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**VIRTUAL LEARNING ENVIRONMENTS TOOLS  
USED IN HIGHER EDUCATION**

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**Abstract:** *From the perspective of educational sciences, VLE (Virtual Learning Environments) tools offer technological support to teachers and students to optimize the student-centered teaching/learning process, so as to eventually accomplish an actual transformative learning (Mezirow's Transformative Learning Theory). Since the tools provided by VLE are very diverse, teachers must get to know them well in order to be able to use them efficiently in the process of teaching, learning and evaluation. When a teacher chooses to use e-learning tools, s/he should have in mind both the type of the course in which they can be applied and the students' needs and abilities. In order to evaluate VLE tools for Higher Education on practical level, a brief survey was carried out on a sample of 120 students. Survey results and Mezirow's Transformative Learning Theory tell us that, for a modern educational system, learning procedures/methodology need to be improved.*

**Keywords:** *Learning, Virtual Learning Environments (VLE) tools, Transformative Learning, Survey*

**I. GENERAL CONSIDERATION ABOUT LEARNING, TRANSFORMATIVE  
LEARNING AND VIRTUAL LEARNING ENVIRONMENTS TOOLS**

Learning is a process of achieving (forming and developing) certain competencies that can be defined as a dynamical combination of cognitive and meta-cognitive skills, knowledge, understandings and attitudes, as well as the development of social skills and growth in ethical values. The target of every educational system, every Higher Education study program, should be to enable its participants to achieve an optimal balance in the development of all the above. This calls for a new academic environment in which the teachers' capabilities (competences, resources and their application under surrounding reality) are focalized towards the learner in a transformative learning way, in which Virtual Learning Environment tools (VLEs) are claimed and used by the students, guided by teachers, to facilitate the solving of various learning situations. The term "VLE tools" includes all kinds of virtual/internet-tools that can serve for educational purposes. Knowing that all the efforts of teachers are focused on the student – i.e. a student-centered learning – there are a lot of modalities to accomplish this. What is obvious, though, is that transmissive learning is overcome in this way and the balance is increasingly inclined towards transactional and transformative ways of teaching and learning.

Today, one of the most popular learning theories is the *Transformative Learning Theory* (TLT), also known as Mezirow's Theory [1, 2, 3, 4, 5, 6, 7], which emphasizes the rational and analytical side of the process, as well as the spiritual or emotional part of the learning process in which teacher and student are called to interact. Mezirow posits that "all learning is change, but not all change is transformation"; this is a critical point in the building of a positive attitude of individuals who are involved in the educational system. Transformative learning is defined as "learning that induces more far-reaching change in the learner than other kinds of learning, especially learning

*experiences which shape the learner and produce a significant impact, or paradigm shift, which affect the learner's subsequent experiences"* [8]. From another point of view, Mezirow describes a *transformative learning environment* as one in which *"participants have all the information, are free from coercion, have equal opportunity to assume various roles, can become critically reflective of assumptions, are empathetic and good listeners, and are willing to search for a common ground or a synthesis of different points of view."* The three phases of Transformative Learning – *"critical reflection, reflective discourse and action"* – should be encountered in the academic approach of every teacher. *"Teachers serve as gatekeepers, as well as guides, for the students on their journey of learning, so that they should structure their teaching so as to foster the personal development of the students"* [9, 10]. Transformative learning includes numerous interactive methods and involve various VLE tools, which *enhance the quality of the educational process by enabling them to practice new roles in the process of learning* (teachers as the students' partners in their multiple-level/sided "transformation", not only as transmitters of knowledge; and students as active participants in their own development); *in addition, during this process, lifelong learning technologies are used. With the help of VLE tools, a new educational field can be set and an environment can be constructed in the direction of interaction, processing information, researching and problem-solving.* From the long list of VLE instruments – and aware that everyday new tools are developed – we shall select some [11, 12] that often used in Higher Education:

### **1.1. Learning-platform**

*A learning-platform is an integrated set of interactive online services that provides teachers, students and others involved in education with information, tools and resources to support and enhance the delivery and management of the educational program. Learning-platforms are usually the central-space and basis for virtual learning activities.* Like a virtual version of a university-building, they are the central point of contact for learners and teachers, from which they are then guided to the different learning activities, which can use tools from within the learning-platform, but also other virtual-learning tools from without, for example accessing an online-tool for video-sharing, collaborative writing or mind-mapping. Examples for learning-platforms are: Moodle, Claroline, ATutor, Metacocon, Grouply, Insam.

