The Use of Information Technologies in Education

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Abstract

With the development of technology and communications tools, e-learning platforms are becoming more common in the learning process of students. In the context of using an integrated learning process, it is necessary to identify students' perceptions about the use of e-learning platforms. This paper aims to describe the integration of information and communication technologies, namely e-learning platforms in the education system present in the traditional offline environment. The research aims to determine students' perceptions about the courses organized within the e-learning platforms. Data from the research were processed using IBM SPSS Statistics 20.

Key words: Online Marketing, Information And Communication Technologies (Ict), E-Learning Platforms.

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The Importance of Information Technologies in Education

Currently, the education system benefits from considerable improvements in the ways of learning, replacing the traditional system with one in which information and communication technologies are present in the classroom or in other forms of training, thus creating a complex process, lacking rigidity and full of interactivity, which eliminates the barriers of time and space, focusing on effective and lasting learning. Students come into direct contact with information and communication technologies in various situations, the most common being when they participate in computer science courses, and courses of other subjects organized in the computer science lab, when they wish to search for information, and media content on the Internet, when they are making their homework, or testing knowledge on a particular topic, or when they communicate with friends/students from other educational institutions via e-mail, discussion forums, etc. (Noveanu and Potolean, 2008, p.47).

According to the European Commission's statement in the report Key Data on Learning and Innovation through ICT at School in Europe 2011, "*embedding ICT in education and training systems requires further changes across the technological, organizational, teaching and learning environments of classrooms, workplaces, and informal learning settings*" (European Commission Report, 2011, p.10). The integration of ICT in the learning

process of students also generates an increase in their level of motivation and inclination to easily assimilate concepts related to those subjects. However, students are showing more focus in terms of learning information, in the development of the ability to work as a team and in the improvement of their attitude during classes (mediafax.ro). Using ICT tools supports students to form habits to help them adapt to the demands of society, which is in a constant evolution. Stimulating logical thinking and the development of imagination, strengthening scientific research abilities, the emergence of the need of self-improvement represent other benefits of the presence of ICT in the learning process of students (Constantin and Dinică, 2006, pp. 297-228).

Looking at the statistics on the number of students assigned to a single computer in schools in Europe, it is noted that in 2009, in almost all countries, at most 4 students had access to a computer. Trends show a significant decrease of this aspect, so that, in recent years, 2-4 students work on one computer during classes in most European countries, including Romania (European Commission Report 2011, p.10). In Romania, in 2008, rural schools provided students with 7 to 68 computers, while urban school students benefited from 10 to 157 computers in educational institutions. The degree of Internet connectivity of existing computers in schools was 73.4% in 2008 (Istrate, 2010, p.59).

The European Commission believes that one of its top priorities in the future is digital literacy, seen as a result of the education system. Thus, it is proposed that in the future students to succeed to acquire both basic skills and those specific to the use of ICT and their participation in integrated activities in the ICT use process (European Commission Report, 2011, p.33). Fig. 1 shows that the "*use of a computer*" and "*searching for information*" are specific ICT learning objectives adopted by most European countries for primary and secondary education, followed by the "*use of office applications*", while the "*use of mobile devices*" was the least adopted in the curriculum. The countries that have adopted both for primary and secondary education the specific objectives mentioned above include Bulgaria, Germany, Greece, Spain, Latvia, Hungary, Malta, Poland, Slovakia and the United Kingdom (Wales and Scotland). In Romania, the specific objectives adopted on digital literacy are directed exclusively to higher education, to acquire "*knowledge on hardware and electronics*", "*use of a computer*", "*use of mobile devices*", "*use of office applications*", "*searching for information*", "*multimedia use*" and "*use of social media*". (European Commission Report, 2011, p.39).
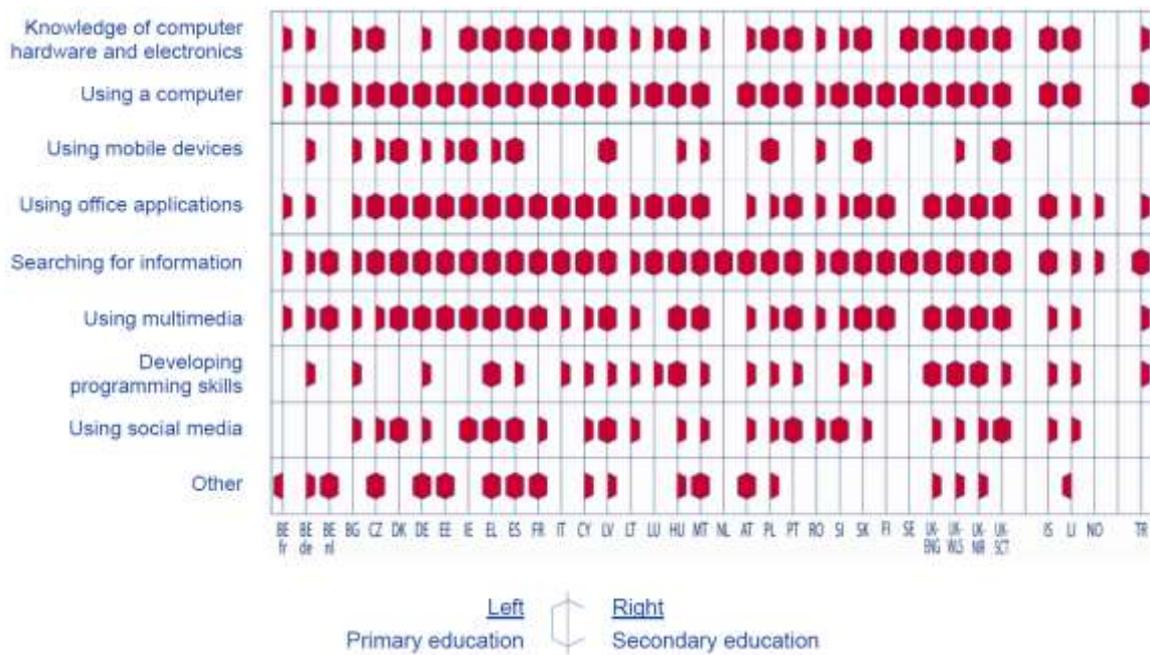
Fig. 1. ICT learning objectives in central steering documents for primary and secondary education

