Pro Edu. International Journal of Educational Sciences
No. 4, Year 3/2021
https://peijes.com/ e- ISSN 2668-5825, p-ISSN 2668-5817

https://doi.org/10.26520/peijes.2021.4.3.49-61

ONLINE EDUCATION - PROBLEMS AND SOLUTIONS

Cristina Veronica ANDREESCU[1], Adina NICHITA[2], Dumitru ENACHE[3], Bianca MIHAILOVICI[4]

[1]Lecturer, PhD, University of Medicine and Pharmacy "Carol Davila", Bucharest; [2]MSc, Faculty of Environmental Engineering and Food Science; [3]PhD in Systems Engineering, University of Oil and Gas, Ploiești; [3]Teacher, High School;
ROMANIA,

E-mail: cristina.andreescu@umfcd.ro, nichitaadina79@gmail.com, ing.dumitru.enache@gmail.com, biancamihailovici@yahoo.ro,

ABSTRACT

The online platforms have been in a continuous development since the beginning of their appearance, being classified according to the field of activity. This article discusses some features of the online educational platforms, that serve the distance learning adopted during this pandemic period by the majority of nations on the planet, to continue the educational progress, at all levels of learning. The article is intended exclusively for the platforms used at the pre-university level of education and illustrates theoretical notions about them, represented by typologies, characteristics, and the features that platforms have been applying. The online platforms, as any other software device, possess advantages and also limitations of the available functions, and this article illustrates their approach in the context of the formative type of assessments, as well as of the summative ones. The effects of using these platforms are highlighted by using the questionnaire survey. This has the final aim to identify the perceptions of the respondents on the use of the online educational platforms for conveying the school information and also to identify the psycho-social aspects that this approach entails. At the end of the article the results of students' attendance at the online courses are presented, results that were collected based on the monitoring study conducted on a sample of students.

Keywords: *online educational platforms; Google Suite; formative assessment; summative assessment; questionnaire; students' attendance at online classes;*

INTRODUCTION

The online educational platforms are defined as computer information systems with various forms, used in the online education referred to as e-learning, online learning or distance learning and which allow the creation of educational content and its management. These platforms have evolved over time, together with the evolution of the Internet, of the mobile applications as well as of the market requirements. Thus, the functionality of the platforms used in education has started to show a growing interest. Online platforms are represented in different ways and have multiple features.

1. PLATFORMS USED IN THE PRE-UNIVERSITY EDUCATION TYPOLOGY, FEATURES, FUNCTIONALITY

In the context of the Corona Virus pandemic, these e-learning platforms have shown enormous interest in the carrying out of studies from different levels of education. Thus, through the transition of education from the physical to the online environment, their use represented the optimal solution, and in this way the use of different platforms or IT tools was established, depending on the reference level of education, according to the measures adopted by the ministry.
(https://www.edu.ro/sites/default/files/_fi%C8%99iere/Minister/2020/inv.preuniversitar/note%20%2B%20proceduri/adresa%20MEC_%20ISJ_uri%20_10.03.2020_ref.decizie%20CNSSU.pdf.)

The online platforms fall into the typology of a digital library, allowing facilities such as multimedia files, wiki files, audio-video files, content storage and audio-video or video conferencing conversations. There are platforms that present software tools for each task and here we refer to different applications that are integrated together to create an entire educational package or a dedicated ecosystem such as the Google Suite, consisting of the Google Classroom platform and the online tools such as Google Meet, Google Mail or Gmail, Google Docs, Sheets and Slides. In addition to these, other platforms and tools are highlighted, such as: Microsoft Teams together with the suite of tools Word, Excel, PowerPoint, Zoom, Whatsapp, Facebook Messenger, Skype or Discord. The latter are online messaging tools, which allow the sharing of content in different formats and the possibility of video conferencing, but they do possess certain limitations.

In general, an online platform used in the pre-university education includes the following features:

1. Providing a guide for installation, configuration and administration of the educational platform;
2. The aspect of the interface must be designed so as to include visual elements similar to an educational environment organized by the theme of specific icons, fonts and colors;
3. To facilitate synchronous and asynchronous communication through it;
4. To allow the intuitive administration and efficient monitoring of the information presented through it;
5. The educational content should present an organized and intuitive management according to the educational level;
6. To include built-in editing methods for the educational content under different formats;
7. To allow functionalities for the offline self-assessment using asynchronous procedures, also to allow functionalities for the online assessment using synchronous procedures on the acquired theoretical and practical knowledge;
8. Implementation of an indefinite training program that allows periodic checks during an entire educational process or during several educational processes;
9. Assistance in using the platform and feedback on the platform and the services offered by it.

According to: http://www.ccdialomita.ro/Oferta%20de%20programe/Schita%20curs%20-%20Abilitare%20platforme.pdf

According to an evaluation research report conducted in May 2020, the most used online educational platforms for the pre-university environment are the platform Classroom offered by Google and other platforms such as Moodle, Edmodo, Easyclass, these being nominated by 2.6 people out of 4 evaluated. Of these platforms, the one that stood out with a high percentage compared to the others is the Google Classroom platform, being used by teachers in a percentage of 68%. (https://www.psih.uaic.ro/wp-content/uploads/sc_onl_rap_apr_2020.pdf)

Google Classroom is the online platform used for content sharing, creating lessons, forming groups by class of students, and has the possibility of posting different types of files in various formats, also has the availability of various assessment tools and evaluating student feedback, etc.

