

## A Cram of E-Learning Advantages and Disadvantages

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*In today's society, following the exponential development of ICT, the classical method of learning has undergone numerous changes. The emergence of the Internet has accelerated these changes due to its capacity to offer multiple possibilities of access to information, instruction, all based on dynamic technologies, transparency and open dialogue. It can be well said that the Internet is turning into an arbiter for the access to education and culture, while eLearning is a new form of education that suggests itself as an alternative with a view to the needs of continuing training and knowledge.*

*The most widely known results of this change are obvious in two learning models mediated by ICT: eLearning and Computer-assisted learning. As well as the classical models, these models imply an efficient learning process based on well-grounded cooperation and communication activities. Moreover, these models require appropriate technology and equipment. It is also important for the eLearners to have knowledge of the new technologies.*

*The great advantage of eLearning is the abolition of formal barriers by eliminating distances, by introducing temporal flexibility and the creation of a new type of student-teacher relationship.*

*The authors have asked the question whether the greatest advantages of this new way of learning and refreshing will still hold for those of a higher educational and financial status, thus deepening unequal opportunity of chances. A team of members of the teaching staff of "Alexandru Ioan Cuza" University of Iași (UAIC) and the Academy of Economic Studies of Bucharest (ASE) have carried out a survey among the students of the two institutions regarding the students' perceptions, expectations and attitudes related to eLearning and the identification of the profile of the student with access to this form of education.*

*The paper presents some of the most important findings of this research.*

**Keywords:** e-learning, Internet, survey, educational process.

### GENERAL BACKGROUND

In the process of adapting the educational system to the development of the information society, the ICT based learning models represent the pertinent answer of education to this challenge. The principles that have to guide any institution that aims to provide eLearning are: accountability, quality, equality, access to information and guidance, communication and cost<sup>1</sup>.

Although there are arguments pro and against e-learning, this method has certain advantages recognized by both parties, from which

we present the following<sup>2</sup>:

a. the capacity to provide a large amount of information quickly and without error; the information should be well organized, according to pedagogical and psychological principles (this is possible when the program has been devised by an interdisciplinary team formed of specialists in pedagogy, in software, in logics as well as specialists in the various scientific domains that Computer Assisted Learning has an interface with; in this case, the computer can be seen as a „pedagogical accelerator”;

<sup>1</sup> Ileana Gabriela NICULESCU-ARON, „eLearning, de la principii la practică”, in „Probleme actuale de statistică - Învățământul superior statistic și procesul Bologna”, Editura Junimea Iași, 2005, p. 189.

<sup>2</sup> Ionela CLIPICI, Instruirea asistată de calculator – un mod de organizare a procesului instructiv-educativ, Revista de Informatică Socială nr. 4/2005, www.ris.uvt.ro, p. 80

b. Well-organized and systematic information can be offered to a large number of trainees who request them (pupils, students, adults taking refreshment courses), pedagogical-psychological assistance;

c. It offers the possibility of quickly and fully customizing the learning process and consequently the application of the Carroll and Bloom's Full Learning Model, since pedagogical-psychological assistance provided by the computer adapts to the rhythm of each trainee, offers solutions according to the nature of the mistakes made, the computer being capable of having a dialogue with those asking for help and, more importantly, to promptly offer the necessary feed back.

In order to take part in such forms of training, the trainees must fulfil the following conditions:

- a. to have a certain level of background knowledge that allows the mastery of the new technologies;
- b. to have access to technical equipment that allows the use of the multimedia interactive functions;
- c. to have high transfer rate Internet connections.

The present study relying on the survey among the students of "Alexandru Ioan Cuza" University of Iași and The School of Economics of Bucharest in October 2005 has set the following aims:

1. to define the role played by the computer in the learning process;
2. to assess eLearning starting from criteria that are specific to any educational process;
3. to place eLearning within the educational process;
4. to identify the factors that influence the student's financial possibility to access this form of education.

While the first three objectives have been presented in other scientific papers or presentations, the present study aims at discussing the fourth aim.