Source: European Commission Report, 2011, p.39

In European countries, official steering documents submit suggestions on the fact that students in primary and secondary education should appeal to ICT tools in order to successfully carry out learning activities in the classroom and/or to pursue complementary activities (e.g., for making homework, projects, etc.). The latter are promoted especially at secondary level. Except the Netherlands and Poland, official documents of all the other countries selected for analysis convey the notion that students use ICT to achieve various activities specific to certain subjects such as language teaching, mathematics, foreign languages, natural sciences, social sciences and arts (see Fig. 2). In general, students use specific ICT tools during classes in schools and to pursue complementary activities. In Latvia, Iceland or Turkey, students mainly choose to use ICT to carry out some complementary activities. In Romania, there were few steering documents registered on the recommendation on the use of ICT by students in primary education (European Commission Report, 2011, p.46).
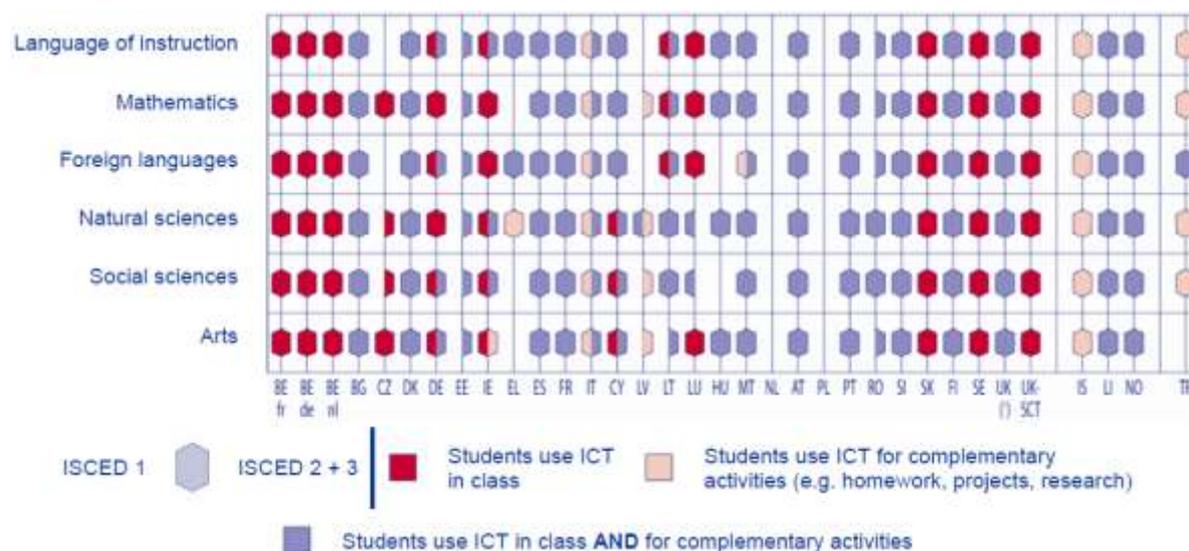
Fig. 2. Student use of ICT by subject area according to official steering documents in primary and secondary education