The main features of the Classroom platform are presented in the table below and include attributes for both teachers, students, parents and ICT administrators, according to https://www.eduapps.ro/blog/20-de-motive-pentru-care-sa-folosesti-aplicatia-google-classroom/.

Statute	**Classroom features**
Students	Creating, uploading, sending and submitting the assignment; Viewing materials, activities and terms for submitting the assignment; Receiving and providing feedback Getting grades
Professors	Creating and managing the created courses; Creating, managing the assignments as well as receiving or evaluating them; Direct, real-time evaluation of the students' performance;
Parents / Guardians	Receiving statistics on the activities of their own children by e-mail, the summaries include information on work tasks, the student's activity in class, the situation of the assignment solved by the student; The parents or guardians are not permitted to connect to Google Classroom directly, the information is sent to them through a report on their personal email address;
ICT Admin	Creating, viewing or deleting courses from the platform, only in the field they manage; Possibility to add or remove students or teachers from a course; Viewing the activities corresponding to the courses in the administered field;

***Table 1**: The Google Classroom platform features depending on the educational status*

Google Mail or Gmail is the email service that creates a Google Account, and is used for authentication in the email account, being also used for authentication for the rest of the applications or tools in the Google Suite, which are embedded in an ecosystem with a single sign-on for all applications. Basically, in order to be able to use the Google package, the creation of an email in this domain is indispensable, the authentication in these platforms not being possible without an existing Gmail account. Gmail is available in e-mail format, being accessed through a web browser, or through the mobile application available on the Android or iOS platform.

Google Meet is a tool or application that facilitates the asynchronous communication, by video call / videoconference, in a group of people with the status of teacher, student, etc., this being used in the Romanian pre-university education with a ratio of 2.48 people on a representation scale from 1 to 4 according https://www.psih.uaic.ro/wp-content/uploads/sc_onl_rap_apr_2020.pdf. The main features of the application are represented in the table below.

Statute	**Features in Google Meet**
Student / Teacher	Two-way audio and video calls at a maximum resolution of 720p; Chat window for conversation participants; Call encryption between all users; Noise cancelling audio filter; Ability to join meetings through a web browser or through Android or iOs apps; Integration with Google Calendar and Google Contacts for syncing contacts; Screen sharing for mobile devices, and for the desktop the function of sharing the open application running in the background; The host has the possibility to allow the entry of a person in the conference or to remove a person from the conference;

Table 2. *Google Meet platform features based on educational status*

2. ADVANTAGES / LIMITS OF THE ONLINE PLATFORMS IN THE FORMATIVE AND SUMMATIVE EVALUATION

The e-learning platforms are suitable for their use in teaching multiple disciplines, in other words they are multidisciplinary. In order to have a point of view close to the model of the physical reality in schools, it is necessary to involve in the evaluation of platforms people who have knowledge based on different fields of activity, who should work together to find common ground.

Thus, the involvement of experts in computer science or programmers is the basis for creating the platform or digital educational environment at a code level, at an algorithmic program level, of information system experts, to organize how information is presented, but also for the way in which the search for information gives certain results. The experts in psychology and education are responsible for the impact that the use of these platforms and the transmission of knowledge through them are perceived by the students; they are also responsible for the results that the students achieve through interaction and teaching-learning, through online platforms.

The ICT experts are responsible at the level of the educational institution for the proper functioning of the platform they manage, they are also the ones who can communicate their features, the possible system bugs, or future improvements that can be made to the respective platform.

The main *advantages* of using online platforms, compared to the use of the traditional way of organizing training activities, are the following:

- the continuous availability, through an active internet connection; the information is just a few clicks away, unlike the classic methods by which information was presented in a book (usually in the textbook), thus reducing considerably the time for search;

- there is no location limit, through active internet connection and a device compatible with the platform, students can upload asignments or answer questionnaires from different locations, unlike the traditional version that required attendance at school, where the location was established as class of students;

- facilitates simultaneous access to the platform, so that several users, with different status, can be authenticated on one platform at the same time;

- efficient retrieval of information by keyword search, this allows a quick transition to the desired notions in a text, e-book or other bookstores that have a large volume of written information;

The main *disadvantages* of online platforms are the following:

- compliance with copyright policies, retrieval of information from certain sources or sharing of information under a different name must include a reference to the authentic source from which the information was retrieved and whether there is permission to reproduce it;

- the digital information is not always presented in an organized form, depending on the user or author who added the content to the platform;

- the high initial infrastructure cost;

- the transfer of multimedia files requires that the network bandwidth be adapted to a large number of files, either small and numerous files, or large but limited in number;

- the speed decreases progressively with the number of users connected simultaneously on the platform;

The assessment of students in the case of distance learning involves approaching different assessment strategies and methods, including the following:

1. Formative or summative assessment;
2. Objective assessment, this type of assessment implies the fulfillment of some established objectives;
3. Normative assessment presupposes a norm or a statute and reflects the position of a student towards another student within an established group;
4. Quantitative assessment;
5. Qualitative assessment.

