

## Acta Pedagogica Naturalis

Former Annual of Konstantin Preslavsky University

Journal homepage: <http://acta-pedagogica.shu.bg>

**Received: 02.09.2022**

**Accepted: 20.12.2022**

### **Opportunities for application of information and communication technologies in the study of tourist resources in Bulgaria**

**Andrey Edrev**

*Konstantin Preslavsky University of Shumen, Faculty of Natural Sciences, Shumen, 115 Universitetska Str., Shumen, Bulgaria, E-mail: a.edrev@shu.bg*

**Abstract** *The main parameters that are affected in this paper are the conditions of high-tech economic development, in which the need for specialists in trade and tourism is growing. Hence the more dynamic development of regional policy and tourism of individual regions in the country. This requires providing access to information and educational resources, expanding the theoretical and practical knowledge of trade and tourism theory and practice in all levels of higher education and activities in the relevant working institutions. The main goal of the research is, through a situational analysis of the applied information and communication technologies, to bring out basic recommendations for improving the work in the education of students and subsequently the applied work of the graduates.*

**Keywords:** *information and communication technology, interactive training, web-based training*

#### **Introduction**

In today's world, science has to go hand in hand with technology and advances in this field, training and information communication technology (ICT), should develop in parallel and intertwine at different stages and activities. It is known, or at least already observed, that the educational system can adapt to new technologies through the creation and dissemination of innovations: technological, economic, pedagogical and organizational.

Technological innovation is expressed through the introduction or increasing use of new educational technologies in educational institutions. Economic innovation is expressed in the adoption of new knowledge and information management mechanisms. Pedagogical innovations, on the other hand, are actually implemented by imposing other, new methods of teaching and learning. Lastly, we put organizational innovations, which should be applied in all organizational structures and their redistribution given the development of ICT.

In order to be in line with current developments, we need to update the technology of teaching by applying pedagogical innovations. Their combination with technological innovations enables the development of new methods and techniques in the teaching and learning process.

#### **Materials and Methods**

The future development of all spheres of economic, cultural and political life will need professionals who are not only able to use technology, but also trained in a highly technological environment. This in turn will create a prerequisite for the imperative of providing access to ICTs that extend theoretical and practical knowledge at all levels of secondary and tertiary education.

The aim of the present study is related to proving the important place of ICT in the modern educational space and presenting possibilities for their application in the study of tourism resources in Bulgaria in

secondary and higher education. In order to realize the aim, comparative analysis and situational analysis are applied.

## Results and Discussion

### *The need for judicious application of ICT in teaching*

All European countries have national strategies in place to foster the use of ICT in different areas including a specific strategy devoted to education. In many cases, these strategies aim to provide the necessary ICT skills to pupils (in particular literacy skills) as well as provide ICT training for teachers. Another defining feature is the provision of up-to-date technology and infrastructure at schools. The target groups for the measures in all countries are teachers/trainers and the activities focus on primary and secondary school education [7].

On the other hand, ICT and digitalisation in general brings with it potential problems and challenges. Various analyses predict that a large number of low-skilled occupations will disappear from the labour market globally, while others will be substantially transformed, requiring basic and advanced digital skills [6].

For this reason, the uncontrolled use of ICT in the education system should not be favoured, but should be linked to educational objectives and pedagogical technologies.

The implementation of ICT must also be aligned with the European Union's regulations in this area. An important document that aims to help adapt Member States' education and training systems to the digital age is the Digital Education Action Plan (2021-2027). It also supports the Recovery and Sustainability Mechanism, which aims to create a greener, more digital and sustainable European Union.

The Digital Education Plan identifies two strategic priorities related to fostering the development of a highly effective digital education ecosystem and enhancing digital skills and competences for digital transformation. The priorities listed are linked to specific 14 actions for their implementation [2].

Its implementation is necessitated by the alarming data of a number of international studies in the field of ICT and its application. One of these is the 2018 Talis study by the Organisation for Economic Co-operation and Development (OECD). It presents the results of the 2018 ICILS survey and provides an international perspective on the computer and information literacy (CIL) of students in 12 countries: Chile, Denmark, Finland, France, Germany, Italy, Kazakhstan, Republic of Korea, Luxembourg, Portugal, Uruguay, and the United States [8].