Source: European Commission Report, 2011, p.46

Currently, most European countries have campaigns among teachers on the use of a more extensive palette of specific ICT tools to develop teaching and learning, respectively. In this context, teachers are advised to develop personalized learning virtual environments using various hardware components such as PCs, projectors, DVDs, smart tablets, virtual learning environments, mobile devices, e-book readers, etc., or include in teaching software components beneficial to the learning process (tutorial programs, office applications, multimedia applications, digital games that facilitate different stages of learning, communication software – e-mail, discussion forums, etc.). There are countries such as Belgium, Spain, Slovakia and the United Kingdom (Scotland) where, although no official recommendations/suggestions related to the integration of ICT tools in teaching for primary and secondary education were formulated, support was given to schools and teachers alike. As regards Romania's situation from this perspective, official recommendations were made on the following hardware integration in teaching and learning: "*computers, projectors or beamers*" and "*e-book readers*", and the following software components: "*office applications*, "*multimedia applications*", "*communication software*" and "*digital resources*". Compared with them, the teachers and the schools where students perform their courses related to primary and secondary education have received support for the development of courses involving "computers, projectors or beamers", "office applications" and "digital resources" (European Commission Report 2011, p.45).

The first comparison between different styles of learning was achieved in 1947, when the US military tested three distinct ways: explanation from a teacher, watching a film which provided the same information and individual study using a course support. It is worth mentioning that all three methods used the same images and the same information. The study notes that there are no differences between the three methods of learning regarding the amount of information retained (Ruth and Richard, 2011, pp.8-25).

The term "*e-learning*" appeared in 1980, during the same period as the term "*online learning*" (Naidu, 2011, p.11). The e-learning process can be defined as a support for learning as a training package delivered to a terminal (fixed-PC, mobile-tablet, mobile phone, etc.)

(Ruth and Richard, 2011, pp. 31-44). Most often, the term e-learning refers to the use of technology information in teaching and learning (Naidu, 2011, p.12).

The aim of e-learning is to help students achieve their goals without having to attend classes, without needing teachers and without requiring physical movement in the classroom. The difficulty of e-learning is to realize courses in a manner compatible with the human learning process by providing an amount of synthesized information in a manner that allows the human brain to make some connections to retain it.

An e-learning platform provides support to organize education exclusively via the Internet and must include a public section (accessible to all learners), as well as private sections (available to teachers) (Dobre, 2010, p.5). E-learning covers a broad category of applications and processes such as computer training, web based learning (learning via the Internet/Intranet) computer based learning (education offered via the computer), online collaboration, etc.

A study published in the International Journal of Cyber Society and Education shows that academic performance can be improved by using e-learning methods by students if they spend an average of 9.2 hours per subject using e-learning platforms. (Rodgers, 2008, pp.143-156).

Among e-learning platforms which enjoy a high reputation internationally is the eTwinning platform, a program launched in January 2005, which was aimed mainly at facilitating communication and institutional partnerships for pre-university education in Europe. By 2007, the etwinning.net platform became a community, bringing together more than 65,000 teachers. Teachers and students participating in the activities proposed by etwinning.net have access to educational products involving the use of new technologies, but also benefit from the opportunity to communicate in different languages. They also have the opportunity to carry out projects to present schools and post them in a common virtual space for work, facilitating teamwork, both with classmates and with other people from different countries. From October 2007, the eTwinning program began to be implemented in Romania, too, and, in two years of activity, approximately 2,700 institutions and 3,800 teachers have joined the platform (Velea, 2009, pp. 66-69).

Adobe Inc. provides a solution for "virtual classrooms" where the user has the opportunity to study some modules online, from home or from some faculties, student status not being necessary. The student can set the course's levels of difficulty, can achieve virtual conference sessions with some teachers or share content with them (Rosenberg, 2007, pp.28-30).

SIVECO Romania has implemented an e-learning educational project in Malta. The educational project allows teachers to create digital lessons adapted to students requirements that they can implement in practice (elearning.ro).

Moodle is an e-learning platform widely used in the academia, but is also used for conducting competitions in pre-university education. This allows the organization of offline competitions (users post materials created by them in the dedicated section following that the materials stored on the platform to be analyzed by teachers) or online competitions (held simultaneously with all participants, the competition having a set time interval) (elearning.ro).

