

## **SATISFACTION LEVEL OF STUDYING THROUGH E-LEARNING SYSTEM AT THE STUDENTS ENROLLED IN THE BIOTECHNOLOGY EDUCATION**

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### **Abstract**

*A lot of studies about online education are meant to answer about how efficient is this new way of a learning system, or how interested are students to learn using online platform, choosing themselves when or where to study without a program which requires their simultaneous presence in the same place and at the same time. In 1999, American Teachers Federation and National Association for Education initiate a research about distance learning efficiency. From that year till now, many researchers or teachers have been interested in how good is the e-learning system, the feedback from students being anytime important.*

**Key words:** *biotechnology, education, e-learning, MOODLE.*

### **INTRODUCTION**

We would say that somebody's dream can become reality someday. This is what happened to George Robert Stibitz, the American researcher who projected, in 1940, the first computer named CNC (Complex Number Calculator). The first modem, developing digital phone lines, first online communities, SAGE air defense system, SABRE, Carterfone and so on were steps in technology development. And when technology was created why not to use it for online learning?

The distance learning is a 19th Century concept that came from Isaac Pitman. In the first years of 90's, some schools were prepared for online courses, putting people together from the distance and educate them. Fifteen years ago, companies begin to use the e-learning system to train their employees. In the present days, there are many universities who adapted their knowledge in packages of courses to deliver the content for students all over the world, even for free.

Richey (2008) defined educational technology as "the study and ethical practice of facilitating learning and improving performance by creating, using and managing

appropriate technological processes and resources".

Educational technology is not restricted to high technology, also called e-learning, and includes numerous types of media that deliver text, audio, images, animation, and streaming video, and includes technology applications and processes such as audio or video tape, CD-ROM, satellite TV, and computer-based learning.

Accordingly, virtual education refers to a form of distance learning, in which course content is delivered by various methods like a management applications course.

The learning management system (LMS) is software used for delivering, tracking and managing training and education. For example, an LMS tracks attendance, time on task, and student progress. Teachers can post announcements, grade assignments, check on course activity, and participate in class discussions. Students can submit their work, read and respond to discussion questions, and take quizzes.

Around the world, online college course enrollment has seen a 29% increase in enrollment with nearly one third of all college students, or an estimated 6.7 million students are currently enrolled in online classes.

But how are students reacting to e-learning system? We consider the e-learning system implemented through the Moodle platform was welcomed by students enrolled in the biotechnological education.

## MATERIALS AND METHODS

So, at the end of a semester, we conducted a study on the level of satisfaction between the beneficiaries of e-learning PC - Operating and Programming course from the first year of study here at the Faculty of Biotechnology. At this study, we obtained answers from 89 students. Our quantitative questionnaire contains a set of 14 simple questions targeting on our e-learning course through Moodle platform. The results of this study were processed through the Moodle platform and synthetically presented below.

## RESULTS AND DISCUSSIONS

From the beginning, we conducted our quantitative questionnaire through the same Moodle platform used for the e-learning course. Every student log in her or his account where they can find easy questions described below and answer under the anonymous status. Our target was focused on:

- evaluation of students' expectations of e-learning,
- their evaluations of Moodle platform experiences,
- assessments of course outcomes (learning achievements, course satisfaction).

The first question is about the level of difficulty to create an account on the Moodle platform which is accessible at <http://moodle.biotehnologii.usamv.ro>

From all the tasted subjects none chose the response "very hard", one chose "hard", 21 (23.60%) went to "easy" and 67 (over 75%) to "very easy" (Figure 1).

To the second question about how do the students classify the profile editing in their account (changing the password, picture modifying etc.), the answers repartition goes between (figure 2):

- easy for 32.58%
- very easy for 67,42%.



Figure 1. Repartition of the difficulty level in creating an account on the Moodle platform

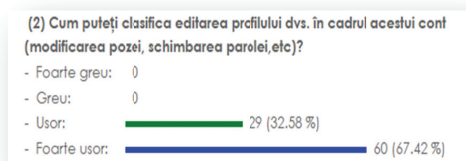


Figure 2. Repartition of the difficulty level in profile editing into an account on the Moodle platform

For the mobility in platform accessibility, with multiples accepted answers (Figure 3):

- over 97% enter from a laptop or a desktop,
- over 56% from a smartphone
- only over 17% from a tablet.