### **1.2. Forum**

*An Internet Forum is an online discussion site where educators and students can hold conversations in the form of posted messages.* They differ from Chat rooms in that messages are at least temporarily archived. In educational settings a Forum can always be used when discussions are to take place. As it is a typically asynchronous tool, sufficient time should be allotted for the discussion to take place. Usually any learning-platform will have its own Forum, but there are also websites providing the possibility to create your own free forums, like <http://www.freeforums.org/> (Ad-Free).

### **1.3. Chat-room**

*Online chat may refer to any kind of communication over the Internet that offers an instantaneous transmission of text-based messages from sender to receiver. Online chat may address either point-to-point communications, or multicast communications from one sender to many receivers.* One can differentiate two technical forms: a) *Pure online Chat:* entirely online Chat rooms are offered, with no need to install any program on the local computer; b) *Instant-Messaging (IM):* After downloading a special program to the local computer (client), the user can integrate his friends and colleagues, who also have access to the same IM client. IM allows effective and efficient communication, allowing immediate receipt of acknowledgment or reply. Typical Instant-Messaging Client Programs are: ICQ, MSN-Messenger, Yahoo!-Messenger, Skype.

### **1.4. Video-conferencing**

*A video-conference (also known as a video teleconference) is a set of interactive telecommunication technologies which allow two or more locations to interact simultaneously via two-way video and audio transmissions.* In the context of education, video-conferencing can provide a tool for broadcasting lectures to distant students. This is mainly one-way communication but video conferencing can also be used for more interactive ways of learning. It is possible for students to ask questions, comment on different aspects of the lecture or to organize small-group discussions on some paper. Within blended-learning solutions, video conferencing may prove to provide a simple way to

get a face-to-face contact with distant students, for instance at the beginning, in the middle or in the end of a course. Students may ask questions about the learning process, assignments etc. and the teacher may inquire the students about their experiences and feelings after a self-study period. Video conferencing can also be used for paper presentations and discussions by the students. Examples for video-conferencing systems are: AdobeConnectPro, Vyew, DimDim and could be also Skype!

### 1.5. Collaborative writing

*Collaborative writing refers to projects and processes where written documents are created by several people together.* In some projects there is an editor or an editorial team, but in many cases the work is coordinated and moderated by the authors themselves. In a true collaboration, *all contributors have equal rights and abilities to add, edit, and remove text.* The writing process becomes a mutual task, where each change prompts others to make more changes. It is important for the group to have a specific and clear goal in mind, as well as a good method of discussion and communication, especially if disagreements arise. Collaborative writing is successful when each participant is able to make a unique contribution toward achieving a common vision or goal statement. In education, collaborative writing is a method to promote collaborative learning. The basic social media tool for collaborative writing is wiki. Some of the most popular and widely used are Titanpad, GoogleDocs and WikiSpaces.

## II. EVALUATION OF VLE TOOLS USED IN HIGHER EDUCATION ON A PRACTICAL LEVEL. A SHORT SURVEY.

In our university, from the above mentioned virtual learning tools, the ones that are mainly used are: *learning-platform* (in an initial phase), *forum*, *chat-room* and *video-conferencing* (at present, only for international projects). Obviously, the most common offline tool is the *e-mail* (with or without attachments), used very often by teachers and students, but *collaborative writing* and *blogging* are gradually developing, too. Another very common tool, used often by teachers and students, is *PowerPoint presentation*. In order to evaluate the effectiveness of VLE tools on a practical level, I carried out a brief survey on a sample of 120 of students enrolled in my courses. It is important to note that the survey was performed after the last class of a particular course and that it was anonymous. The students were asked to put real thought into the answers and be truly honest.

