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Training in electronic environment – a challenge for geographical education

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Abstract: *This research is an attempt to actualize the terms, that have to do with learning in an electronic environment and an analysis of the challenges related to studying geography in the first stage of high school, that have emerged in the country because of the COVID-19 pandemic. The advantages and the disadvantages of learning of geography in an electronic environment in the first stage of high school are pointed out as a part of the hybrid learning environment.*

Keywords: *teaching geography in a hybrid learning environment*

Introduction

Modern society and the processes in it create certain conditions and demand the conditions needed for the functioning of the education system. At this modern stage, they have to do with looking for possibilities for building the bases of the economy of knowledge, the development and the transformations in school education as a priority of society. The exigence's towards education have been raised as a main tool for development and future realization of the individual and they inevitably put forward the problems about its quality understood as a complex of organization-functional and content parameters that satisfy the main needs, necessities and expectations of the consumers of education services and products as well as of society as a dynamic socio-economic organism [5]. That requires a synchronization of the educational goals and priorities, actualizing the law base and an attempt to raise the status of Bulgarian teachers.

In terms of times, all of the aspects mentioned have a long-term time range and require a slide-rule and complex actions. At the same time, some of them can be realized during emergency circumstances that affect the whole social and economic life. The pandemic situation caused by COVID-19 in the country and how it has affected the education system and the geography education can be pointed out as such an example.

Materials and Methods

The goal of the current work is to make an attempt to update the main terms that are related with teaching in an electronic environment and an analysis of the challenges geography teaching in the first stage of high school that emerged because of the COVID-19 pandemic.

The used methods of study are analysis of literature sources and comparative analysis.

Results and Discussion

Learning in electronic environment

The situation of students learning in an electronic environment during March – December 2020 has led to a very fast transition from traditional to online-based teaching. That sets the need of an update of the pedagogical set of terms that are related to conducting teaching in an electronic environment from a distance in order for them to be used correctly.

In contemporary pedagogical literature, three main types of learning environments are described: traditional learning environment, asynchronized electronic learning environment and synchronized electronic environment [7]. As the specifications of the traditional learning environment aren't an object of our study, we will focus on the other two.

In the synchronized electronic learning environment, the students and the teacher work together at the same time but at different places. The synchronized activities create the feel of a virtual community but it requires a good coordination between the teacher and the students when planning the schedule and the working methods [4]. The independence of the location and the active interaction can be pointed out as advantages of the synchronized electronic environment. Its disadvantages have to do with the need of a supply of suitable devices and a high-quality internet connection as well as the possibility of turning the students into passive listeners and observes and a loss of interest.

The asynchronized environment provides real-time education while the participants use it in a convenient time for them. The most common type of interaction in the electronic learning environment is asynchronized [3]. The advantages of the electronic asynchronized environment are related to the possibility of the participant in the learning process to participate independently of the location and the time and they have an access to a large quantity of information. The correct use of diverse tools in it can increase the motivation for studying by consistent update of the classes. This type of teaching makes the access easier for students in a nonequivalent situation. There also are some disadvantages: the need of means for creating an internet platform; possible health issues and tired eyes; the need of a good self-discipline of the students for doing the required activities without constant supervision; the lack of social contact; the lack of competence of some teachers for working with electronic tools.

At this stage, the introduction of a mixed or a hybrid learning environment is needed. This type of learning is called „mixed learning” (blended learning or hybrid learning) and is defined as learning that combines the traditional face-to-face learning with computer activities (online leaning). The hybrid learning environment is a combination of many pedagogical approaches and integrated methods of interaction in order to provide material in a synchronized and in an asynchronized format. The hybrid learning environment is a combination of many learning approaches that can include a combination of face-to-face classrooms, self-teaching and online classrooms. The hybrid form of learning is defined as a combination of the best studying principles in a traditional and an online learning environment for improving the results in an affordable way [1]. The advantages of learning in a hybrid environment are presented in Figure 1.

The new functions of the teacher are of great importance when teaching in a hybrid environment. They are related to the guiding, correcting, additive and the assessment function of the principles of working in the new environment, the constant monitoring of the learning process, the possibility for developing and using one's own resources and realizing a present and distanced support. In this environment, the authority of each teacher will depend not just on their subject, pedagogical and methodical competence but also on at what degree the use modern informational and communicational technologies for collecting, processing and teaching the lessons [2].