Another e-learning solution developed by SIVECO Romania at national level was to develop and implement a new curriculum for various subjects (mathematics, science and social sciences) and support applications for multi-touch interactive devices that facilitate collaborative learning (elearning.ro).

SEI (IT-Based Educational System) is an IT platform that diversifies the arsenal of means and methods used in the training of high school students by providing specific information systems means (text, graphics, animation, sound, simulation, interactivity, etc.) and new techniques to facilitate the understanding and assimilation of knowledge (portal.edu.ro).

Research Methodology

Technological development in recent years has enabled the integration of education through e-learning platforms alongside the traditional one, achieved in the offline environment. **The aim of the research** is the perception of students on courses organized on e-learning platforms.

The research on the students' perception about the courses developed on e-learning platforms took place between 05.13.2015 - 05.20.2015, through the use of an inquiry-based survey among 106 students from the Academy of Economic Studies, specialization Marketing. The questionnaire applied individually to students consists of 14 questions and exhibits a high degree of structuring. Data from the research were processed using IBM SPSS Statistics 20.

After analyzing the data, as can be seen in the figure below, on the question of participation in at least one online course, 100% of respondents had a positive response.
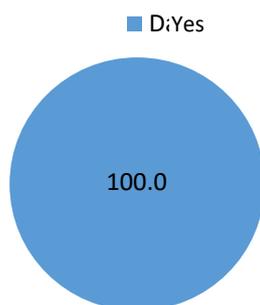

Fig. 3. Participation of students until now in online courses

From Fig. 4, we can identify that 77.4% of respondents consider online courses as a support for courses taught in the traditional/offline environment, while 41.5% of them claim they represent an alternative to traditional education. Online courses are an effective method of studying a complementary field for 37.7% of the respondents and only 18.9% consider that they are an effective way to deepen the field of interest. Thus, the first hypothesis of the research is confirmed.
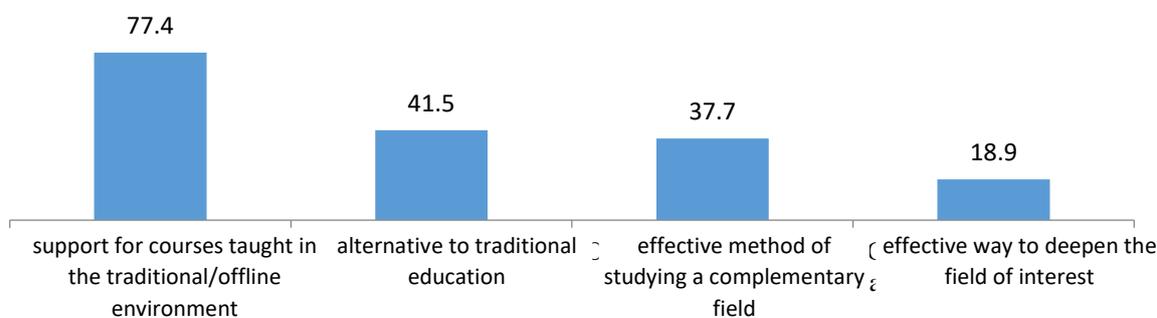

Fig. 4. Students' perception about online courses

Regarding the number of online courses in which they took part so far, over half of respondents said they had participated in a single course, 35.8% had attended two courses and only 9.4% participated in three online courses (see Fig. 5).
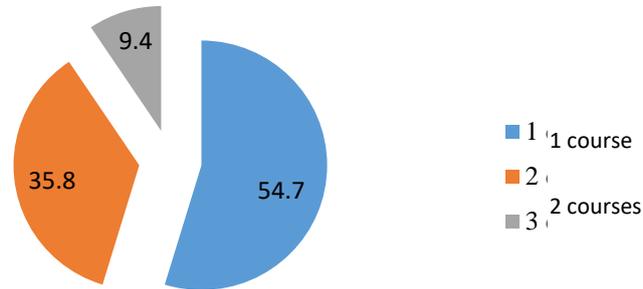