ICILS 2018 is based on a series of research questions addressing variations in ICT and consists of four thematic areas: understanding computer use, information gathering, information creation and digital communication. The report contains observations and interpretations that may stimulate further research on students' computer and information literacy.

According to the survey results 18% of the students who participated in the survey failed to reach even the lowest level of the CIL scale, which requires them to demonstrate a functional working knowledge of computers as tools. Young people therefore do not develop complex digital skills simply by growing up using digital devices, but also require more specific competences and technologies to form them.

For students, the results are slightly better: 21% of them indicate that they have the capacity to work independently when using computers as tools for gathering and managing information. But only 2% of the students participating in the study reached the highest level of CIL ability, indicating that they could exercise control and evaluative judgment when searching for information online and creating information displays. The results are also worrying for HE teachers, of whom less than 40% feel ready to use digital technology in teaching.

The evidence leads to the conclusion that simply providing ICT equipment to students or teachers is not enough to improve their digital skills. Pupils and students need to be taught how to use computers effectively, and teachers and lecturers need material and expert support in using ICT in teaching [3].

### *Application of ICT in the study of tourism resources*

In the context of a closer link between education and business, each business sector and its industries are linked to a particular university major or school subject. In this line of thought, geography is closely linked to tourism. At its core, geography brings together the horological aspects of economic development in the world and its different regions. This includes tourism, which is one of the youngest industries in the tertiary sector. Although it is one of the latest „niche economies“ to emerge in the Bulgarian economy, it still has many untapped opportunities for development in Bulgaria, given the resources available and the specific geographic location.

In the field of geography of Bulgaria, the influence of a complex of factors on the development and territorial organization of the economy in the country - natural, demographic, socio-economic, political, ecological, technological, etc. - has been studied. The important role of the influence of the geographical situation, which is related to different directions in different historical periods, has also been established. The limited natural resources, which reduce the possibilities for the development of extractive industries and their availability of local raw materials, are noted. The climatic, soil and hydrological conditions have been shown to be a favorable factor for the development of agriculture, as has the impact of demographic resources on economic development through consumption, labour force, etc.

On the basis of all the listed economic accents and the specificity of the development of the Bulgarian economy in the conditions of globalization and the impact of a complex of crises, tourism emerges as an economic sector with significant untapped potential. It can be identified in terms of the qualification of tourism personnel and their training in secondary and higher education through the use of ICT opportunities.

In recent years, higher education and the application of ICT has seen a trend towards increased use of technologies that enable eLearning, computer-based learning and computer-mediated learning. The role of ICT is to provide mass computerisation in the educational process at a level that allows three main tasks to be addressed:

- making the Internet available to everyone involved in the learning process, at any time and from any place;
- forming and developing a single information space for all participants in the educational and creative process;
- creation, development and effective use of educational information resources.

E-learning is organized and guided using electronic media. All learners are connected to an internet-based network that allows data transfer, team project development and information sharing between lecturers and students in the learning process. It creates the possibility of linking results across disciplines and accessing the information resource not only in the classroom where the seminar session was held.

Another aspect of e-learning is through the active use of educational resources from the Internet and their inclusion in the different stages of the educational process. Educational resources of the Internet can be used by the teacher for the selection of images and additional scientific information; for the development of curricula and educational computer presentations; by the students for practical research; for familiarization with research carried out; for work with normative documents); for the preparation of coursework and projects; for solving case studies, etc.

When studying tourism resources with the help of digital educational resources can use information, images and presentations from appropriate Web-pages, such as: the National Statistical Institute ([nsi.bg](http://nsi.bg)), the Ministry of Tourism ([www.tourism.government.bg](http://www.tourism.government.bg)), the Bulgarian Association of Travel Agencies ([www.batabg.org](http://www.batabg.org)), the Bulgarian Hotel and Restaurant Association ([www.bhra-bg.org](http://www.bhra-bg.org)). Selected information in published analyses and studies is the main element of teaching presentations, which illustrate the new teaching material.