No matter the learning environment, it should provide the tools of realizing all of the main key competences for learning during one's whole life from the European referent framework [6]. One of the most affected from the conditions of conducting the education process outside its traditional environment, is the social competence that requires constructive work with other people. The technological, didactical and the methodological resources of mixed learning simplify creating the conditions for the formation and the development of social competence which is strongly limited in the electronic environment but not all teachers are capable to take advantage of this potential. One of the most effective ways for developing social competences during mixed learning is team working, including online co-operation and using different strategies for working in groups. Team work is a condition for effective communication based on

interaction, which is a key concept for the interactivity of the learning environment and leads to an effective development of social competences.

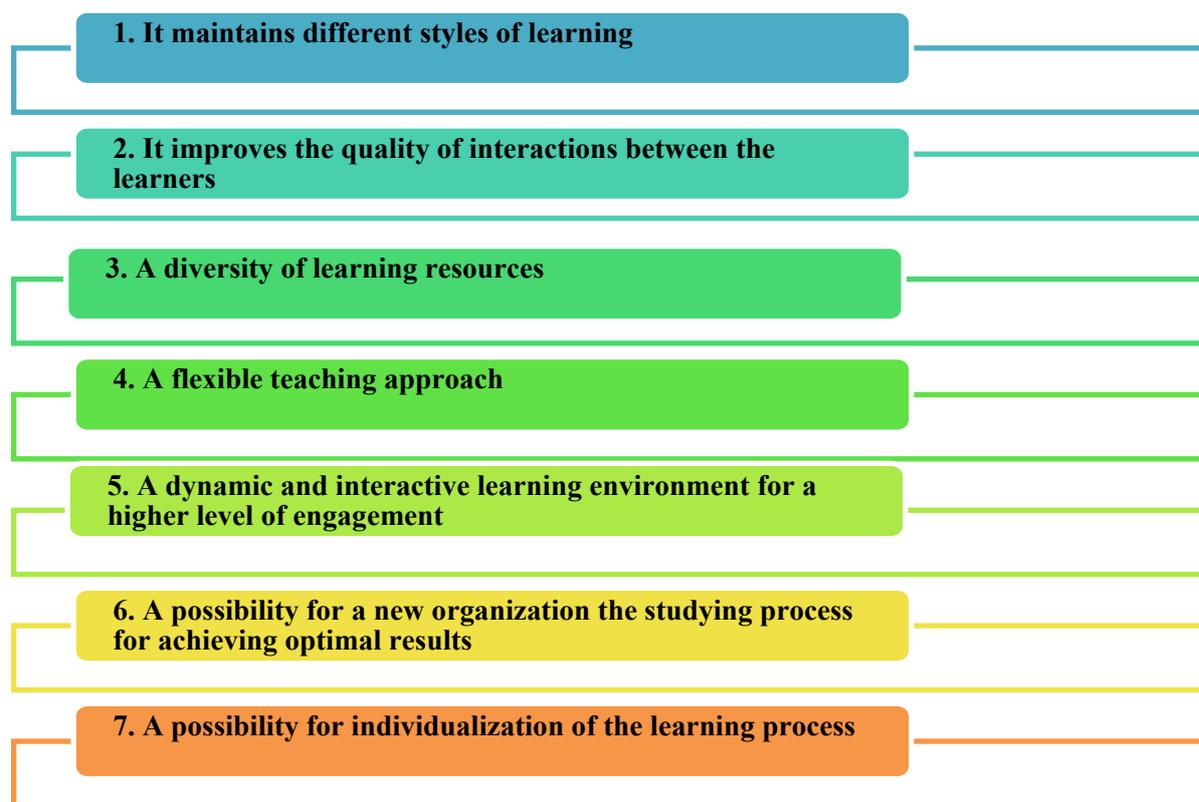


Figure 1. The advantages of learning in a hybrid environment, Source: Boddy, Ch., Ch. Detellier, S. Duarte, et al., 2013

The real situation in Bulgaria

Modern changes of democratization and liberalization of the social system in our country have lead to a serious transformation of each aspect of our lifestyles, stimulated by the progress of contemporary multifunctional technologies. Informational and communicational technologies are a part of the technological spectrum. Their use and realizing of different elements of an online-based learning is nothing new for the educational system. The use of them has lead to a significant process of transformation – organizational and individual, which is based exceptionally on the spread and the application of large quantities of information.