B.S. Bloom (1956) states in his paper entitled "Taxonomy of educational objectives: the classification of educational objectives" that the notion of educational objectives comprises three major planes: cognitive, affective and psychomotor. B.S. Bloom presents his work as a motivation for teachers to increase their focus on all three educational plans, thus achieving a holistic view of education, a notion also presented in a doctoral thesis summary by a postgraduate student Monica Florea about "Contributions to the evaluation of e-Learning systems" published in 2011 in Sibiu. (http://www.nazarko.pl/public/data/resource/upload/00003/2568/file/contributii_privind_evaluaresa_sistemelor_de_e_learning.pdf)

Khan has developed a model called CAPEODL (Comprehensive Approach to Program Evaluation in Open and Distributed Learning) in which he considered the formative assessment as a component of each stage of the e-Learning process and not just a separate component of the content development process.

(http://www.nazarko.pl/public/data/resource/upload/00003/2568/file/contributii_privind_evaluaresa_sistemelor_de_e_learning.pdf.)

The formative (continuous) assessment consists in the ongoing evaluation of the students' knowledge throughout the training process, usually after short intervals.

The assessment results, such as formative (continuous) or summative, cumulative or review ones, can be used to improve teaching.

The example can be represented by students who learned the criteria of the amounts in a proportion of 80%. The conclusion we can draw when we observe the results obtained by students following a summative, cumulative or review assessment of a test taken in mathematics or another discipline, may lead the teacher to make decisions about improving his teaching. In this case, the decisions will primarily focus on improving the students' future knowledge. Following the summative and formative assessment, and the conclusions he reached, the teacher would design and create the future lessons according to the registered school results. According to: (https://www.schooleducationgateway.eu/ro/pub/viewpoints/experts/formative-assessment-learning.htm)

3. HOW ONLINE PLATFORMS INFLUENCE SCHOOL PERFORMANCE AND THE PSYCHO-SOCIAL COMPETENCES OF STUDENTS - THEORETICAL APPROACH AND QUESTIONNAIRE SURVEY

A critical reflection on the relationship between information technology and the development of the act of teaching, may lead us to a fundamental conclusion: the presence or the lack of technology in the classrooms in the educational institutions is not the factor that directly influences the teaching-learning process. We appreciate that of a much more importance is the quality of the pedagogical act, which leads to the formation and development of the students' personalities.

The didactic technology has been defined by different authors, as follows:

"Any definition of the teaching technology must include the efficient use of modern tools, taking into account the cognitive abilities needed to respond to changes that will inevitably occur due to the technological evolution" (Gauer). http://portale.unibas.it/site/home/didattica/formazione-degli-insegnanti/documento23493.html

"Teaching technologies are a set of processes and tools that are adopted to combat teaching requirements and problems, particularly in this phase using the latest means, those related to computer science" (Roblyer and Edwards). According to: http://portale.unibas.it/site/home/didattica/formazione-degli-insegnanti/documento23493.html

„Teaching technologies represent ... a systematic way of designing, conducting and evaluation of the global teaching process in specific objective terms, with attention to research on human learning and communication, through resources, whether human or not, to make the most efficient training process” (Seattler). According to: http://portale.unibas.it/site/home/didattica/formazione-degli-insegnanti/documento23493.html

The use of online platforms leads to the formation of digital skills that are characterized by: specific knowledge, skills and attitudes:

- knowledge: these involve the awareness and assumption of the role and opportunities that the online system offers, both in the socio-educational environment, and in

everyday life; through these both the students and the teachers use the different types of computer platforms to access information structured in different forms, based on the knowledge gained so far.

- skills: the ability to systematically search, extract and interpret the information presented through websites, platforms, blogs, according to specific requirements; these skills are formed over time depending on the effort, the allotted time and the interest given, depending on the number of searches performed and the nature of the field from which the information is to be found.

- attitudes: the use of technology leads to the formation of a critical and reflective spirit in relation to the information provided by the online search algorithms; thus, by developing them, experience will be formed to distinguish the true value of information structured on different platforms, sites stored on the Internet, because the online environment offers easy and fast access to information but also has a degree of untruth of the information coming from various sources of information.

The teacher, as an essential figure in fulfilling the act of teaching, has the role to apply in the teaching-learning-assessment process, even online, a series of good practices through which the psycho-social skills may be developed, which in turn have the role to contribute to the formation of the preadolescent's and adolescent's personality, as well as to the performing of a quality education. The good practices undertaken by the teacher may consist of different activities such as: interview-type training activities, with the task of developing interpersonal relationships, role-based training activities, with the task of developing adaptive skills, training activities aimed at developing the capacity and skills to adapt the authority in real educational situations, training activities to develop capacities and skills to express attitudes like: understanding, friendship, empathy.