The dynamics in the global tourism market provokes the application of software applications with multiple functionalities in the field of management, communication, advertising and sales in tourism. With the new Tourism Act regulating the development of an integrated tourism information system and a national tourism register, the application of information technology in marketing, distribution, competitiveness and quality of the Bulgarian tourism product is initiated at the state level. Information and communication technologies impact on all sectors of tourism. The implementation of specialised software for management, sales, advertising and communications contributes to the realisation of substantial benefits and induces general changes in the tourism industry.

However, a range of diverse and wide-ranging teaching methods and techniques using ICT capabilities have not yet been introduced and gained popularity.

One still not fully developed area with unlimited resources for future use in the field of higher and secondary education is the development with the help of ICT of a classification of the resources and resource potential of Bulgaria, including tourism resources.

Such an activity can be carried out by proven specialists in various fields of economic economy and knowing the individual natural resources of our country, following a consistent algorithm in terms of capacity, extraction, utilization, production or product and of course the development of certain services in the tertiary sector. This team or these units of professionals must go through a training process related to high digital capabilities and ICT skills.

From the above, it is clear that thanks to ICTs we have a unique opportunity to visualize, report, classify, utilize and even forecast any resource in the country, monitoring its performance and changes given its exploitation or extraction. This can also be applied to the rest of the available reserve if it concerns minerals, for example. What are the ways or means of this kind of classification or monitoring of the performance of a resource? Firstly, exploration work in the field or on site is required, using certain technologies to establish the extent of the area occupied.

The next step is to calculate the available capacity of the given resource. Next it can be characterized, grouped if it falls under any discharge and then comes the most interesting part, namely to visualize all the information in the form of a virtual map with a legend in tabular form or a diagram attached to it.

Such virtual visualizations, on the basis of which predictive diagrams can also be made, can be created for any resource, be it exhaustible or inexhaustible, recreational (if we want to add tourism as an item in this innovative research technique) or to make a visualization of the conditions of each country in all its natural resources and assets in relation to its geographical location.

The wide-spectrum applicability of ICT and the possibilities of analysis and forecasting in all forms of geographical education or the formation of new methods and techniques in the study and research of the natural resource potential of a territory or a state-administrative unit, opens new horizons and raises new questions regarding the familiar methodology in the following and higher education. New models and a new algorithm with innovative thought and purpose are needed to update all these processes annually in order to follow a line of development.

In the last 2 years of e-learning, due to the epidemic measures imposed worldwide, it has become clear that there is a huge resource that can be exploited in terms of information technology and the opportunities it provides us. Different types of subjects require different types of electronic resources and programs.

Of course, the subjects in school that require physical activity and exercise are the ones we would have the most difficulty replacing or compensating for with electronic learning sources. But even there, there are ways to retain the level of physical development and maintain or enrich a student's knowledge of a sport or discipline. That aside, computer technology gives some of the other subjects great advantages. This is of course made possible by some common platforms to use, which can then be approached with additional ones. One of these common platforms for streamlining learning is Google Workspace [5].

It contains many features that can be useful in teaching students. In one place Google has put together the ability for users to use:

- Email;
- virtual classroom [1];
- video conferencing;
- storage space;
- work text documents;
- working with tabular documents;
- multimedia presentation creation;
- possibility to create a website;
- phone book;
- using a calendar;
- creating and using forms.

Over the past two years during online learning, Google Workspace has proven to be very useful because it allows to have a unified system for students to learn online. So with their account they get access to a virtual classroom where they can be assigned tasks and their progress can be tracked. They can have a virtual meeting with their teacher, and the environment allows the use of a whiteboard to illustrate the lesson.

Both during online and face-to-face training, Google Workspace can contribute to a more modern and convenient way of learning. This platform allows students to access learning resources at any time of the day or night, regardless of where they are and the device they are using. The only requirement is the availability of an internet connection on the device.

Apps included:

- Gmail – email;
- Meet - video meetings;
- Chat - Chat messages for teams;
- Calendar - Shared calendars;
- Drive - Cloud storage;

- Docs - Word Processing;
- Sheets – Spreadsheets;
- Slides - Presentation Layout;
- Forms - Questionnaires and Surveys;
- Sites - Web Page Design;
- Keep - Notes and Lists;
- Currents - Involvement Team.