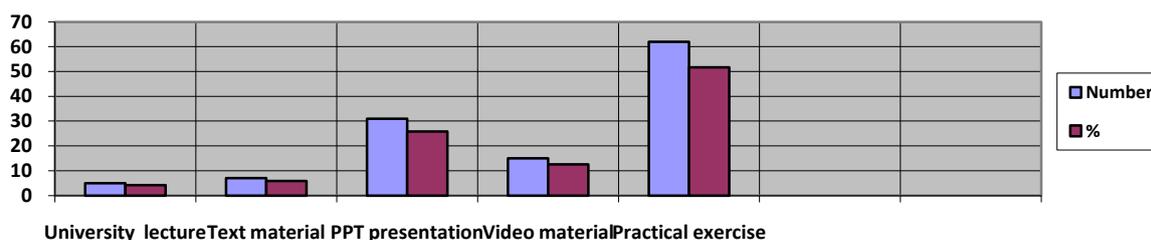
The survey:

*Question 1. Which kind of information sharing used in the academic courses did you understand better? Grade from 1 to 5 (with 1 the highest grade). University lecture..., Text material..., PowerPoint presentation..., Video material..., Practical exercise (helped by VLE tools)*

**Table 1. Results of the question 1**

	University lecture	Text material	PowerPoint presentation	Video material	Practical exercise
Students who had numbered 1	5	7	31	15	62
Percentage	4.17%	5.83%	25.83%	12.5%	51.67%

Chart 1. The impact of information sharing in academic courses

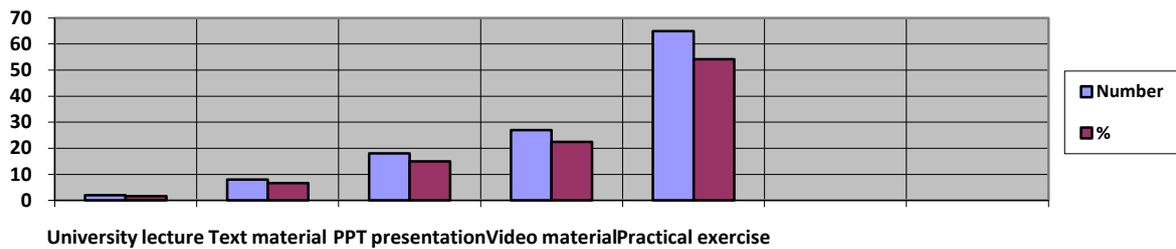


Question 2. Which kind of information sharing keeps you concentrated for longest time? Grade from 1 to 5 (with 1 the highest grade). University lecture..., Text material..., PowerPoint presentation..., Video material..., Practical exercise (helped by VLE tools)...

**Table 2. Results of the question 2**

	University lecture	Text material	PowerPoint presentation	Video material	Practical exercise
Students who had numbered 1	2	8	18	27	65
Percentage	1.67%	6.66%	15%	22.5%	54.17%

Chart 2. Duration of concentration with different types of information sharing.