Fig. 5. The number of online courses attended by students

From the figure below, we can draw the conclusion that the main areas of online courses attended by respondents are marketing (67.9%) and management (58.5%). At the opposite pole lies IT&C (5.7%) and finance (17%).
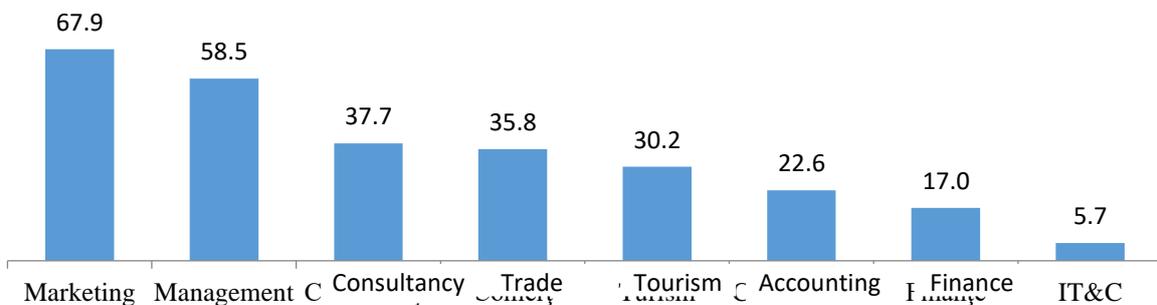
Fig. 6. The main areas of online courses attended by students

Information about the existence of online courses has been achieved mainly by friends/acquaintances/colleagues/family (62.3%) and via the Internet (50.9%). 45.3% of respondents became aware of the existence of online courses at the university, 22.6% from specialized magazines and only 7.5% from TV (see Fig. 7). Consequently, the second research hypothesis it is rejected.
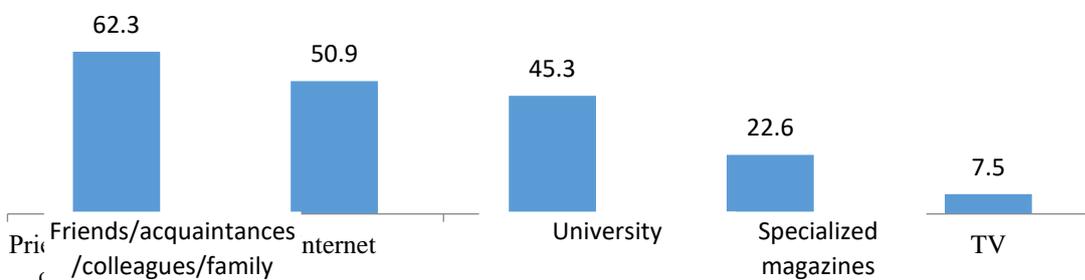

Fig. 7. Main sources of information on online courses for students

Regarding the main criteria that we took into account in terms of choosing online courses, 58% of those surveyed believe that accreditation for the certificate obtained after completion of the course is the main criterion, followed by the course fee (51 %) and

reputation of the company that organizes the course (38.2%) (see Figure 8). Place 4 in the ranking is occupied by the novelty of the information presented in the online course, followed by the period of time it is carried out in and the activities included in the course syllabus . In conclusion, the third research hypothesis is confirmed.
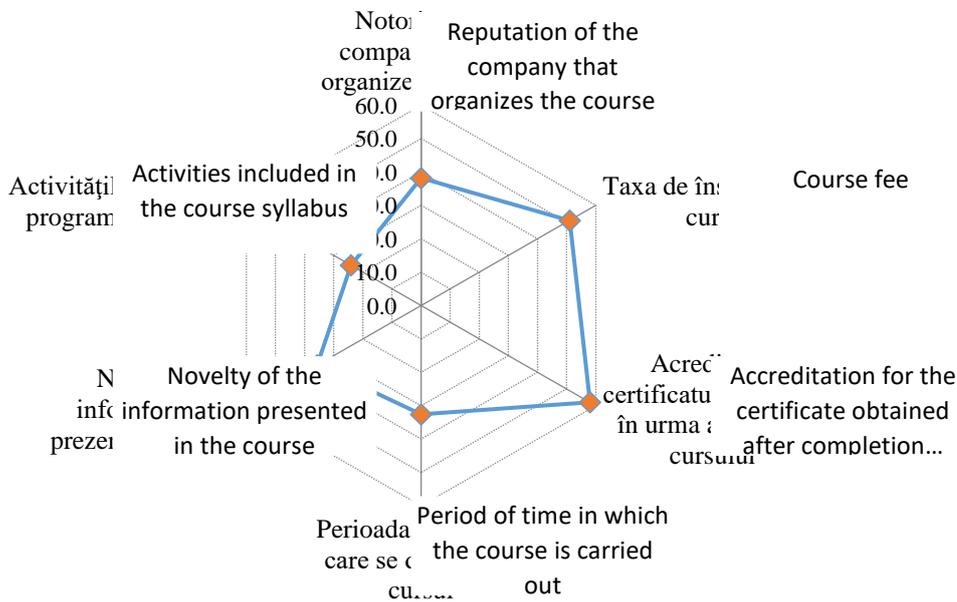