Google Workspace for Education Fundamentals is a free cloud platform used by over 600 schools and kindergartens in Bulgaria. The platform's resources and tools are widely applicable and can be used to organise learning and teaching processes supported by digital technologies. It is officially recognized and fully meets the requirements of the Ministry of Education and Science.

Google Workspace for Education Fundamentals enables synchronous/asynchronous distance learning through:

- creating virtual classrooms with the ability to share content;
- the possibility of video connection;
- online knowledge testing system;
- a system to generate reports on daily activity;
- E-mail/chat communication system.

Recently, so-called 3D visualizations and their subsequent programs for even better picture quality, making you immerse yourself in the world of science, nature and knowledge are gaining more and more popularity. The purpose of such a journey is dedicated to any opportunity or object that can be presented to the student and in an electronic visualizer to also stimulate the so-called photo memory. This is very important in the study of geography and different geographical objects.

Here comes the most important point, namely the way or opportunities that information and communication technologies provide to facilitate the acquisition of knowledge related to geography. Nowadays, with the advent of new technologies, we are much more easily able to visualize information that we need to learn or put into practice. For the last few years it has been possible to popularize information technologies and their gradual implementation in the educational process at all its levels. Geography is no exception, as it is one of the most varied sciences, including a huge part of other educational fields.

Let us give an example in studying the different geographical sites and some of them, considering them also as tourist sites.

Now what follows is important to note that can be done for any type of resource...but since the topic is related to tourism, we will look at that possibility.

All middle-aged and above-middle-aged colleagues were taught using paper media and, where possible, coloured cards. Nowadays, we have unlimited opportunities to use online platforms for unified digital learning of classes and teachers even in pandemic settings. What is even more interesting is that special software can be developed that visualizes a landscape with the natural resources available in it. In this way, the so-called photo memory of the learner is stimulated.

It is about special software to be developed in order to digitally classify specific geographical sites or tourist resources in a country or given territory. For example, it could include a menu where all types of resources are presented. When selecting one of them, a map of the given territory appears on the screen with all available locations of the respective tourist resource labelled. The information that may accompany this map, in the form of a legend, may display the date or year of the visualisation in question and serve as a starting point for monitoring the exploitation of the resource in question. Also for what its capacity has been since the said start of tracking until now. As additional applications, exploitation modes, extraction methods and extraction intensity per time period can be added.

If such teaching methods are used with the possibility of developing and constantly updating the information in the software used in the subject of geography, it will stimulate interest in this field and give a better idea of what capacity of natural and tourist resources we possess. Also, the software in question will support more adequate management of the tourism potential in Bulgaria and will enable a very accurate forecast of their stock and condition.

I believe that such an electronic platform could be just the beginning of a commonly accessible online network, freely usable by all educational institutions at every stage of the learning process.

Another electronic platform that greatly facilitates the activity of the teacher and increases the speed of knowledge checking by students is Google Forms [4]. Google Forms is a free Google application that is

used to create an online form (form, survey, poll, quiz, questionnaire, etc.) or quiz in order to send it to other people to complete it on the Internet. The platform can also be used to plan events, take a survey or poll, develop a quiz, or gather other information. You can create a form from Google Drive or from an existing spreadsheet that can record responses from the form.

There is another option here that is quite interesting, which is random ordering of questions and answer options. You can have questions and answers appear in a different order for each person who fills out the form. Questions and answers can only be shuffled once per email address.

There are also some drawbacks in Google Forms - for example, there is no option to generate questions from a database. Another disadvantage of using Google Forms we can point out that after we make some kind of test for example, it has to be checked by the teacher himself afterwards. This is necessary as sometimes we get discrepancies with the answers to certain questions. We give an example of asking a question with more than one correct answer. The question has 2 correct answers out of 5 possible answers. If the student indicates one right and one wrong, the platform scores 0 points. If the teacher still wants to give some number of points, he has to check it and manually add the points, thus correcting the system's omission.

