in the recovery of information from students and tutors; and the impact of the MonSys to control the dropout of students in UNASUS / UFMA's courses.

References

- BARNES, R. M. Motion Study and Time. 6th edition, St. Paul, Ed Edgard Blucher - Brazil, 1999. BARTTLE, P. What is monitoring and evaluation? 2007. Available at: <<http://www.scn.org/mpfc/modules/mon-whtp.htm>>, no pagination. Accessed: January 2012.
- BENTES, Roberto de Fino. The evaluation of the tutor. In: Litto, Fredric M (ed.). ANT, Mark (ed.). Distance Education: The State of the Art. New York: Person, 2000. p. 166-169.
- EMERENCIANO, et al. Being present as an educator, teacher and tutor. In: Congress of International Distance Education, 8., 2001, Brasília.
- MORAN, Jose Manuel. What is distance education. 2002. Available at: <http://www.eca.usp.br/prof/moran/dist.htm>. Accessed on: 21 December In 2011.
- RIANO, M. B. R. Educational assessment in the distance. In Journal of Distance Education. Rio de Janeiro. Institute for Advanced Research. Year IV, No. 20. 1997. p. 19-35.
- RIBEIRO, E. N., Mendonça, G. A. A., Mendonca A. F. The Importance of Virtual Learning Environments in Search of New Areas of ODL. Goiás, 2007.
- XAVIER, Daniel. Botelho, SILVA SENA, Michel André. Study Time For Increased Productivity in Construction. UNAMA, Belém - PA, 2001.