Fig. 8. Main criteria for the selection of online courses

When asked "What are the main reasons that led you to chose to attend classes conducted online?", more than two thirds of respondents were of the opinion that the main reason is due to obtaining an accredited certification at low cost, 66% - obtaining an accredited certification quickly and two in five respondents believe that these courses give them the opportunity to take the exam online. Flexibility of the study program is the main reason for 39.6% of the respondents, while the topicality of the information presented in the course is the primary motivation for choosing online courses. 20.8% think that they decided to participate in online courses due to lack of a similar course at their universities, while only 15.1% are participating in an online course on the recommendation of teachers (see Fig. 9). This confirms the fourth research hypothesis.
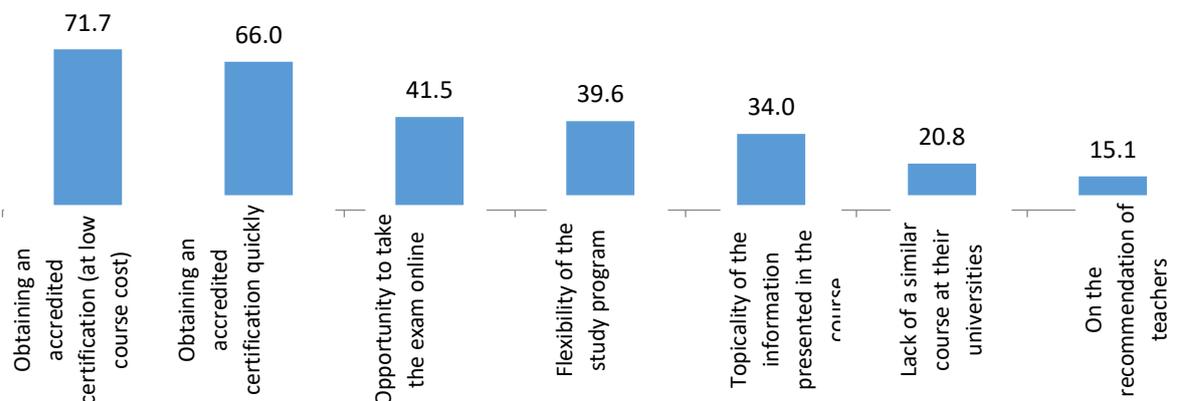

Fig. 9. Main reasons for participating in online courses

As main results from participation in courses conducted online are learning entrepreneurial skills, 64.2% of respondents saying this, and improving entrepreneurial skills,

mentioned 52.8% of respondents. Only 17% of participants believe that participating in online courses is aimed at starting an own business (see Fig. 10).
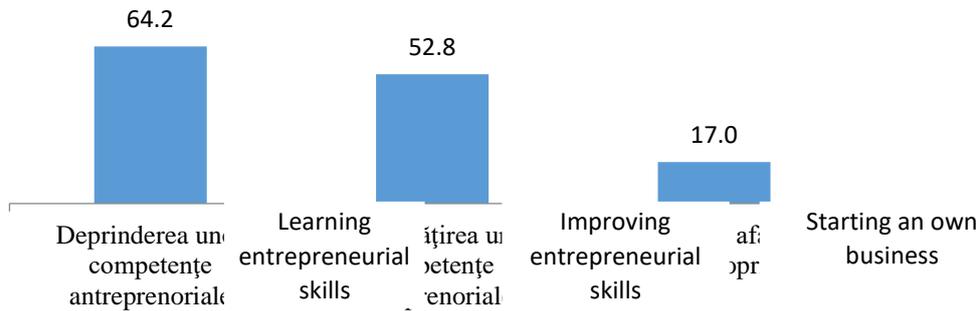

Fig. 10. Main results from participation in courses conducted online

According to the figure below, we can see that 3 out of 4 respondents completely agree with the fact that the information presented in courses can be accessed easily. 69.8% of people surveyed are in total agreement with the flexibility regarding the final graduation examination and one in two respondents completely agree with that in online courses they have continuous access to many practical examples.

In connection with the high degree of applicability, 47.2% of respondents strongly agree with this aspect, while 39.6% are in total agreement with the statement "approach of issues/field was according to my expectations".

About a third of respondents completely agree with the fact that the information presented in courses was well structured, 30.2% completely agree that the information presented in courses was topical, and 28.3% completely agree that participating in an online course gives access to a discussion forum on the online platform.

