

STUDENTS' MOTIVATION IN USING VIRTUAL LEARNING SPACES

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ABSTRACT

In this paper, there are presented researches on the degree students from the Didactic and Specialties' Didactics master studies are interested in using virtual learning spaces. Our researches have been realized within the research program entitled Instruction of the Teaching Staff from the Science and Technology Domains in a Master Program Adequate to the Information Society. The program used an ICT learning space that facilitates communication between students and teachers. Our researches aim to determine if the implemented virtual learning space provides students with adequate elements for a proper motivation in the learning process. Considering the obtained results, we propose some rules and suggestions that might improve the existing virtual learning space in order to facilitate the instructional process.

KEYWORDS

ICT learning spaces, learners' motivation

INTRODUCTION

The current researches related to the evaluation of the virtual learning spaces are concentrated on evaluating the way these virtual spaces facilitate the learning process. The online form of education requires new methods and techniques to evaluate its efficiency. Most research studies examine the way web resources should be designed so that to facilitate learning, strategies to evaluate the online based learning platforms, rules to organize the online learning systems. Owston emphasizes in 3 the necessity of a systematic evaluation of online learning environments. In order to make a proper judgment of the online learning environments, it is advisable to combine quantitative and qualitative methodologies. (Owston, <http://ronowston.ca/aera99.html>) To prove this statement, the case of the VITAL projects' evaluation is being presented, in which there were used qualitative techniques (focus groups interviews) and quantitative techniques (log file analysis) and the researchers were able to make the proper recommendations to the stakeholders. (Owston, <http://ronowston.ca/aera99.html>).

Less research was reported on modelling the instructional processes and the way in which students perceive tasks in an online environment. Some studies can be found in (Moise, 2008, 2009). Also, in (Martens, Bastiaens, Kirschner, 2007), it is stated the following "very little solid empirical research has been reported on the supposed motivational impact of 'constructivist' e-learning programs'. The term motivation is a key concept of the constructivism theory. The merging between constructivism and information and communications technology (ICT) on learning is called 'new learning' ". (Simons, van der Linden, Duffy, 2000)

In this paper there are presented researches realized within the research program entitled Instruction of the Teaching Staff from the Science and Technology Domains in a Master Program Adequate to the Information Society. The project within the framework of the European Social Fund is included in the Priority Axis 1 – Education and training for economic growth and the development of the knowledge-

based society, and in the Intervention Domain 1.3 – Human resources development in education and training.

“The general objective of the project is the initial and in-service training of teachers who are specialized in mathematics, science and technology by means of an innovative Blended Learning master program that is focused on the development of teaching competences which are adequate to a dynamic, inclusive and open society.” (<http://masterprof.ro/eng/index.php>)

The program uses an online platform to facilitate the communication between students and teachers. There were used three techniques to measure the students’ and teachers’ motivation to participate and to contribute in the program’s platform: quantitative techniques – log file’s analysis, questionnaires techniques and free discussion on a dedicated forum.

STUDENTS’ MOTIVATION

Till some few years ago, the motivation of the students was associated only to the students. In the traditional class by means of observing the students’ gestures, facial expressions or behaviour while performing the tasks, teachers can evaluate the motivation’s degree of learners during the learning activities.

Regarding the term of motivation, there can be observed different levels and types of motivation. In Self-Determination Theory, Ryan and Deci (Ryan, Deci, 2000) distinguish different types of motivation. The main observation is “intrinsic motivation, which refers to do something because it is inherently interesting or enjoyable and extrinsic motivation, which refers to do something because it leads to a separable outcome”. (Ryan, Deci, 2000)

The learners’ motivation is a crucial factor in obtaining a higher qualitative instructional process. The most important extrinsic factors are the grades obtained at the evaluation sessions; but the most important intrinsic factor is hard to be determined. According to Malone and Lepper, there are four intrinsic factors of individual motivation: challenge, curiosity, control and fantasy and three for interpersonal motivation: cooperation, competition, recognition. (Malone, Lepper, 1987). They affirmed that the learning environment has to be designed taking into account the fact that learners are in different ways intrinsically motivated.

