DIGITAL RESOURCES IN MOBILE LEARNING AND SOME ASPECTS OF TEACHING AND EDUCATION ENVIRONMENT

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ABSTRACT

This article focuses on the work of teachers in the conditions of mobile learning, since theachers perform various activities related to preparation of classes, training and students' assessment in digital learning environment. The analysis emphasizes the fact that the responsibilities of modern teachers are becoming more complicated, following the challenges of information technologies and the expectations of the new generation of learners. The paper examines various digital resources used by teachers, tracks their effectiveness, and presents the results of conducted researches.The main idea of the article is to present the restructuring of the learning environment related to the introduction of various digital tools, requiring more interactivity and improving students' achievements, as well as increasing the digital skills and competences of the teachers themselves. It is concluded that the use of digital resources stimulates students' interest and increases their activity.

KEYWORDS

Mobile Learning, Digital Resources, Teaching, Learning Environment

1. INTRODUCTION

Digital transformations have a significant impact on the quality of life of modern people and lead to the formation of the so-called digital generations who have continuous access to diverse information sources. Prolonged contact with the Internet and various computer games have developed in students speed and versatility of reactions, non-traditional visual thinking, dynamic perceptions and maintaining a continuous connection in their network of friends and peers. In this situation, the school education system is faced with a great challenge - to provide adequate education to modern students, whose way of thinking, behavior, preferences, expectations and learning style are radically different from those of teachers, parents and previous generations (Kukulska-Hulme at al., 2021).

Information and communication technologies (ICT) provide a variety of methods and digital tools that open up new opportunities for mobile learning in formal and nonformal learning. They make it possible to support the mobile learning process by organizing it in a way that takes into account the individual needs of the learners. Information technologies stimulate the development of digital competences necessary for the dynamic world in which we live. They provide an opportunity, through the use of specialized software and hardware, to carry out activities that are difficult to implement with classical training tools.

This article analyzes some of the available digital tools and their application in the Bulgarian school. It highlights the fact that different digital tools exist, but not all of them are used equally actively by teachers. The type of learning content is important, as well as the stage in which it is applied - teaching, testing, discussion, teamwork, quiz, practical activity. The article shows that expectations for teachers are rising, which is restructuring the entire work environment. In the conditions of mobile learning, the status of the teacher himself is reformatted, who fulfills not only the role of a teacher, but also of an innovator, accepting the challenges of technology and the expectations of the new generation of learners. This requires that, in addition to the skills and qualifications in the professional-pedagogical field, the teacher must also have digital competencies corresponding to the performance of the educational activity itself. The main idea of the

article is to present the widely used digital learning resources in the Bulgarian school environment, requiring activity in mobile learning, aiming for more interactivity and improving student results, as well as the preparation of teachers themselves.

Digitization and the use of computer and information technologies covers the entire system of education: from kindergartens, through higher education and postgraduate qualifications. Effective work and training in an information environment is related to building digital skills and abilities, which are a prerequisite for accessing and using various information resources, for their combination, structuring and creation of new content with a view to solving specific tasks and identifying needs. Today, various interactive methods can be applied to increase the motivation to learn and the commitment of students to the learning process, increasing academic success. In this context, teachers strive to develop interdisciplinary lessons through which to develop students' critical, non-standard, creative thinking, looking for effective ways of communicating with generations. The aspiration is for the teachers themselves to build competences corresponding to innovative digital technologies and working with cloud services, preparation and distribution of didactic materials in cloud space.

2. BASIC CONSIDERATIONS

2.1 Policy Documents

In recent years, there has been a lot of political activity related to understanding the significant role of digitization in the field of education. The process of digitization of education in Bulgarian conditions was strengthened by the creation of a national cloud-based ICT infrastructure for mobile learning: the new national e-learning platform was launched in April 2022 and began to function from the academic year 2022/2023. The platform allows teachers to create digital learning materials - lessons, exercises and tests using various electronic resources. The start was made through the activities of the project "Education for Tomorrow" (https://oud.mon.bg/) under the Operational Programm "Science and Education for Smart Growth 2014-2020", co-financed by the European Structural Funds. The national program "Digital Bulgaria 2025“provides the basis for modernization and implementation of smart solutions, including ICT in schools.

