



## **MEDIA ENVIRONMENTS FOR TEACHING PROGRAMMING LANGUAGES**

Kamalova Nilufar Ilhomovna

Bukhara region national center for training Pedagogues in new methods

Teacher of the Department of Exact and Natural Sciences.

Field of research: Andragogy and programming

E-mail: kamnilix@gmail.com

Khamidov Sanjar Khakimovich

Bukhara City Specialized State Educational Institution for

Visually Impaired Children № 24, Teacher of mathematics

E-mail: khamidovsanjar@umail.uz

### **Abstract.**

The article provides information about the media environments that can be used in teaching programming languages in school education, and the impact of these media environments on the quality of education is highlighted.

**Keywords:** Media environment, platform, programming languages, MOODLE.

### **Introduction**

Today, advances in science are developing day by day, bringing a large flow of information into our lives along with new techniques and technologies, increasing the demand for mastering new knowledge and skills in order to improve work performance and increase labor productivity. From this it follows that every person should receive continuous education throughout his life. The UNESCO international organization has been studying the problems of "lifelong education" and "lifelong learning" for more than fifty years. UNESCO studies "Continuing education" in various aspects: continuing vocational education, additional education, adult education, education of vulnerable groups of the population, economic support for continuous use of the education system. models [1].

The need for education of teachers is increasing due to the following reasons:

- The need to acquire new modern knowledge, skills, qualifications;
- The need to work with a computer, acquire communicative skills;



- The beginning of preparation for international studies such as PISA, PIRLS, TIMSS;
- Introduction of new programming languages

Stephen Wozniak Posner, an American inventor, electronics engineer and programmer, one of the founders of Apple Computer, "Prospects of artificial intelligence, the modern Internet and the problems of mass surveillance." from an interview[2]: - Technology helps us to come out of our shell, start communicating with more and more people and share our ideas with a wider audience. We live in a wonderful time and we can communicate not only with loved ones, but also with people far away.

The concept of "media space" has been used in English literature since 1980. R.Stults and S.Harrison called this concept "electronic environments where groups of people can work together, even if they are not in the same place at the same time." In media space, people can create real-time visual and audio environments that span remote areas. They can also control the recording, access and playback of images and sounds in this environment [3]

The use of media environments designed for programming is effective in improving the quality of teaching programming languages. There are many platforms for teaching programming languages, which have video lessons and a set of assignments based on these lessons. Learners complete tasks based on these lessons and receive a confirmation document after completing the specified tasks. But what software platforms can teachers of programming languages use to teach practical programming languages? You can use <https://acmp.ru> - "school of programmers" platform [4] to work with talented students. On this platform, it is possible to create and compile 1000 programs designed for programming in programming languages such as Python, PascalABC, Free Pascal, Java, C++, C#, Basic. These tasks go from easy to difficult. Olympiad assignments on programming can also be obtained on the platform. It can be a great training ground for those learning to program.

Another platform that creates a virtual training area for students is the <https://itvdn.com/ru> platform [5]. In it, assignments are given systematically. It is possible to check by entering a program sheet in the virtual field. After each task is completed, it will be possible to complete the next one. If a developer is having trouble entering the code, they will be able to get help.