After the students have had a lesson explained to them by the teacher in an online platform such as Google Meet or Teams, then using other programs and platforms part of at least the same lesson if it has been previewed, then it is the turn of another type of program. It is interesting and allows learners to test their knowledge, the goal is not only to check the information learned, but also the speed, reflexes, they have. A great opportunity for such a check is provided by Kahoot.

Kahoot is a free platform that allows the creation of evaluation questionnaires (available in app or web version). It is a relatively well-known tool and many education centres are already using it to make learning more fun and thus enliven classes. It is called an educational game as it rewards students who do their work or answer the questionnaires correctly. There is a grading system to rate each student's grades in a leaderboard, giving out drinks and other gifts on the platform. Not only the correct answer to the questions but also the speed of answer is taken into account.

On the other hand, sometimes we find that there are no tests that can be used specifically for us for a particular exam or test. The advantage of Kahoot is that we can create our own tests (or Kahoots) completely to our liking. We can choose both the question and the possible answers, marking one as true and correct and the rest as false.

With this in mind, if for example we have to study for a history exam where we will be asked a series of questions, we can make Kahoots out of all of them and instead of memorizing them, we will learn them quickly by playing over and over again. This works even better if we have a multiple choice test in each subject where we already know exactly both the questions and the answers, so we just have to create the appropriate Kahoots and practice over and over until we have no mistakes. This way we can master this knowledge without any effort.

The fact is that most colleges and universities use this tool or will use it. Furthermore, the founders of the platform highlight that 87% of the world's most prestigious universities have the tool embedded in their computer system to use it.

## Conclusions

In conclusion, we can summarize:

- Information and communication technologies occupy an important place in the modern educational process in secondary and higher education.
- This is related to the increased processes of digitalization and digitalization of all spheres of material and cultural life.
- If information and communication technologies are not used in combination with other elements of pedagogical technology, they will not be effective enough.
- There are many options for the application of information and communication technologies in the study of tourism resources in secondary and higher education.
- Their application should be tailored to the specific material conditions, the level of development of the cognitive abilities of pupils and students and the ICT competences of the teacher or lecturer.

## References

- [1]. Kratko rakovodstvo za rabota s Google Classroom <http://www.naval-acad.bg/wp-content/uploads/2020/03/ClassRoom-Guide-1.pdf> (12. 11. 2022)

- [2]. Digital Education Action Plan (2021-2027), European Union 2020, <https://education.ec.europa.eu/focus-topics/digital-education/action-plan> (07.08.2022)
- [3]. Fraillon, J., J. Ainley, W. Schulz, T. Friedman, D. Duckworth, *Preparing for Life in a Digital World. IEA International Computer and Information Literacy Study 2018 International Report*, Amsterdam, 2020, ISBN 978-3-030-38781-5 <https://www.springer.com/gp/book/9783030387808> (23.08.2021)
- [4]. Google Forms. Instrukcia za upotreba <http://itsredstva.blogspot.com/p/google-forms-google-forms.html> (12.09.2022)
- [5]. Google Workspace za uchilische [https://cloudoffice.bg/bg/google-workspacebg/?gclid=Cj0KCQiAxoiQBhCRARIsAPsvo-zprflaCd-pIo0UrZqETRrRqRycGXZ2o5BTfEBtlqehpuU\\_szipxRSIaAr1xEALw\\_wcB](https://cloudoffice.bg/bg/google-workspacebg/?gclid=Cj0KCQiAxoiQBhCRARIsAPsvo-zprflaCd-pIo0UrZqETRrRqRycGXZ2o5BTfEBtlqehpuU_szipxRSIaAr1xEALw_wcB) (21.10.2022)
- [6]. *Izkustveniya intelekt v obrazovaniето I naukata. Idei za razvitiето na II v obrazovaniето I naukata v Republika Balgaria*, <https://www.mon.bg/upload/23352/MON+AI+Doc.pdf> (14.09.2022)
- [7]. Key Data on learning and innovation through ICT at school in Europe 2011, European Commission of the EU, ISBN 978-92-9201-184-0, Brussels, 2011
- [8]. OECD (2019), TALIS 2018 Results (Volume I): *Teachers and School Leaders as Lifelong Learners*, TALIS, OECD Publishing, Paris, <https://doi.org/10.1787/1d0bc92a-en> (04.08.2022)