## METHODOLOGY

The volume of the sample has been determined based on the data from the questionnaire predetermination. The research variable

is the knowledge of the term eLearning, for which 24% affirmative and 76% negative answers were given. The probability of results is 95% when  $z=1.96$ , while the set maximum acceptable error is 4%. Therefore, the volume of the extracted sample for ASE Bucharest was 420 persons, while the same value for the UAIC of Iași was 400 persons.

The sampling was random proportional stratified in two steps. Two variables were used for stratification, one for each step.

The researched population consists of the students of UAIC and ASE in the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> year of study. 6 strata were identified within this population, and the ratio of each stratum was calculated for the total population. On the basis of this ratio, the sample volume was divided according to the 6 strata. In the second step of the survey, the stratification variable is the year of study. The 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> year have been considered; using the ratios at the level of the population by domain, the volume of the sample was calculated according to the 4 strata of the variable "year of study", for each domain. The result is the final composition of the sample. The units were extracted randomly from the 6 strata, by year of study.

## DATA ANALYSIS

As a first step, we have aimed at analysing the way in which the students in the two academic institutions perceive the advantages of eLearning. In the specialised literature, they are considered to be as follows:

1. increased degree of objectivity in evaluation and existing possibilities of self-evaluation;
2. the development of a new type of student-student and student-teacher relations (the disappearance of former formal barriers );
3. saving time (acquiring a large amount of information in a small span of time);
4. the elimination of personal inhibitions that tend to appear in the traditional model and the stimulation of free self-expression;
5. temporal flexibility (self-organization of the learning process);
6. increased possibility to access and retrieve information.

The respondents were asked to assess each of the above advantages on a scale of 1 to 5. Starting from the grade given, an average score was calculated for each of the 6 characteristics. In order to establish the importance of each advantage, we decided to test the significance of the difference between the average scores we obtained. We used the Student test for dependent samples. Based on the results obtained by using the SPSS, we established a hierarchy of the advantages in the top positions, as shown in Figure nr. 1. Since,

following the application of the Student test for the characteristics “Temporal flexibility” and “Elimination of inhibitions” the calculated value of  $t = 1,378$  ( $\alpha = 0,168$ ) was obtained, the hypothesis of equal scores was accepted. The values of the Student test for the other characteristics show that there are significant differences between them (the other characteristics), corresponding to a significance level of no less than 0.04.