Carrying out a case study, a questionnaire applied to two classes of students from a high school in Dîmbovița County was completed. The questionnaire contains six questions whose role is to obtain feedback from students on how students perceive that their digital skills, psychosocial skills, and school performance are influenced by using the online platforms in conducting the online teaching activities. We further present the results obtained from the application of the questionnaire.

The following conclusions can be drawn from the results expressed in percentages:

In question number 1 from the questionnaire, 42% of students believed that at the end of the 2020-2021 school year their digital skills would be improved, and 58% believed that their digital skills would not be improved. Also on this question, 0.00% considered that their digital skills would be insignificantly improved.

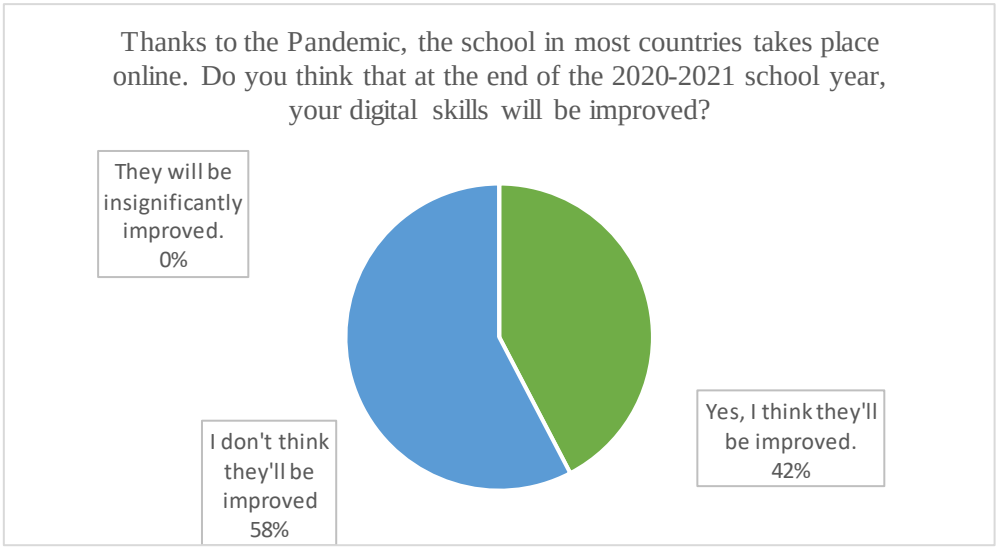

Chart 1. *Percentage results corresponding to question number 1*

In question number 2, 66% of students answered that they missed their classmates and teachers. 19% of students said that they did not miss their teachers and classmates, and 15% said they did not care if they went to school or not.

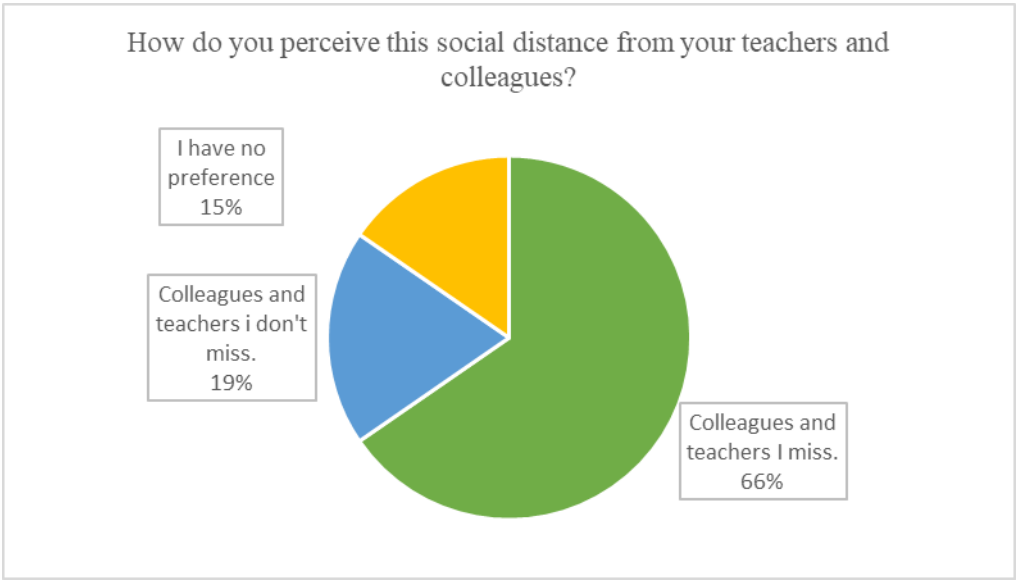

Chart 2. *Percentage results corresponding to question number 2*

In question number 3, 35% of students considered that the online activities required more concentration and attention compared to the lessons taught in class. 19% believed that the online activities required their attention and concentration to a small extent, and 46% believed that the demand for attention and concentration were the same in either of the two situations, both in the classroom and in the places where they were during the performance of the online teaching activities.