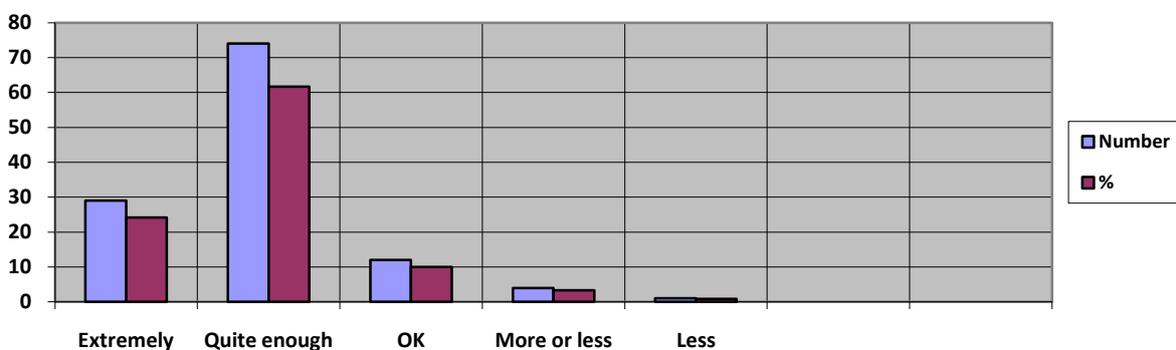
The answers to questions 1 and 2 confirm that the largest amount of information is understood and remembered when doing practical exercise, and the least amount when listening to a university lecture. PowerPoint presentations also help students to understand and learn contents – which is logical, since the presentation has an element of interaction between the audience and the lecturer. Video materials also help maintain concentration.

Question 3. Do you think that virtual learning tools used in the courses are more beneficial for you than conventional ways of learning? Tick one option! Extremely , Quite enough , OK , More or less , Less .

**Table 3. Results of the question 3**

	Extremely	Quite enough	OK	More or less	Less
Nr. of students	29	74	12	4	1
Percentage	24.17%	61.67%	10%	3.33%	0.83%

Chart 3. Students' appreciation of the impact of VLEs in their learning in university courses.



It can be noticed that virtual learning tools used with the courses are more beneficial for 85.84% of the students (who said “Extremely” and “Quite enough”) than conventional ways of learning, which points to the impact of VLEs in training. Therefore, as the new approach to education

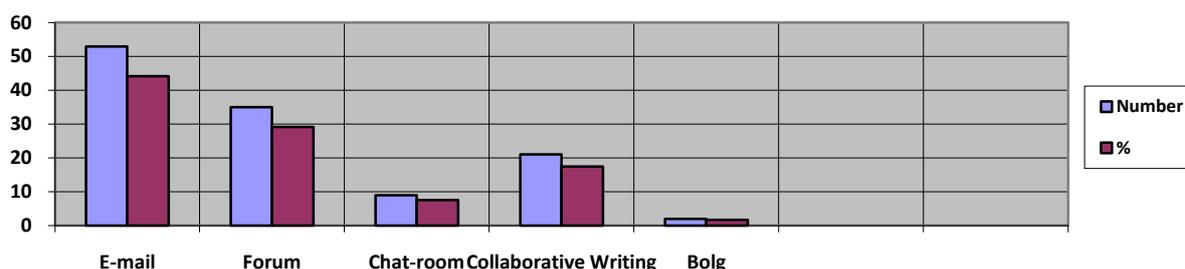
allows for the students' self-involvement in the creation of lectures, greater acquisition of information also results from using them in real life situations.

*Question 4. Which of the virtual learning tools mentioned below have had an important impact on your learning? Numbered from 1 to 5 where 1 is the most important value. E-mail..., Forum..., Chat-room..., Collaborative writing..., Blog...*

**Table 4. Results of the question 4**

	E-mail	Forum	Chat-room	Collaborative-writing	Blog
Students who had numbered 1	53	35	9	21	2
Percentage	44.17%	29.17%	7.5%	17.5%	1.66%

Chart 4. Most commonly used e-learning tools by our students.