Another important policy is the Recovery and Sustainability Plan of Bulgaria, approved in May 2022, which defines the development of STEM infrastructure as a priority area. Reforms and investments, according to the document, support the development of digital technologies and the expansion of STEM subjects in schools, by building STEM laboratories and creating high-tech classrooms. On a national scale, the creation of one national and three regional STEM centers is envisaged, which aim to train teachers, develop teaching materials and create electronic portals and libraries. Significant political practice is represented by innovative schools aimed at improving learning outcomes through modern teaching methods, development of learning content, curricula and programs. In the academic year 2020/2021, 504 schools from 28 districts in the country received the status of "innovative school", and for the academic year 2022/2023, their number was increased to 542 (https://web.mon.bg/bg/1682). In addition, over the past three years, all public and municipal schools have built secure wireless networks, including a new generation of firewalls and access points. This guarantees full coverage and rapid exchange of information in accordance with the latest standards, allowing the use of all types of devices from anywhere in the school with a high level of security. Kindergartens and schools have been provided with over 20,000 personal computers, laptops and tablets, and about 4,000 classrooms are equipped with the latest high-tech visualization equipment, including interactive whiteboards and displays with built-in computer modules and Internet access. In this way, access to quality educational resources and services is ensured.

From March 2023 launched the National Program "Digital Qualification", financed by the Ministry of Education and Science (https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1583). The program meets the need for high-quality training of pupils, students, secondary school teachers and university professors, in accordance with the digital transformation of education. The main focus of the program is the creation of staff with a high level of digital competence, with an attitude to improve and transfer their experience and knowledge. The focus of the program is also teaching methods, which should include innovative approaches and modern learning platforms. Within the framework of the program, it is

planned to increase the digital skills and competences of teachers in various subjects in secondary education, as well as the possibility of retraining them as informatics and information technology teachers. The program is also aimed at business personnel who want to practice teaching. This program aims to make digital training and skills a key focus of learning, including business practitioners to bring their expertise to the learning environment.

The listed policy documents and practical actions taken are indicative of the awareness of digitization and mobile learning at the national level and the search for different solutions for introducing more digital devices and tools as part of the educational environment into the educational practice.

2.2 Digital Educational Tools

Digital tools are programs, websites, or online resources that can facilitate various learning-related tasks. Many of them are accessible through web browsers without the need to download them, and in general, they can be accessed anytime and from anywhere, making learning easier. To help the teacher, there are many technological solutions to achieve an effective learning process, starting with the most familiar and common form - the presentation, and going through flash cards, mind maps, electronic test creation tools, virtual laboratories, dynamic software, artificial intelligence and come to learning platforms that integrate webcams and provide advanced opportunities for learning and connection, for sharing resources and collaboration.

Efforts to implement ICT in education at all levels, however, presuppose teachers' technical literacy and skills in handling digital tools. This requires teachers to increasingly move from the role of users of e-resources to creators of e-resources. In the 21st century, the skills to search, find and use already created content are no longer enough, but a more active attitude towards digital competences is needed (Kukulska-Hulme at al., 2021). In this context, the implementation of digital tools goes through several stages.

- Choice of methodology.
- Development of content (teachers must develop their own programs, adapting them to the relevant context for the specific needs of their students).
- Choice of devices (the best device is the one that can be used for different educational tasks).

It is also important that teachers have the attitude to modernize and update educational tools, adequately responding to the challenges of the situation. Online education tools are diverse and they are related to the advancement of hardware and software. Their main functions consist in: 1) maintaining communication between the participants in the training. 2) Creation of an electronic register to store grades, tasks completed, meetings held. 3) Content sharing and teamwork.

Knowledge of the main characteristics of educational platforms and digital environments, as well as the possibilities for their integration in the learning process and in extracurricular activities, must take into account the age characteristics of the students. The use of educational digital tools is becoming more and more important in modern education, because interactive learning resources can be created through them. Students can use these resources using different electronic devices: computer, tablet, phone, accessing their learning materials.

Digital platforms are related to organizing and managing learning, delivering materials, maintaining databases for storing student results. These platforms are used at the school level, with each participant having personal access to the platform with a username and password. To get the most out of the platforms, students and teachers need to be active participants in the learning process. Teachers have the ability to create lessons, manage their content, add quizzes, homework and videos, and encourage discussions. Students, in turn, have access to all available resources and can ask questions and complete a variety of tasks.

Most Bulgarian schools use platforms offered at the national level. In Bulgaria, Office 365 and G Suit are currently used with their virtual classrooms Teams and Google Classroom, respectively. They integrate applications for real-time communication, ongoing and periodic assessment.