Hsiao-Lin Tuana, Chi-Chin Chinb and Shyang-Horng Shieh developed a questionnaire called “students’ motivation towards science learning” (SMTSL), which addresses students’ motivation in science learning. (Tuan, Chin, Shieh, 2005) The factors considered in SMSTL are:

1. “Self-efficacy
2. Active learning strategies.
3. Science learning value.
4. Performance goal.
5. Achievement goal.
6. Learning environment stimulation.”

The results obtained in (Tuan, Chin, Shieh, 2005) lead to the following conclusions: students’ motivation (the grades used are: high, moderate and low motivation) “show a significant difference in their total SMTSL score”:

- “Students with high, moderate and low motivation showed significant differences in self-efficacy and active learning strategies”.
- “Students with high motivation showed a significant difference to moderate and low motivation students in the science learning value”.
- “Students with high and moderate motivation showed a significant difference to low-motivation students in the performance goal and achievement goal.”

- “Students with high motivation showed a significant difference to low-motivation students in learning environment stimulation.” (Tuan, Chin, Shieh, 2005)

The teachers are to pay attention to the students’ degree of motivational involvement in the learning process, so that they may act in the sense of increasing learners’ performances. Teachers’ motivating strategies are based on the perception of teachers related to the students’ motivation. Hardre, Davis and Sullivan present in (Hardré, Davis, Sullivan, 2008) the “Perceptions of Student Motivation questionnaire”, henceforth abbreviated PSM.

Two parts compose PSM: the former part answers the following question: “From the perspective of the teacher, how motivated are students to learn and achieve in school?” and the latter part identifies the reasons that cause lack of motivation (“If students are not motivated, what are the reasons that the teacher believes explain that lack of motivation?”). (Hardré, Davis, Sullivan, 2008)

The first scale, called the motivation subscale, contains questions regarding the observed behaviour in the classroom. An example of item is: “The students in this class don’t put forth much effort to learn the content.”

The second scale, called the reasons subscale, contains questions regarding the reasons for students being unmotivated, grouped in five groups:

- Family factors – e.g. “Generally, my students are unmotivated because their parents don’t care about or value education.” (Hardré, Davis, Sullivan, 2008)
- Peer factors – e.g. “Negative peer pressure is one big reason why some of my students are not motivated to learn in school.” (Hardré, Davis, Sullivan, 2008)
- Personal factors – e.g. “Some students in my class just don’t care about learning–period.” 9
- Current relevance/value – e.g. “Most often, if students aren’t engaged in my class, it’s because they don’t see the relevance of the content in their world.” (Hardré, Davis, Sullivan, 2008)
- Aspirations/future utility – e.g. “Some of my students aren’t motivated to work in school because education has no place in the future they see for themselves.” (Hardré, Davis, Sullivan, 2008)

In the case presented in this paper, we determine whether the students and teachers are engaged to use the ICT learning space dedicated to the research program entitled *Instruction of the Teaching Staff from the Science and Technology Domains in a Master Program Adequate to the Information Society* and, if not, ways to determine the actors of the program (students and teachers) to use the platform.

THE DESCRIPTION OF THE MASTERPROF PLATFORM

The project entitled *Instruction of the Teaching Staff from the Science and Technology Domains in a Master Program Adequate to the Information Society* uses a virtual platform (MOODLE) configured in such way to allow a good connection among the target groups of the program. “The students can visualize the online resources, they will be part of a learning community where they can share experiences, access the on-line activities and receive individualized feedback on behalf of their professors. The platform will also be an online meeting place for the teachers in the application schools, mentors and other educationalists who can log in and participate in the special forums.”(<http://masterprof.ro/eng/index.php>)

The ICT learning space is structured in five learning communities:

- Master Academia
- Master ScienceNONfiction
- Master School
- Digital News Board
- Technical Support

In the *Master Academia* space, the teachers share “their experiences and thriving to become a real ACADEMIC learning community”. (<http://masterprof.ro/eng/index.php>)

The *Master ScienceNONfiction* space is dedicated to “all those who explore and model maths and science teaching and learning in a student-centred paradigm.” (<http://masterprof.ro/eng/index.php>)

The *Master School* is the space where “students, teachers, professors, student teachers meet in order to give meaning to a modern school.” (<http://masterprof.ro/eng/index.php>)

Digital *News Board* is dedicated to the general news.