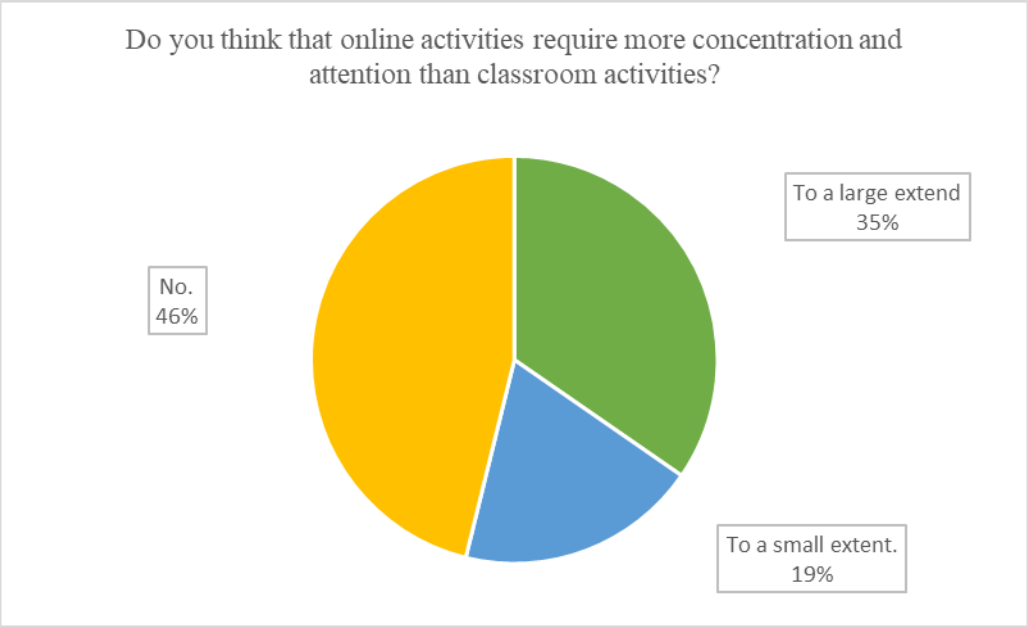

Chart 3. *Percentage results corresponding to question number 3*

In question 4, 42.30% of students considered that they had a disadvantage compared to their peers who were at a field of study such as computer science, because they could develop an extra ability in comparison to them. 23.07% of students considered that they were at a disadvantage compared to their colleagues studying at a field of study such as computer science, because they had more knowledge acquired within the domain. A percentage of 34.61% of students believed that providing tablets at the level of schools offers equal opportunities to all.

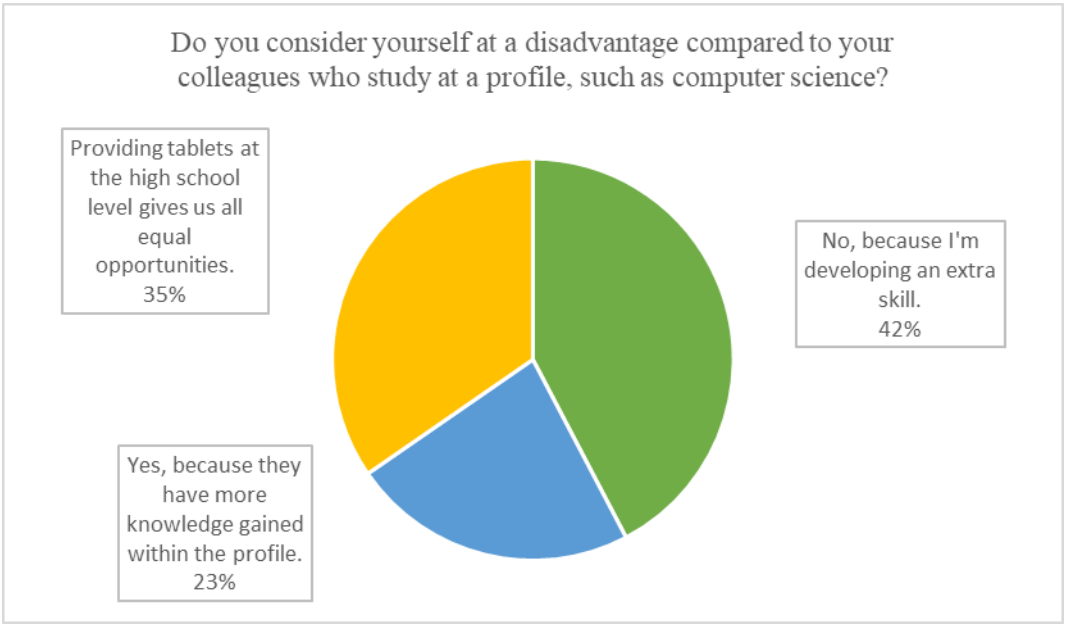

Chart 4. *Percentage results corresponding to question number 4*

In question number 5, 53.84% students believed that the online education could influence their personality in the future by not achieving the psycho-social skills, and a percentage of 46.15% students believed that their personality would not be affected, on the contrary, the psycho-social skills would thus be achieved.