About 1 in 4 people surveyed completely agree with the trainer feedback as being prompt and only 11.3% completely agree with continuous access to many practical examples.
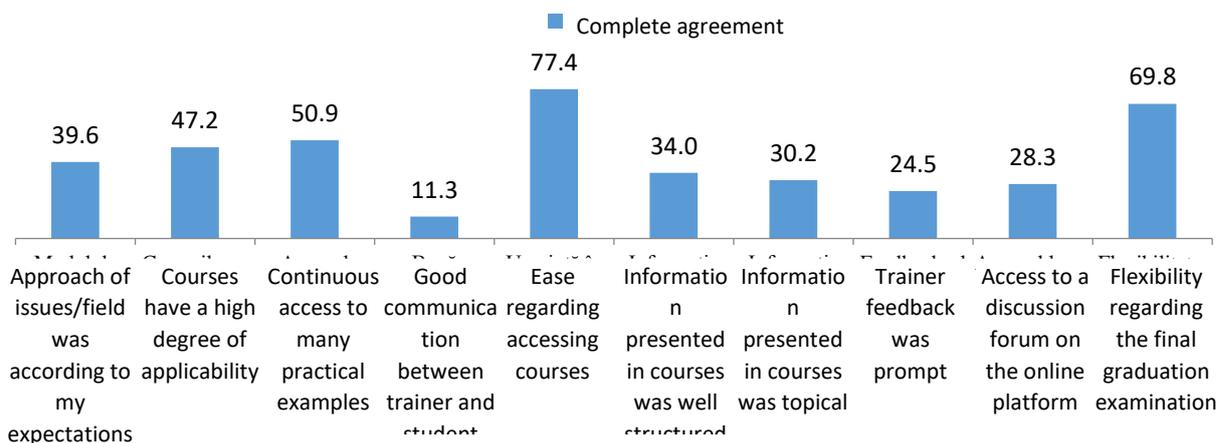

Fig. 11. Complete agreement from students regarding certain statements specific to online courses

In terms of the degree of satisfaction with information received through online courses attended, 28.3% of respondents are completely satisfied, 47.2% are satisfied, and 15.1% are indifferent. Only 9.4% of those surveyed were dissatisfied with the information

received through online courses attended (see Fig. 12). Thus, the fifth research hypothesis is supported.
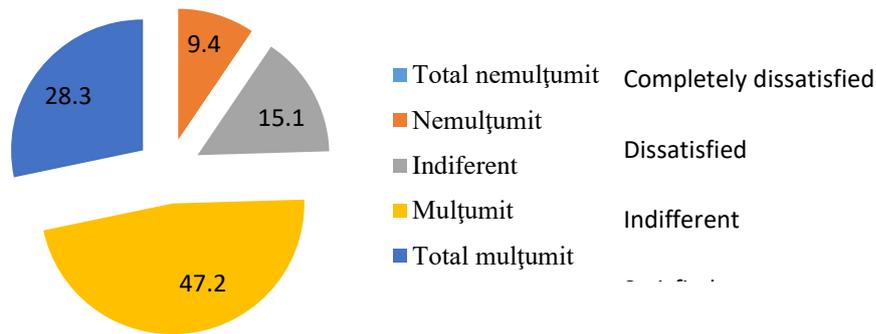

Fig.12. Degree of satisfaction of students on online courses

18.9% of people surveyed certainly recommend online courses attended and 47.2% of them would recommend them. In contrast, 15.1% would not recommend them and 18.9% are indifferent as regards to recommending online courses attended. In conclusion, the sixth research hypothesis is confirmed.
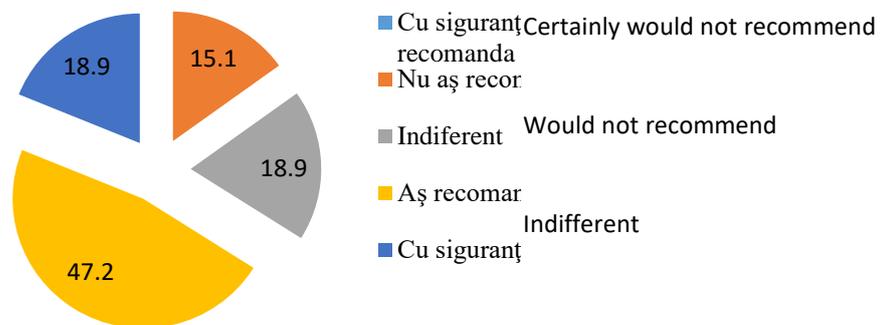