2.2.1 Tools for Creating Online Tests

An important element of mobile learning is the tools for checking and evaluating students' knowledge and skills, for which teachers invest a lot of time in a traditional learning environment. The development and implementation of electronic tests greatly facilitates teachers, helping them to check achievements more quickly and qualitatively. Electronic tests give instant access to results, making grading easier. In addition,

the student can immediately see which are the right and wrong answers. Methods of testing and assessment reflect ways of teaching and learning and enrich the experience of learners within the relevant discipline. Testing and assessment in an online environment is characterized by a number of advantages, such as flexibility in terms of time and place, accurate and rapid feedback. In learning in a mobile environment, methods for assessing learner knowledge are based on different technologies. Taking a test measures a specific piece of knowledge or the level at which a student has mastered a given skill.

There are a number of electronic platforms for creating online tests - SmarTest, ClassMarker, Google Forms, Microsoft Forms, the last two being the most common. Both Google Forms and Microsoft Forms offer the same basic features: question and answer templates, different question types, sharing tests with students and with teachers.

Data from the educational software platform Shkolo.bg (https://www.shkolo.bg/) show that teachers create various online tests. Students on the platform, who are 84% of all in the country, have completed 1.2 million tests, 400,000 more than in 2021. Teachers and principals share that digitization saves them 200 hours a year, in which teachers can do other activities.

2.2.2 Effectiveness of Digital Educational Tools

The wide application of electronic tools to create digital resources raises the question of evaluating their effectiveness. In the most general case, effectiveness is seen as the main characteristic of functional learning. It shows the degree of fulfillment of the set goals and the achieved results when using and applying digital resources with the smallest possible expenditure of time, labor and financial resources on the part of the trainees and the training organization. In general, the effectiveness of the electronic tools used and the digital resources applied is determined by a large number of factors:

- Autonomy in work (teachers' ability to creatively organize the teaching and learning process themselves);
- Digital skills of the teacher him/herself;
- Creative teacher attitudes towards creating digital content.

In Bulgarian secondary schools, the most widely used learning platform is Microsoft Teams. Some teachers share that they have difficulties (https://diuu.bg/emag/14268/) and make efforts to create a virtual classroom and communicate with students, as well as in sharing learning materials, preparing electronic lessons, tests, assignments, generate homework, get feedback.

The behavior and attitudes of the individual teacher and his contribution to adapting the learning process to the new technological environment is key to increasing the effectiveness of learning with digital means. In the focus groups held with teachers on the project КП-06-ПН80/12 "Quality of life and well-being in the context of professional communities and their activity", funded by the National Science Fund – Bulgaria, the teachers also shared that in their work they use both digital educational resources developed by them and resources developed by their colleagues.

Here are some views:

„The most important criterion for using any online tool is - whether it corresponds to the topic under consideration, and to what extent it will make students more active and they will understand and learn the educational content" (female, 43 years old).

„I prefer to independently develop the materials on each topic I teach, but regarding the tests I often use tests that have already been developed by colleagues" (female, 39).

„I prefer to work with online materials that I can download from the platforms and that are ready and working in the training. This way I feel safer, because I don't always manage to cope with digital tools" (female, 60).

From the presented results, it can be seen that some of the teachers prefer to develop their online materials independently, while others prefer to use ready-made digital tools. A factor in the preference shown is the extent to which teachers are digitally skilled and confident; in general, younger teachers are more likely to be digitally independent and active. At the same time, older teachers are putting in more effort, encountering more difficulties, but all now have the necessary digital literacy, which was dictated by the Covid pandemic when almost three years of training took place online. In this regard, efforts are generally being made at the national level to promote the experiences of successful teachers of today who are applying innovative approaches to their work and striving to provide a multifaceted education for students. Innovative methods imply digital, virtual and visual literacy of teachers, making their methods flexible in the learning process.

3. CONCLUSION

This article shows that it is important to consider several things: 1) the political commitment and will to ML. 2) the digital competences of teachers. 3) the equipping the environment with digital devices and tools.

Digital learning implies the active use of home or mobile devices by students in order to participate in class and perform various tasks. The preparation of the lessons themselves requires the reorganization of the whole lesson, the rearrangement of the different activities and, in general, their successful implementation depends to the greatest extent on the teacher. Pedagogical practices based on digital learning themselves require testing in the learning context itself, and the decision to use them, and to what extent, is the result of the teacher's judgment about how a tool or platform will be useful in their classes. Moreover, the use of digital tools always directly or indirectly develops students' digital skills. It's only natural that students of all ages use technology in every aspect of their lives. Using digital resources in education stimulates students' interest, increases their activity and leads to more effective learning and understanding.

ACKNOWLEDGEMENTS

The article has been developed in the framework of the research project “Quality of life and well-being in the context of professional communities and their activity” КП-06-ПН80/12, funded by National Science Fund.

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