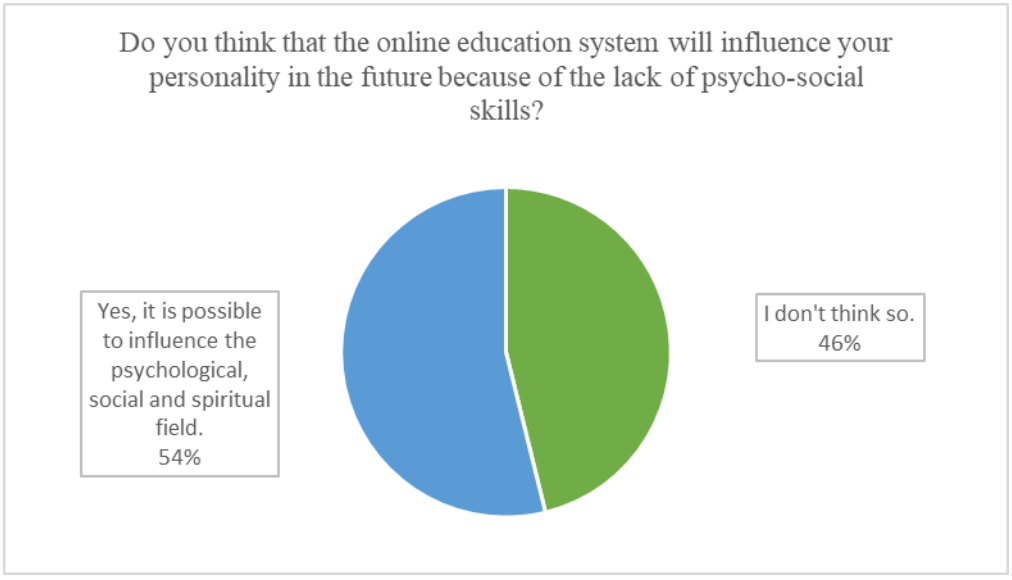

Chart 5. *Percentage results corresponding to question number 5*

In question number 6, 100% of students wanted their data processed.

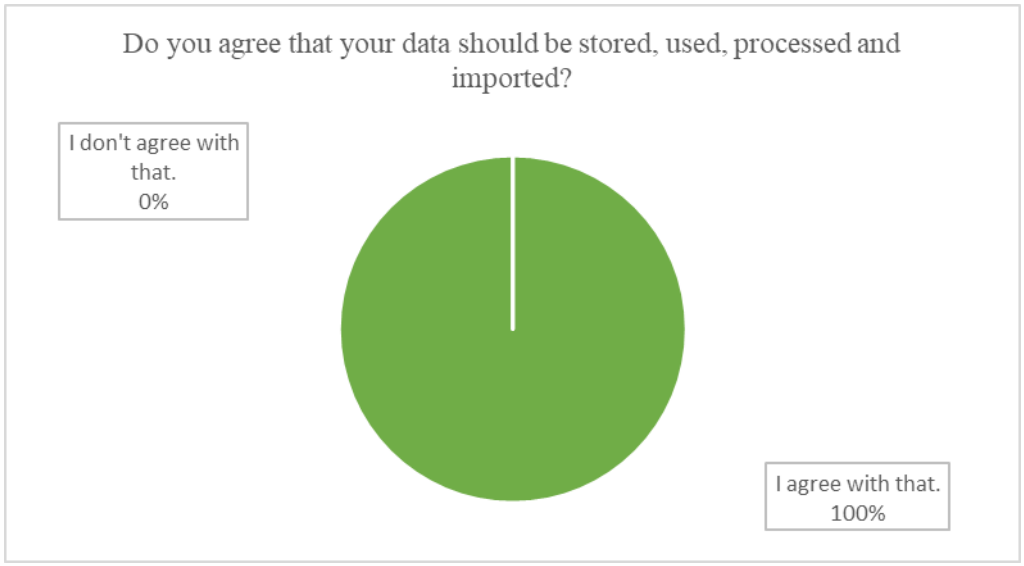

Chart 6*. Percentage results corresponding to question number 6*

4. ATTENDANCE AND ACTIVE PARTICIPATION IN THE ACTIVITIES CARRIED OUT IN THE ONLINE SYSTEM OF STUDENTS (IN THE RED SCENARIO) - ANALYSIS PERFORMED ON A SAMPLE OF TWO CLASSES OF STUDENTS DURING 50 DAYS

The case study was conducted at a high school in Dâmbovița County and aimed to compare the participation of two classes of students in online lessons conducted by teachers, but also to observe the fluctuation of students' attendance to these activities. For this case study, two classes of students were randomly selected (the 9th and 11th grades, respectively). The effective participation of the 9th and 11th grade students in online activities was observed during 7 weeks, for two subjects, specific to each class, while trying to identify the causes of the online absenteeism.