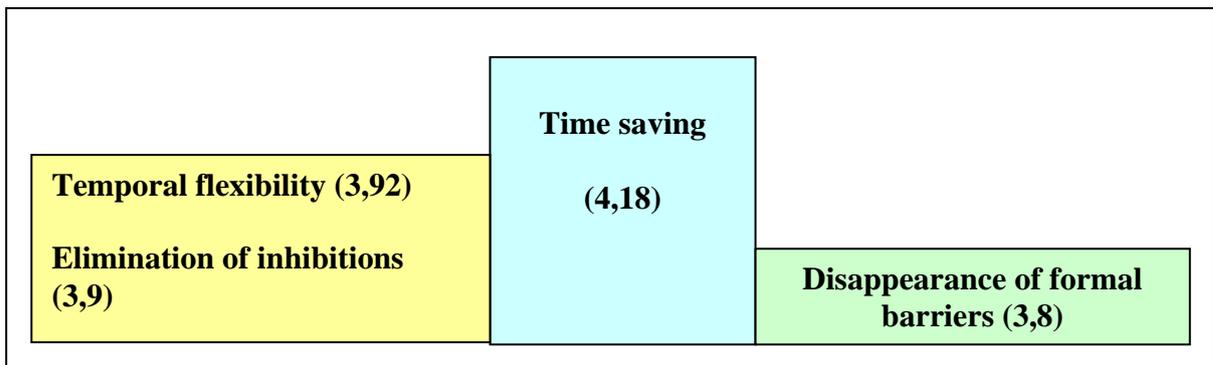


Fig.1. vantages

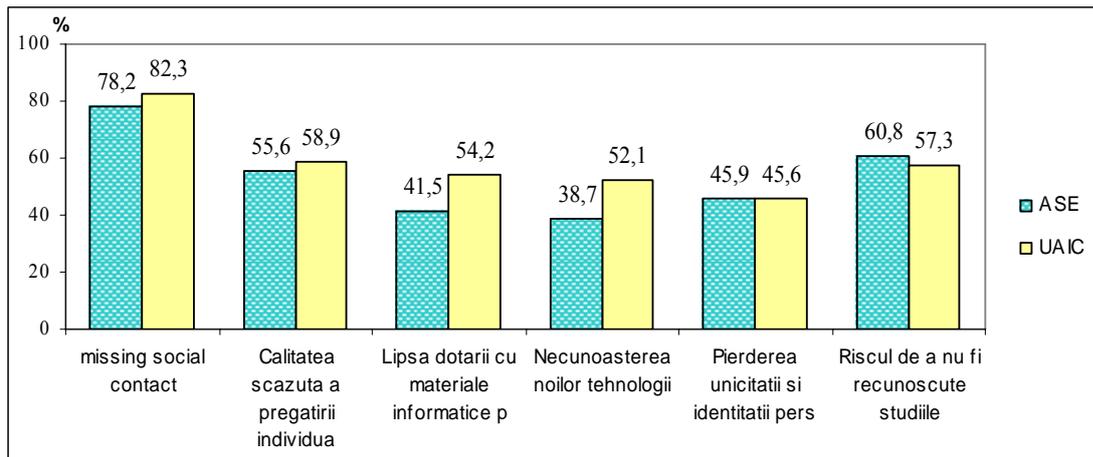
A characterization of eLearning cannot ignore what has been called the limits of the method. In the pleas of those who are reticent about this learning method, the following disadvantages are mentioned:

1. absence of social contacts and of direct communication with professors and colleagues;
2. low quality of individual preparation due to lack of teacher/tutor guidance and explanations;
3. lack of personal technical equipment, which dramatically reduces the advantage of flexibility;
4. lack of knowledge of the new technologies (lack of digital literacy);
5. loss of uniqueness and of personal identity due to the computer between the student and the trainer in the learning relationship;
6. risk of the studies not being recognized due to the particular way of having the courses.

Some of the disadvantages (1,2,5) result from the very way of functioning of this educational process which modifies the student-student and the teacher-student relationship

and from the deterioration of the role of the educator in the process of acquiring the knowledge. The main disadvantage identified by the students from the two universities was the lack of social contacts (see Figure nr.2) The last disadvantage on the list is determined by one main problem whose solution has not yet been found: the integration of these forms of education in the already existing structures. Consequently, students still consider this as an impediment, 60,8% the students from ASE and 57,3% the students from UAIC, respectively.

Other disadvantages (3,4) are favoured by certain constraints of the students in terms of lack of financial support for securing the necessary technological equipment or the lack of “informational background.” While the students’ perception of these disadvantages are similar (there are no significant statistic differences among the ratios in which these features are assessed as disadvantages between the two universities), things are different in what concerns the last category (the risk that the studies could not be recognized).



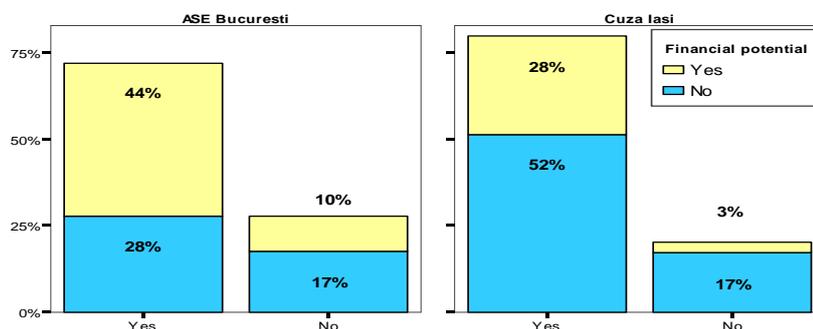
**Fig.2.** The ratio of eLearning features seen as disadvantages by students

From the graph in Figure nr.2, it is obvious that the students of Iași are much more affected by lack of financial resources and lack of knowledge of new technologies, perceiving them as disadvantages to a higher degree. In order to see if the hypotheses forwarded are confirmed, we applied the z test for the comparison of the ratios of two independent samples.