The *Technical support space* helps users to communicate on the platform.

In the framework of each community, there are the designed multiple forums and resources. In the *Master Academia* space, there are integrated the following interventions:

- Participants’ motivations in the virtual learning environments,
- Resources’ centre,
- Where is the teachers’ passion for their jobs?
- Didactics,
- The first steps in didactics’ technologies,
- Is this possible?

The program promotes a blended learning; through which both students and teachers learn. There are encouraged communication and collaboration between participants using a dedicated ICT learning space.

RESEARCH METHODOLOGIES

Students’ attitude about MASTERPROF platform

In order to establish students’ perception / attitude about MASTERPROF platform, we proposed the following questionnaire:

1. Are you using the MASTERPROF platform? The scale is:
 - a. yes, very often;
 - b. yes, often;
 - c. yes, sometimes;
 - d. no, never.
2. If the answer at the question 1 is yes, please specify the advantages of using the platform as a learning environment.
3. Which are the difficulties met in using the platform?
 - e. Log on procedure;
 - f. The navigation scheme;
 - g. The utilitarian for the learning activities;
 - h. The accessibility;
 - i. None.
4. Which are the factors that cause usage of the platform?
 - j. The rules of the master programs;
 - k. The platform integrates an online learning environment;
 - l. The platform facilitates the learning process;
 - m. An easy way to exchange information;
 - n. Others.
5. Please, provide your opinion of the meaning of the “online learning”.
6. Please, describe the advantages of communication using the MASTERPROF platform.
7. Please, describe the drawbacks of communication using the MASTERPROF platform.

8. What are your suggestions meant to improve learning activities by using MASTERPROF platform?

Our students have completed the questionnaire during applicative learning activities. In order to obtain a high level of sincerely responses, we asked them to complete their identification data to the end of questionnaire: age, specialization, actual job and IT experience.

We also have been created a forum on the platform and invited the 43 teachers to formulate their opinion concerning proposed theme.

Sample

Our sample for the present study involved 11 students. The students are in the first year of two-year program of the master entitled Didactic and Didactics; this master program has developed in the framework of the project.

The general characteristics of our students sample are presented in the table below: (information on the students is presented in Table 1).

Table 1. General data

Age	
20-25 years	42.86%
26-30 years	0%
31-35 years	0%
36-40 years	42.86%
Over 40 years	14.28%
IT experiences	
Good experience	71.42%
Satisfactory experience	28.57%
Poor experience	0%
Work place	
Education	85.71%
Unemployed	14.28%

One may notice the fact that most of the graduates attending *Didactic and Specialties' Didactics* master programme (57,24%) are over 36 years old and work in education. However, 71,42% of the total number of students consider that they are proficient with computer packages, whereas only 28,57% think their computing skills are satisfactory. As one may observe later on, the second category represents the majority of those considering logging in the platform as one of the challenges involved in their master programme.

Also, in order to complete our information's concerning students' motivation in using virtual learning spaces, we have involved in our research another 43 teachers, which are using the master platform.

Methodology

As research methodology, we used three techniques in order to evaluate the participants' motivation in using MASTERPROF platform and to find the causes accountable for unmotivated participants:

- the questionnaire technique that proposes a qualitative analysis of students' perceptions/ attitudes about MASTERPROF platform (to find qualitative opinions of the students);
- a qualitative method consisting of free discussions among teachers regarding participants' motivations in the virtual learning environments intervention;
- a quantitative method: the analysis of the log file.

RESULTS AND DISCUSSIONS

The answers obtained at the questions 1-8 are presented in the following tables (2-8).

Table 2. Answers at question no. 1

Are you using the MASTERPROF platform?	
yes, very often	14.29 %
yes, often	42.86 %
yes, sometimes	28.57 %
No, never	14.29 %

It is easy to observe that almost half (42, 86 %) of the questioned students use often MASTERPROF platform. But only these results offer us too little significant information. So, the following questions are focused on students' perception of platform: advantages, disadvantages, difficulties, their reasons for using this platform, their attitude about online learning (online meeting with their teachers and other students).