In the ninth grade, at the beginning of the red scenario, the attendance of the students in the online lessons, in subjects 1 and 2 was the following:

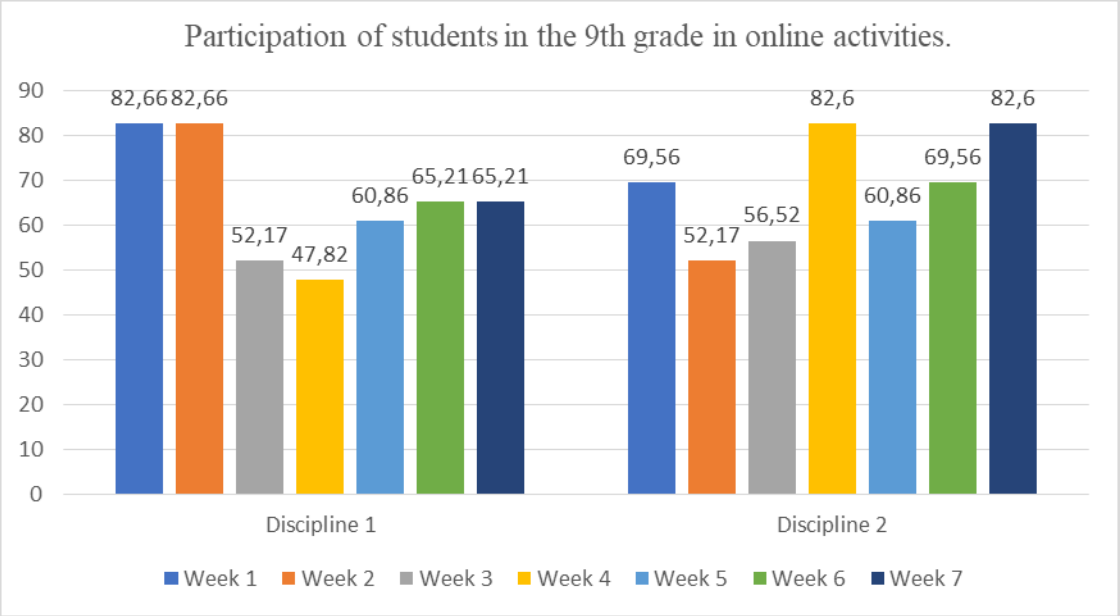

Chart 7. *The evolution of the attendance of the 9th grade students in subjects 1 and 2*

In the eleventh grade, at the beginning of the red scenario, the attendance of the students in the online lessons, in subjects 1 and 2 was the following:

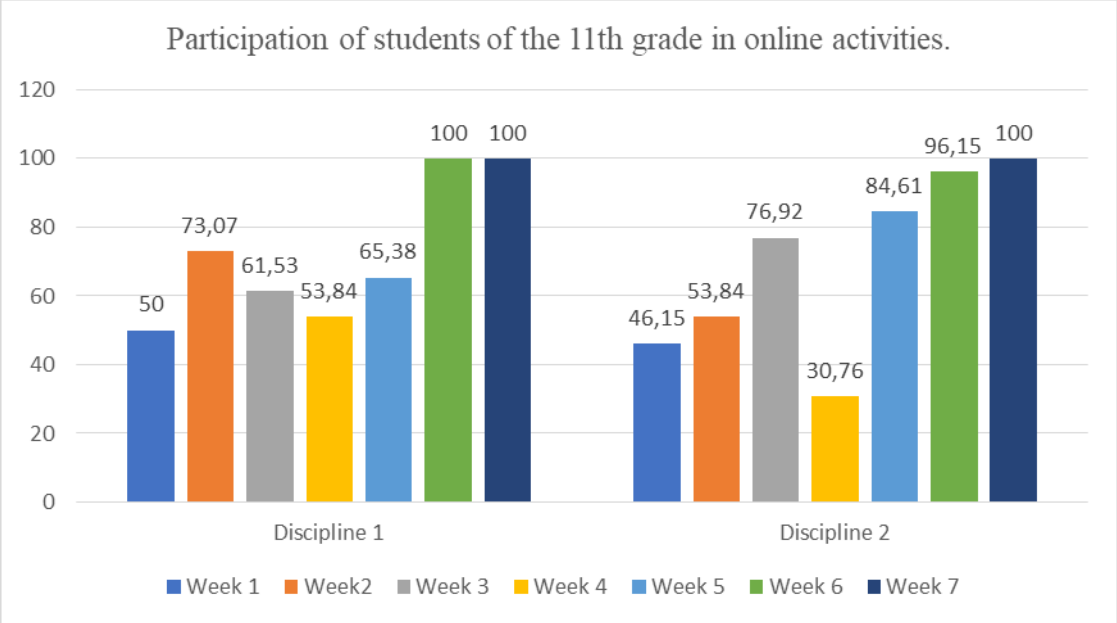

Chart 8. *The evolution of the attendance of the 11th grade students in subjects 1 and 2*

In order to represent the comparative evolution of the attendance between the 9th and 11th grades, an average of the attendance was made for all 7 weeks from discipline 1 and discipline 2, thus obtaining four results expressed in percentages, presented in chart 9. From the comparative results of the two classes we can notice the high attendance of the 11th grade for discipline 1, a result of 71.97% compared to 65.21% for the ninth grade for the same discipline. Also in the case of discipline 2 there was an attendance of 69.67% for the 11th grade compared to 67.69% corresponding to the 9th grade. From these results, the high attendance of the 11th grade is observed compared to the 9th grade, which indicates a higher interest for students' participation in classes.