The values calculated on the basis of the statistics of the test with a value of 3.44 for the feature „lack of material and equipment” and 3.47 for „lack of background knowledge of the new technologies”, respectively lead to the rejection of the null hypothesis. We can say with a probability of 99.9% that the proportion of those who con-

sider these features as disadvantages is significantly greater with the students from UAIC.

The fact that the majority of the students said that they were willing to take an eLearning course in the near future is a confirmation of the fact that young people are generally flexible and willing to use ITC in the educational process. Unfortunately, of the total of those who are willing to take such a course, only 48.1% can afford it. As it can be noticed in Figure no. 3, things are different in the two universities. While in Iași, 80% of the students are willing to take an eLearning course, only 28% actually have the financial possibility to do it, as compared to 44% of the students in Bucharest.



**Fig.3.** Students' willingness to take an eLearning course by their financial potential

Starting from the variable „available monthly income” (scholarship and/or other sources), we have tried to quantify the influence of the financial component over the students' behaviour.

1. Hours in front of the computer. In order to characterise the influence of monthly income on the number of hours spent in front of the computer, we have used ANOVA. The hy-

pothesis of equal averages is obviously rejected (the value of the F test of 17.78 leads to the rejection of the hypothesis of null difference between the average number of hours spent in front of the computer by income groups for a probability of 99.9999), as the income has a significant influence over the number of hours spent in front of the computer. There is, however, the possibility of subsets for which the differences between averages is not significant. In order to verify this hypothesis, we have applied the modified Tukey test (for samples of different volume). According to the analysis, two homogenous subsets can be observed to form. The first group consists of students with an income of up to 4 million a month who spend an average of 10.91 hours. The second group consists of students with an income of more than 4 million a month who spend an average of 15.3 hours/ week. The difference between the two means is significant for 95% confidence.

Table no.2 Tukey'B for hours spend to computer

In- come	N	Subset for alpha = .05	
		1	2
1.50	257	9.8171	
3.00	274	11.9416	
5.00	145		14.6828
7.00	91		16.2747

2. Financial possibility to afford to take an eLearning course in the near future is influenced by available income (calculated value of the test  $\chi^2 = 111.24$  shows that the influence is significant for a probability higher than 99.9999%)

In order to measure the intensity of this connection we have used the Cramer coefficient. All these coefficients are calculated starting from the value of the  $\chi^2$  test. We shall choose the V coefficient for our interpretation, since it has values in the interval [0,1], unlike the contingency coefficient for which the upper limit of the value interval depends on the number of rows and columns of the contingency table.

In this case, the value calculated for this co-

efficient is 0.481, which indicates a correlation of medium intensity between the two variables. The coefficient is significant for a level of  $\alpha=0,000$  corresponding to a probability of 99.999%.

The auxiliary variables „gender” and „background” influence neither the willingness, nor the financial availability to take an eLearning course. Instead, the variable „job” codified as LM has a significant influence only at the level of UAIC (see table nr.4)

The value of Cramer's V coefficient of 0.323 indicates a weak, but significant statistic relationship for a probability of 99.999% . The value of this coefficient is also given by the smaller number of students from Iași who has a permanent or occasional job (only 26.4% as compared to 44.7% in ASE).

### CONCLUSIONS

The analysis of the sample survey offered above allows the emphasising of certain interesting aspects regarding the students' willingness to take eLearning courses and their accessibility, which is determined by the students' financial possibilities. Synthetically, our objective can be presented in the following results:

- The respondents have had a good appreciation of the advantages of eLearning. By analysing the scores, the following advantages have been highly appreciated: time saving (acquiring a large amount of information within a short span of time); temporal flexibility ( self - organization of the learning process) and the elimination of personal inhibitions that may appear within the traditional model;
- The persons with a low income spend less time in front of the computer and have poorer technical equipment. This is perceived as a disadvantage in the access to eLearning courses.
- There are differences between the two universities as regards the number of hours spent in front of the computer, equipment and the level of ITC knowledge / skills; these are all determined by a lower level of individual income.

We can say that the younger generation is

willing to accept this form of education/training, as they consider that they could contribute to the completion of their professional training. Unfortunately, the society is less prepared to offer them, as financial barriers limit the access of certain segments of the population.

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