Table 3. Answers at question no. 2

The advantages of using the platform as learning environment are	
it's a place where I can find the courses	
it represents a feedback provider	
it offers communication with other students	
it's an information container	
it's useful for IT experts	
it represents a quick way to receive the necessary information	

The respondent students considered that the major advantage of the platform was its role as a resources' container, providing both pedagogical resources and useful information on the program planning. Probably this is the major reason for respondents' interventions on platform – 85, 72 % of the questioned students (which use the platform very often, often or sometimes).

Table 4. Answers at question no. 3

Which are the difficulties met in using the platform?	
Log on procedure;	28.57 %
The navigation scheme;	14.29 %
The utility for the learning activities;	28.57 %
The accessibility;	0.00 %
None	28.57 %

We can observe that most of the students do not see a major utility of this platform; they have identified a series of difficulties about using platform such as: the utility for learning activities, log on procedures or navigation scheme.

The blended learning is a new form of instruction in our master program. More than half of the students are over 36 years old and there are working in education field. Romanian educational system does not have such a very long experience in IT, so this could be a reason for this category of students' lack of experience in using computer (28.57% of students consider that they have only a satisfactory experience

on using IT programs - see Table 1); our analysis has revealed that those 28.57% consider that log on procedure is difficult.

Table 5. Answers at question no. 4

Which are the factors that justify using (causes usage of) the platform?	
The rules of the master programs	57.14 %
The platform integrates an online learning environment	14.29 %
The platform facilities the learning process	14.29 %
An easy way to exchange information	28.57 %
Others	0.00 %

A major percent (57.14) shows that the “learning contract” assures the success in using the ICT learning space (use of the ICT learning space is considered an obligation of the “learning contract” only). So, their motivation to use platform is an extrinsic one.

Also, they appreciate that the main feature of the online learning is facilitating communication and cooperation between platform users (collaboration).

Table 6. Answers at question no. 5

Some opinions of the meaning of the online learning
It’s an impediment.
It’s a resource of information, that completes the traditional courses (face to face)
It’s modern, facile.
We can save time.
It’s difficult to learn as without a teacher I can’t understand.
An easy way to acquire information.
A type of learning incompatible with my cognitive structure.
I dropped out an online master. I don’t want a blended learning based master

Most of the students do not seem to be prepared to follow an online course: (the platform) “is an impediment”, “it’s difficult to learn, without a teacher I can’t understand”, it proposes “a type of learning that I can’t fit with my cognitive structure”, “I don’t want a blended learning based master” (the respondent has anterior unfortunate experience on online master courses). We could observe their distrust about new technology.

In the same time, they could identify some major advantages for this kind of learning: a source of information, complementary with the traditional ones; it saves time, as it is an easy way to acquire information.

Table 7. Answers at question no. 6

The advantages of communication using the MASTERPROF platform
I can easy get the course.
Quick feedback.
Quick feedback. It’s great that I can correct and improve my homework using teachers’ advice.
It’s a constructive learning environment

The great advantage of MASTERPROF platform is that students obtain teachers' feedback fast and easy. The students need feedback from their teachers just as teachers need feedback from students. This is a great advantage in comparison with the traditional learning relationship (where feedback does not come so easy), although often face - to - face learning relationship uses nonverbal feedback.

Table 8. Answers at question no. 7

The drawbacks of communication using the MASTERPROF platform
I can't see any drawback.
I can't understand, I can't talk face to face with my teacher.
It's tiresome and boring to check every day my e-mail.
It's an obstacle. I prefer face to face based communication.

We could observe that questioned students find difficult this kind of communication and prefer face-to-face learning. So, by meeting their teachers, they could understand better (a great disadvantage of online communication is the lack of access on nonverbal communication). It is demonstrated that gestures, face language, voice's rhythm, tone and intonation could communicate more than words. Education system in Romania is still using mostly traditional instructional methods (based especially on face-to-face communication).

This is probably the reason why some of our respondents consider that checking daily their mail is "tiresome and boring" and this kind of communication "an obstacle".

Table 9. Answers at question no. 8

Students proposed solutions to improve the platform of the program
All students should see the teachers' answers to the other students.
Ergonomic redesign of the ICT learning space.
A board news containing announces of the new courses and information on the platform.
All courses need online resources.