Fig. 13. Recommendation of online courses by students

62.3% of respondents are female, while 37.7% are male (see Figure 14). Regarding the age of the respondents, 15.1% of them are 19 years old, 34.0% are 20 years and over half are 21 years old (see Fig. 15).
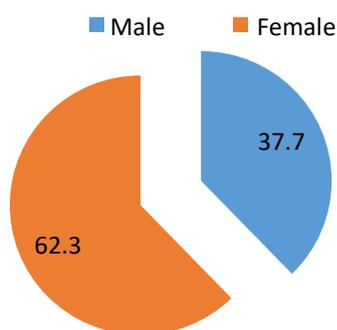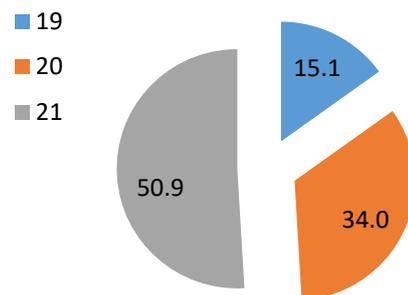

Fig. 14. Gender of respondents

Fig. 15. Age in complete years

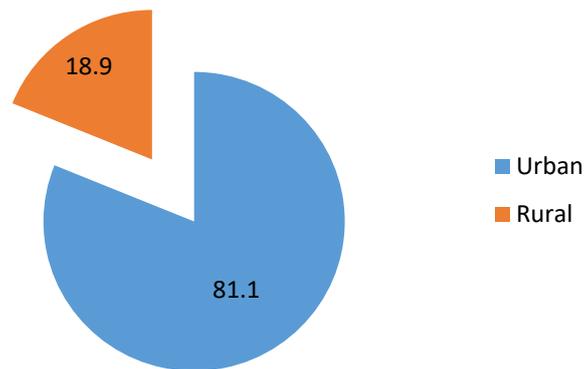18.9% of respondents are from rural areas and 81.1% are from urban areas.

Fig. 16. Area of origin

In conclusion, courses offered on e-learning platforms are seen by students as a support for courses taught in the traditional environment.

Most students said they took part in only one online course so far.

Among the fields analyzed, marketing and management are the most common. Furthermore, students' main source of information on online courses is represented by friends/acquaintances/colleagues/family.

The most important criterion for selecting online courses mentioned by the students was the accreditation of the certificate obtained upon completion of the training. In addition, obtaining accredited certifications at low costs is the reason why most of the students choose to attend courses organized on e-learning platforms.

Among the results obtained by participating in online courses, most students say they have acquired entrepreneurial skills and completely agree with the fact that the information presented in courses can be accessed easily.

In general, most students were satisfied with the information received through online courses attended so far, while more than half of respondents subsequently recommended them.

Noting the socio-demographic variables, most students are female, have the age of 21 and come from urban areas.

Conclusion

Modern information means significantly enhance the attractiveness of the education process, changing the perspective on educational practice and complementing the educational framework with new learning methods, specific to the information society.

E-learning will not totally replace traditional educational systems, but will help the learning process, representing an alternative to traditional education (distance learning).

At the level of organizations, e-learning systems will optimize the training process by reducing the costs involved in this process, allowing, at the same time, the continuous training of personnel, without stopping their work.

As a result, e-learning platforms will become increasingly used in the training of students, giving them the opportunity to retain a much higher volume of information in a relatively short time. Also important is the fact that the use of e-learning platforms allows overcoming the barriers of space and time, as students no longer depend on a predefined route for a course, no longer have to travel to a certain location to participate in that course and, last but not least, benefit from a permanent feedback regarding problems encountered.

E-learning platforms allow the user to choose the study program of interest, to access topical information, and to synchronously or asynchronously communicate with teachers.

It is known that the education system using methods specific to e-learning has a number of limitations related to high drop-out rates, initial costs of design and maintenance of platforms and some experience in the use of computers, but the experience of already functional e-learning platforms has shown that participants in courses get acquainted easily with the virtual environment and, if motivated enough, will successfully complete the courses attended.

Nationally and internationally there are various e-learning platform developed in order to facilitate learning through the use of alternatives to the traditional education system. E-learning platforms support individual progress and allow users access to a range of information sources or online debate environments.

E-learning platforms qualitatively improve the content of the education system by including active and autonomous learning processes that increase the interest of students, create new formal or informal learning environments, individually and in teams.

Research Limitations

The quantitative research described above is aimed at the perception of students on courses provided on e-learning platforms. Noting the small size of the sample – 106 respondents – we must note that the results cannot be extrapolated to the community investigated. Also, further research is needed to outline a more detailed image on the subject selected for analysis.

Acknowledgement

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