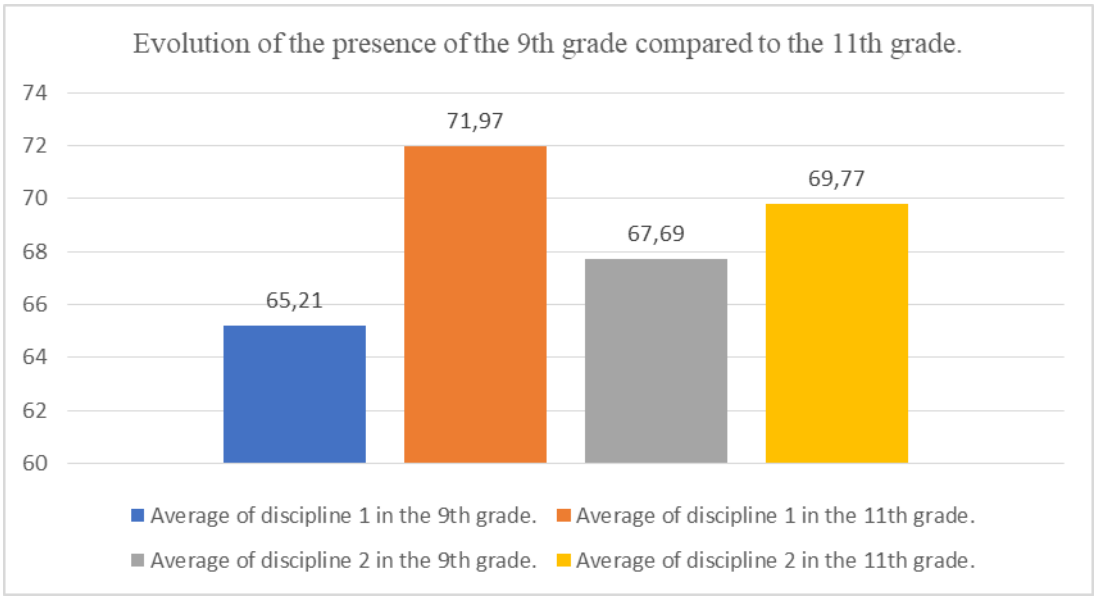

Chart 9. *The comparative evolution of the attendance between the 9th and 11th grades*

CONCLUSION

The causes that lead to the non-participation of students in the online activities are multiple, but bring in the spotlight the poor socio-economic aspects, hence the lack of the technological tools necessary to participate in the online lessons or of the possession, at the family level, of a single technological device that must be used at the same time by two or more persons. Another cause that has been identified is the technical work performed by operators within companies, on Internet networks, and as a result, it has led to the impossibility of achieving students' access to the Internet during online activities. Allotting resources to schools, such as tablets, and distributing them to the students in need is currently one of the solutions.

BIBLIOGRAFY:

[1] Florin POP, (2017). 20 reasons to use the Google Classroom app. According to: https://www.eduapps.ro/blog/20-de-motive-pentru-care-sa-folosesti-aplicatia-google-classroom/

[2] Monica FLOREA (2011). CONTRIBUTIONS REGARDING THE EVALUATION OF E-LEARNING SYSTEMS - Abstract of doctoral thesis. Conformable: http://www.nazarko.pl/public/data/resource/upload/00003/2568/file/contributii_privind_evaluaresa_sistemelor_de_e_learning.pdf

[3] Petre Botnariuc, Constantin Cucoș, Cătălin Glava, Daniel E. Iancu, Marian D. Ilie, Olimpius Istrate, Adrian Vicențiu Labăr, Ion-Ovidiu Pânișoară, Doru Ștefănescu, Simona Velea (May 2020, University of Bucharest Publishing House). ONLINE SCHOOL, ELEMENTS FOR EDUCATIONAL INNOVATION, Evaluative research report. According to: https://www.psih.uaic.ro/wp-content/uploads/sc_onl_rap_apr_2020.pdf

[4] Enabling teachers in pre-university education to use educational platforms.(accessed in October 2020). According to: http://www.ccdialomita.ro/Oferta%20de%20programe/Schita%20curs%20-%20Abilitare%20platforme.pdf

[5] Press release of the Ministry of Education and Research (March, 2020). According to: https://www.edu.ro/sites/default/files/_fi%C8%99iere/Minister/2020/inv.preuniversitar/note%20%2B%20proceduri/adresa%20MEC_%20ISJ_uri%20_10.03.2020_ref.decizie % 20CNSSU.pdf

[6]Formative assessment, assessment for learning and so on. (accessed in 2020). According to: https://www.schooleducationgateway.eu/ro/pub/viewpoints/experts/formative-assessment-learning.htm

[7] Methods and technologies in the teaching of Mathematics (accessed January 2021). According to: http://portale.unibas.it/site/home/didattica/formazione-degli-insegnanti/documento23493.html