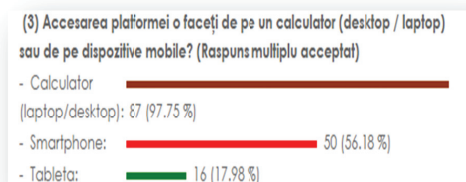


Figure 3. Accessibility of the Moodle platform from a PC desktop or laptop or mobile devices

Also, in the spirit of mobility, with multiple accepted answers, the login to the platform from a mobile device is doing (Figure 4):

- over 77% from home,
- over 50% from a classroom,
- over 58% in traffic (bus, subway, train) or another location different from home, laboratory (such as lunch time, library etc.).

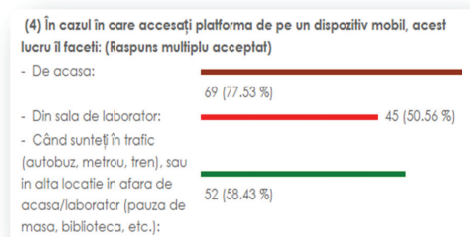


Figure 4. Repartition of the login to the Moodle platform on mobile devices from different locations

In unanimity, 100% of students responded that:

- they consider useful, for the individual study, to access the course material and learn also outside the traditional space (home or school),
- course material is easy to understand,
- the video packaging inserted in the platform for exemplifications are relevant,
- the online system of testing the knowledge achieved at PC-Operating and Programming course through the Moodle platform allows improvement of results,
- studying through the Moodle platform is a progress in education,
- studying through the Moodle platform is a modern element useful in education at the universities level,
- it is recommendable to introduce more disciplines which allowed online teaching and testing in the e-learning system.

Over 87% (Figure 5) of the students never used LMS (learning management systems) such as Moodle, Dokeos or Blackboard or else. The other students studied in high school chemistry, informatics or participated at the coursera.org courses.

To improve the PC - Operating and Programming course in Moodle system the single proposal received was to improve the mobile application and it comes from a single subject.

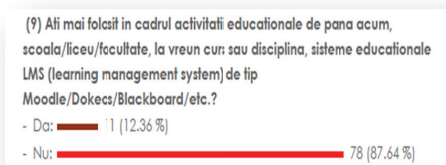


Figure 5. The repartition of the answers if our students are beneficiaries of the learning management system in the past

## CONCLUSIONS

The e-learning system developed on the Moodle platform at the OP – Operating and Programming course was very well welcomed by the students from the Faculty of Biotechnologies.

The data gathered in our study are reflecting the following observations:

- to create an account on the Moodle platform is very easy,
- it is not imperative to be an expert on the navigation through an account to set up a password, or insert a picture, or describe in which class or group study is that student or modify each of it,
- the e-learning system through the Moodle platform is flexible as time and space, and allows for everybody mobility, free choice for the best focusing time, liberty to participate again and again at the practical stuff using the examples inserted as video materials,
- the platform has been overwhelming accessed from the PC desktop or laptop and from the smartphones,
- this new era of learning gave a new way to pass over the boring moments in the traffic and make something useful,
- the most part of our subjects never faced before with a learning management system. Their impression was very enthusiastic and came very interested at our meetings,

- learning outside the traditional space (home or school) was considered useful for the individual studies,
- the online system of testing the knowledge achieved at PC-Operating and Programming course through the Moodle platform allows improvement of results,
- studying through the Moodle platform is a progress in education, a modern element useful in education at the university level,
- it is recommendable to introduce more disciplines which allow online teaching and testing in the e-learning system.

The type of the platform, course material structure and examples inserted in the practical part are provided by professional work of the main teacher from this course. It is obvious the teacher assures a professional expertise when we analyze the answers about ideas of the course improvement and we do not receive comments about the structure and the coherence of the course package. Also, the results of the testing system revealed that the students were stimulated in learning motivation and they are beneficiaries of a collaborative learning.

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