In order to complete our information's concerning students' motivation to use virtual learning spaces, we asked our respondents to suggest some solutions to improve the platform. Their answers proves their needs to improve platform functions (ergonomic design, visibility, news, online resources), but our students didn't identified their need to improve IT skills; for example, it could be useful to communicate or to make their home works on the program platform during their classes, and in the presence of their teachers and an IT specialist.

Free discussions of teachers regarding participants' motivations in using virtual learning environments

In order to gather teachers' ideas about *Participants' motivations in the virtual learning environments*, there was created a new intervention on the platform in the Academia master section. There is an agreed idea that nowadays interpersonal communication has some dysfunctional problems. The new technologies are only the tools, which enable the establishment of virtual meetings.

There is emphasized the problem of inaudibility to measure the "online listening". All participants agree on the fact that new technologies require a time for adaptation. "We need time to improve us, time to reflect what we read". (<http://masterprof.ro/eng/index.php>)

Also, the intrinsic motivation is being stressed: “it is important to enjoy that we can meet and talk here”. “The motivation is linked by the state of the relation between communicators.” (<http://masterprof.ro/eng/index.php>)

It appears that asking teachers to identify aspects able to improve online communication and collaboration is helpful. It is remarkable the openness of the teachers and students involved in the program. All participants feel free and comfortable to speak, to ask and to make an intervention. The discussions proved that it is necessary to measure the perception of students about their motivations and teachers' perception of their students' motivation.

Quantitative method to measure the online behaviour of the participations

Online behaviour of the participants can be measured, but there is no relevance about the motivational factors. It was analyzed the log file with records of the period between March 2009 and January 2010. During this period, there were recorded 43772 interventions on the platform:

- 3 participants performed over 3000 interventions;
- 28 participants performed fewer than 100 interventions;
- 31 participants performed over 100 interventions and fewer than 500 interventions;
- 13 participants performed over 500 interventions and fewer than 1000 interventions;
- 10 participants performed over 1000 interventions and fewer than 3000 interventions.

The total number of users is 85. More than half of the participants performed fewer than 500 interventions and only almost 1/6 of them performed more than 1000 interventions.

CONCLUSIONS

The results of this study indicate that administering the questionnaires was perceived to be useful. The type of learning used within the project (blended learning) is welcome because it is not a commonplace in our educational system. The small number of interventions is a proof and the initial goal of interventions was unnatural. That means that there is a lack of practice and that ICT learning space does not correspond with the ergonomic rules.

We see an impressive number of users, which are active on the platform (almost 85.72% students and the activity of the platform's administrator). Despite of the difficulties, the students contrive to identify the major advantages of the blended learning: quick access to information, fast feedback, and the possibility to collaborate with other students. The students are motivated to use the dedicated ICT learning space, although their motivation is extrinsic (it is a condition for exams' promotion).

We consider that, in order to obtain intrinsic motivation for online learning process, our students need to practice more and develop their skills under the supervision of their teachers and IT specialists. So, the measures we shall take in order to improve the ICT learning space, are:

- initiating face to face meetings during which trainees may communicate, in the same room, but by means of the platform (meant to familiarize those that encounter difficulties in using it);
- organizing meetings between teachers and their students using the system in order to find solutions to the encountered problems,
- designing online modules in teachers-students partnerships so that to intrinsically motivate the students in discovering the information and in selecting the one they consider useful,
- the feedback of online meetings is to be doubled by face to face feedback for those students that face difficulties in communicating online (a part of the following lecture should be dedicated to discussing aspects that posed different problems during the previous online meetings) etc.

So, the improvement of the platforms and their users' abilities, and a better information process for potential users about facilities and opportunities on virtual learning spaces could increase intrinsic motivation for online communication.

More, in our future researches we intend to analyse teachers' motivation to use virtual learning spaces, because their motivation could be an essential premise for students' motivation.

As a conclusion, we consider the initiative remarkable in that it reveals the flaws and the needs of the Romanian education. The efforts of teachers and students alike prove also remarkable as they strive to make such a system functional, a system they have not been bred up with and that is, therefore, a total novelty for both parties.

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