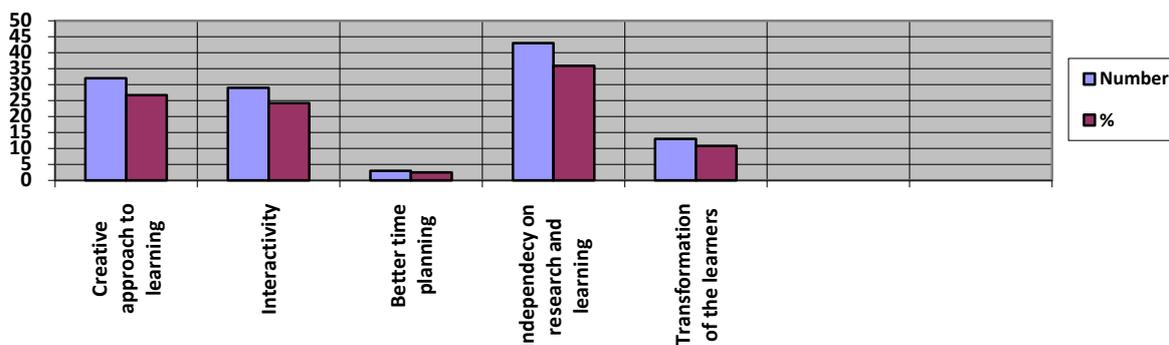
Being not so far from the early use of VLE tools by our students, we see a conservative tendency to call an asynchronous learning tool as e-mail (29.17%) but are hopeful of getting more in using the forum and finally, although in its early stages, collaborative - writing (17.5%)

*Question 5. What are the advantages of using VLE tools in comparison to conventional system? Grade from 1 to 5 (with 1 the highest grade). Creative approach to learning..., Interaction between learners..., Better time planning..., Independence in research and learning..., Real "transformation" of the learners...*

**Table 5. Results of the question 5**

	Creative approach to learning	Interactivity between learners	Better time planning	Independency on research and learning	Real transformation of the learners
Students who had numbered 1	32	29	3	43	13
Percentage	26.67%	24.17%	2.5%	35.83%	10.83%

Chart 5. Results of effectiveness and efficiency of VLEs in the educational process.



When faced with this new system (VLEs) for the first time, students were a little confused, since they had not encountered that learning approach before. There were some questions regarding the lecturer's expectations, but after a while the students adopted this new way of information sharing and learning. After a period of using VLEs, the students were able to point out the advantages of e-learning system in comparison with the conventional one, as their above answers show.

### III. CONCLUSIONS

Not only has technology developed tremendously in the past 10 years, but the educational strategies, as well as people's general lifestyle have undergone great changes. Information technology gives us new options for performing certain tasks, simultaneously adjusting the performances of teaching and learning. Virtual Learning Environment (VLE) tools offer technological support offer technological support to teachers and students to optimize the student-centered teaching/learning process, so as to eventually accomplish an actual transformative learning. The VLEs provides specific tools to be used in the learning process, for all the level of the educational system, but especially in Higher Education. Among the most important are: the learning platform, forum, chat-room, video-conferencing, collaborative-writing, blog, second life, etc. Since the tools provided by VLE are very diverse, teachers must get to know them well in order to be able to use them efficiently in the process of teaching, learning and evaluation. When a teacher chooses to use e-learning tools, s/he should have in mind both the type of the course in which they can be applied and the students' needs and abilities. Such tools require new training programs to prepare and support teachers to as to shift from a status of provider and deliver of subject matter, to moderator and facilitator of learning within a student-centered approach to learning.

In order to evaluate VLE tools for Higher Education on practical level, a brief survey was carried out on a sample of 120 students. Survey results show that e-learning provides direct student involvement in their own learning process, and it also gives motivation to both students and teachers to improve their work. Including VLEs and lots of practical exercises enables the students to learn 90% more efficiently (see the answers to question 1) than they would by just reading or listening, and it also gives them an opportunity to make their own schedule for managing given tasks/assignments (see the answers to question 5). It is wonderful to see that the students are so open minded and want to be involved in their own learning process.

As we can see in the survey results, and according to Mezirow's Transformative Learning Theory, it is obvious that teaching/learning in a modern educational system needs to be improved. E-learning should not be seen as an alternative educational system, but as an enhancement of the existing one in which it must be included, so as to cater for the students' direct involvement in their personal development.

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