The new information environment created new conditions and give Bulgarian teachers a new role. New technologies create new challenges for the preparation of the teachers which have to do with the achieving of a more flexible and more efficient process of education in terms of time. It gives the possibility for applying an integrated complex of different forms and methods, compared to traditional learning. The complex of methods includes mostly one with an interactive nature, the choice of which is defined based on the specifics of the content studied and the compilation of cognitive and functional competences of the concrete students. The forms used can also be diverse and focused on the group forms when creating separate virtual spaces as a place for an exchange of and the generation of ideas.

The wide access to information can be both an advantage and a disadvantage. The huge information database that can be used for an analysis of the conditions for the development of a certain problem area can be viewed as an advantage. In order to achieve objective results, the information in it should be analyzed thoroughly and to be connected with the concrete cognitive goals of the study. When those conditions are not fulfilled and the information is interpreted randomly, it and its large quality can be a disadvantage.

Learning in an electronic and a hybrid learning environment require organizational changes which should be regulated in law acts. This requires a full transformation of the of the normative school base and defining the conditions for conducting a hybrid complex of attended and distanced process of learning for all school subjects.

And what is the reality of this situation of learning in a hybrid environment? The school and the education system are still not ready to realize the full potential of modern technology. In spite of the increased professional competences of teachers, some of them don't have sufficient pedagogical and methodological preparation for the use of information and communication technologies and difficulties wish finding high-quality digital resources and software. At the same time, there is still a technological barrier for many teachers, that stops them from entering the digital world and they use the method of trying and making mistakes in order to establish their own method of teaching. This leads to lapses in the digital skills of teachers and a lack of clarity about the educational goals and the ways of their fulfilment. Some teachers take into account the need of a pedagogical influence on the usage and the development of the technologies for online learning themselves.

The circumstances and the contemporary studies in the field of pedagogics and methodics set the focus towards looking for possibilities for improving the quality of the educational preparation of pedagogical specialists in the context of using information and communication technologies in teaching and working in a digital environment [8].

Geography education in a hybrid environment

The learning contents for geography gives the possibilities to use diverse resources in the process of learning in order to help about the longevity of the knowledge obtained and improving the motivation for studying, as well as achieving the results expected for the traditional and the hybrid learning environment. In the last decade, electronic resources have been used with a priority. Teachers have acquired experience in working with teaching platforms, electronic textbooks and diverse materials on the Internet.

In order to make an analysis and to point out some problems of geography education in an electronic environment from a distance, as a part of the hybrid learning environment, we are going to use the experience from the tuition at the first stage of high school. The learning contents for Geography and Economics in the ninth grade includes learning the chapter „Regional Geography” and „Economy of Bulgaria” for the tenth and the eleventh grade.

While teaching the students in the conditions of the COVID pandemic, the platform Discord and the applications Google Classroom and Google Forms have been used. This platform and these applications allow the realization of the learning process to carried out both synchronized and asynchronized from a distance in an electronic environment. With the applications mentioned, we can use diverse and effective forms and methods of teaching and to help for improving the students' motivation for studying and improving their personal qualities such as responsibility, orderliness, discipline as well as forming digital skills and competences the regular use of which leads to turning them into a behavioral pattern. Through them, the independent cognitive activity of the students is improved.

The study contents in the ninth grade when assimilating the chapter „Regional Geography” allows the use of traditional and interactive methods of teaching. In an electronic environment, as a part of the hybrid learning environment, the most effective from the traditional methods are: frontal discussion, interviews, visualization with maps, analysis of statistic data. Interactive teaching methods are more efficient – discussion, debate, solving cases, playing games, brainstorming.

The right choice of methods leads to a more successful obtaining of knowledge about the geographic regions of the world and the key countries and it helps to realize the practical use of geographic knowledge. Most of the activities are about solving tasks with a research and creative nature which leads to discovering problems and establishing ways for overcoming them by discovering the causal links and regularities.

Studying in an electronic environment, as a part of the hybrid learning environment, allows the use of forms of teaching – involving the whole class, in groups and individually. Experience proves that the group and the individual form give better results because each student is engaged in the said activities and has to present the result in a certain form for a limited period of time and give immediate feedback.

This type of teaching creates favorable conditions for the productive carrying out of the lessons, for activities and control, which are harder to accomplish with the traditional way of teaching and require more of the teacher's time for an analysis and render an account of the results.

Some of the statements above are a result of an analysis of lessons about the Western and the East European region, China, India, the USA, Italy and Russia. The geographic characteristic of those countries created possibilities for creating and presenting of multimedia products, for carrying out discussions about the problems cause by the COVID epidemic, for solving cases about strategies for an economic development of the countries observed, for carrying out a geography conference on the topic „Measures

for overcoming the consequences of the COVID epidemic in the countries studied and suggesting and defending models for their overcoming”.

When studying the economy in Bulgaria in the tenth and the eleventh grade, the working methods of teaching in an electronic environment, as a part of the hybrid environment, are:

- creating an informational database by working with Internet sites of the National Institute of Statistics, sites of the ministries, of different regions and municipalities;
- analyzing and presenting the processed information in the form of messages, posters and leaflets;
- creating projects on a previously given topic and algorithm and defending them in the separate classroom;
- creating maps of the dynamics of the studied economic processes and phenomena – graphs, schemes, diagrams (Figure 2).

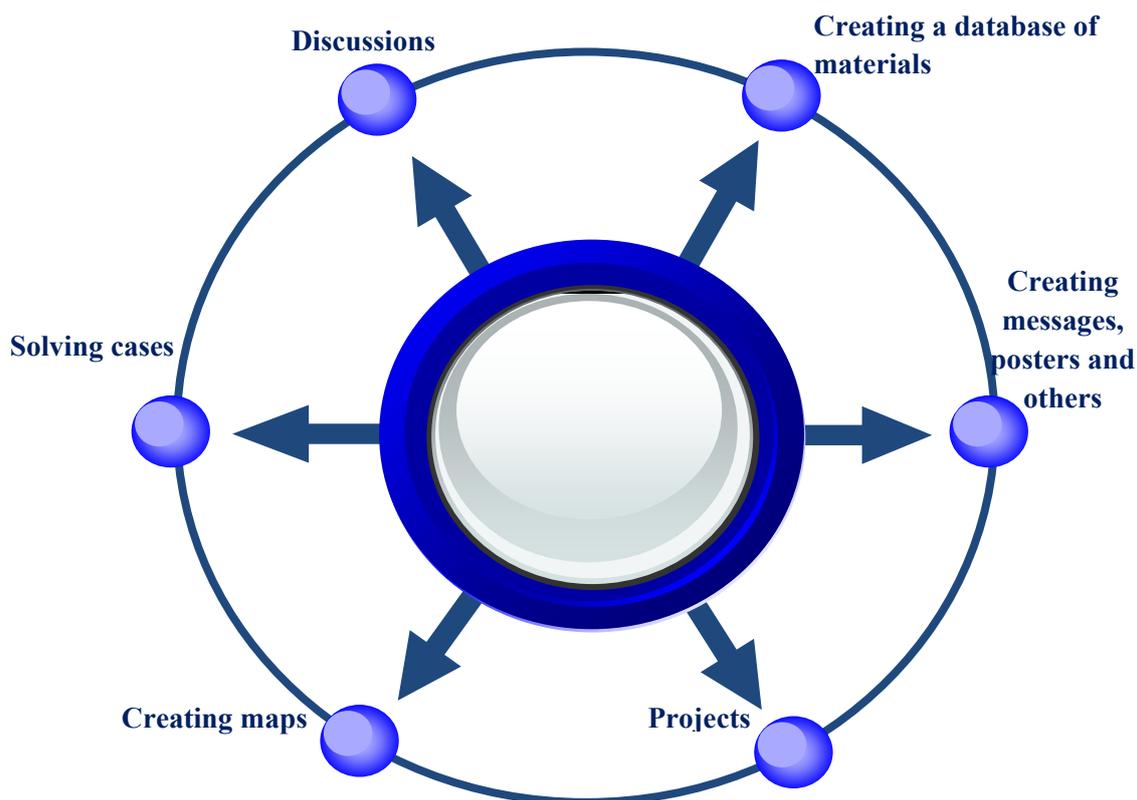


Figure 2. Prevailing methods of teaching Geography and Economics in the first stage of high school in an electronic environment as a part of the hybrid learning environment

Solving cases about tobacco production has a motivating impact and gave good results as well as solving a case on the topic: „Whoever plants mulberries, won’t lose coins, but whoever feeds silkworms, won’t lose any capital.” In them, students demonstrated that they have assimilated knowledge about the characteristics of plant-growing and stock-breeding and that they know the problems of their development and suggested and defended their own statements. The lessons about transport also gave good results – a discussion on the topic „The transport of the future in Bulgaria” and about the tourist market when studying about tourism (Figure 2). The results of them prove that the students have come to know the good sides of learning in an electronic environment because for the examples about transport or about the tourist market, they gave their own statements of different locations and realized that they can be useful for the country wherever they are in the world.

In order to record the results achieved from the Geography and Economics teaching in the first stage of high school in an electronic environment as a part of the hybrid learning environment, we used tests. The tests were either written by the teacher, or pre-made ones from teacher’s books or from electronic textbooks which were transferred into a Google form. This way of examination makes it easier from the teacher because it has an auto-check and statistic processing of the data. The method of creating and conducting tests through the application makes the analysis easier but has its risks for the teacher in terms of objectively assessing the students.

The conditions that caused teaching Geography and Economics in an electronic environment from a distance, as a part of the hybrid learning environment, have practically proven that studying in an electronic environment can partially replace traditional learning for a short period of time. With short periods of learning in an electronic environment, it's the advantages of studying in an electronic environment that stand out the most (Table 1.).

Table 1. Advantages and disadvantages of the tuition in Geography and Economics in the first stage of high school in an electronic environment, as a part of the hybrid learning environment

ADVANTAGES	DISADVANTAGES
A possibility to complexly use a large number of diverse resources	A higher lever of pressure and stress for the teachers when working from home at the online sessions
Improving the competences of students, teachers and parents for working with informational communicative technologies	A lack of a direct contact which limits social interactions
Teaching students organizational qualities for a more efficient time management	Limiting the exercise schedule of both the teachers and the students and creating predispositions for health problems
Flexibility and adaptiveness to the needs and the abilities of each student	The necessity of ensuring a sufficient number of computer configurations
An eased access to a certain type-setting of materials	Not each topic of the learning contents for Geography and Economics can be learned in an electronic environment, especially the lessons for activities and revisions
A possibility for carrying out communication with students and teachers, as well as individual consultations	A feeling of isolation and loneliness which impedes the creative development of the students
Widening the borders of geography learning from the classroom to each home	Replacing the irritating factors in the classroom with ones from the home environment
Creating conditions for compassion with the teachers and a possibility for an exchange of good practices and resources	Working in an electronic environment is quite a challenge for some of the teachers that have less competences for working with informational and communicational technologies.

Facing new conditions, for a short time, teachers have mobilized themselves and have realized individual and professional development in terms of using information and communication technologies in the teaching process for Geography which would be possible after years of hard work in the real conditions of the classroom lesson system.

The experience from the activities conducted in an electronic environment has shown the large horizons of the diverse resources of maps which can't be used rationally due to the lack of time in the traditional learning process. It gave teachers a new role and showed them the lack of the possibility to communicate face to face with their students. Maybe this way all of the participants in the learning process will realize the value of live communication and the advantage of exchanging opinions and attitudes towards the analyzed geographic topics.

The acquired collective experience proved the possibility for the unity of Geography and Economics teachers in terms of overcoming the new challenges for proving the collective professional competence. This raised the status of Geography teachers and of Bulgarian teachers as a whole in society.

It's expected that the longer the periods of learning in an electronic environment are, the more its *negative sides*, mentioned in Table 1, will show. The efforts of all the participants in the learning process

should be aimed at limiting their influence and gradual overcoming. The main problem with a possible long-term teaching for Geography and Economics in an electronic environment from a distance is about overcoming the feeling of isolation and the limited social communication. It could be partially solved by searching and rediscovering new dimensions of geography knowledge that is directed towards some practical application.

Conclusions

Based on the said above, we can generalize:

- Studying Geography and Economics in an electronic environment, as a part of a hybrid learning environment, creates possibilities for presenting the dynamics of the spatial geographic processes and phenomena, which leads to creating the conditions for learning thought experience.

- When needed to be used, the optimal version of teaching Geography and Economics is switching between periods of teaching in an electronic environment with ones of teaching in a real environment as a part of the hybrid learning environment.

- Society is still not ready to replace geography teachers with a mobile device. A part of the new functions, mainly the habitual and the coordinating, which were invisible until now, turned out to be very important for the cognitive development of students for many parents.

- Learning in an electronic environment, as a part of the hybrid learning environment, has given a base for many questions, the answers of which will be give by time and by in-depth analysis for weighing out the profits and the loses for all – the students, the teachers, the parents and society as a whole.

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