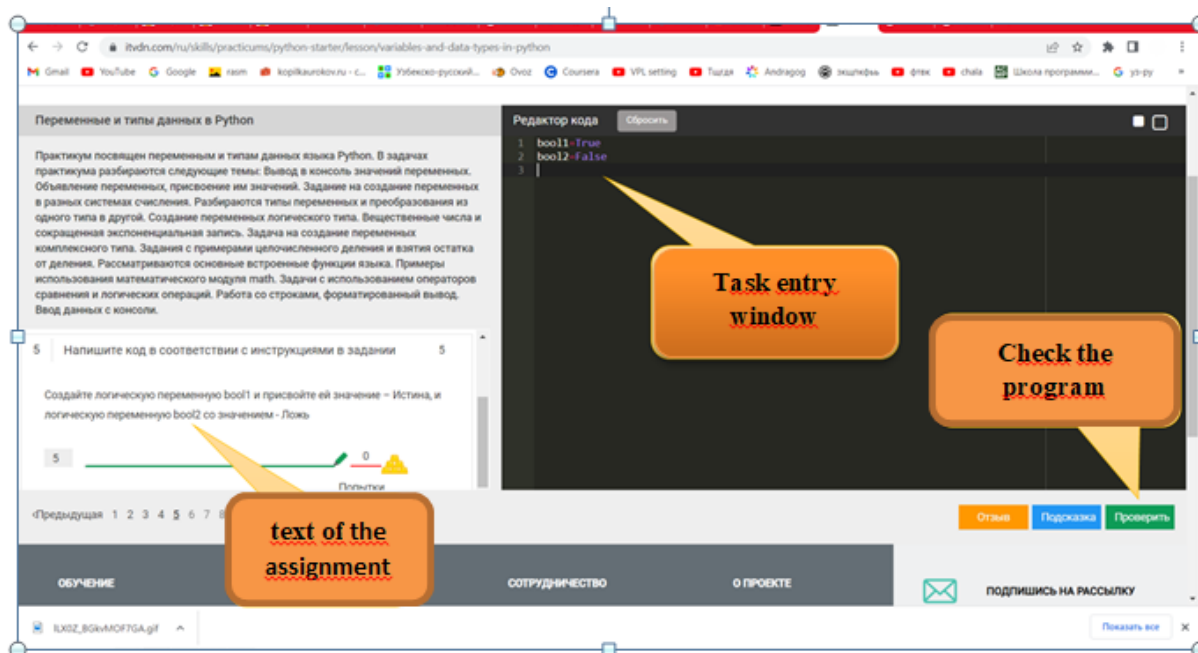


Figure 1. Window for completing tasks on the <https://itvdn.com/ru> platform

Despite the fact that there are a lot of such platforms, they are not completely compatible with the school program. It would be desirable if a media environment was created that would allow the teacher to easily check the exercises in the textbook and the programs created by the students, and if the student could independently complete each topic and check his knowledge. Such an opportunity is provided by the MOODLE e-learning and testing system. MOODLE (Modular Object-Oriented Dynamic Learning Environment) is a free e-learning system [6]. With its help, it is possible to teach students remotely and monitor their knowledge. The program has been translated into more than 100 languages. It is also possible to work in Uzbek. Plugins play an important role in MOODLE. Plugins are modules that help to change the design and expand the functionality of the system. Plugins are developed by members of the Moodle community. Now there are about 1500 of them, most of them are free. VPL (Virtual Programming Laboratory) is one such plug-in for teaching programming languages.

Using MOODLE's VPL module in school education has the following advantages:

- It is known that one problem can be programmed in several ways. Each student chooses the path that is convenient for him. If the program is complex and voluminous, checking and evaluating each student's program requires a lot of



time for the teacher. This program can check and evaluate all students' programs at the same time in a short period of time.

- When there is a large number of students, it may be difficult for the pedagogue to determine the similarity of the program he created for them. That is, students can copy the program code from each other. The VPL module can easily identify the similarity between them.

- Copying of program code from another source can be restricted. With this, it is possible to avoid using external resources.

- The teacher himself can manage the program code and answers.

Once this plugin is installed in MOODLE, its settings are made. Only a few input parameters of the program and the results corresponding to this parameter are included in the plugin. VPL reads each compiled program and controls the output by entering the specified input values. If all the answers match, the program is considered correctly structured. Educators will be able to monitor students' knowledge online by introducing optional programs for each subject. When teaching programming languages, you can use the main features of MOODLE together with the VPL plugin:

- It is possible to combine the students into this course by forming the text, presentation and video clips related to the programming language as a course.

- The test system in MOODLE helps a lot in checking your programming knowledge. Various types of tests in it allow comprehensive assessment of the student's knowledge.

- Various forums can be organized for students. By doing this, it is possible to create an atmosphere of knowledge exchange by creating debates and discussions among them.

- The ability to see the learning efficiency of students in the form of various graphs can lead to the improvement of self-control.

The teacher can use not only educational platforms, but also virtual stands and trainers, online tests, crosswords, and software tools that allow creating various assignments, and organize communities on social networks that match the interests of students. The abundance of such tools allows the pedagogue to choose the necessary media environment for visualizing the topic, taking into account its specific characteristics when teaching each topic. As a result of presenting the delivered information in different ways, students will be able to choose a convenient way to acquire new knowledge.



As a result of the rational use of the media environment in teaching programming languages, students will have the opportunity to independently search, analyze and choose educational material. Media environments help students to develop their analytical and reflexive abilities, to realize their creative potential, and to develop their logical and critical thinking. Pedagogues who use media environments in their pedagogical activities will have the opportunity to evaluate the effectiveness of their chosen methods, easily control the knowledge of students and monitor their activities. When teaching programming languages with the help of media environments, there is an opportunity to approach each student individually, thus each learner will have his own personal educational trajectory.

## References

1. UNESCO information on continuing education issues. UNESCO. [Electronic resource]— regime available at: <https://www.unesco.org/en/education>
2. Stephen Wozniak Posner, creator of Apple computers, "Prospects of artificial intelligence, the modern Internet and the problems of mass surveillance." interview [Electronic resource] - <https://tjournal.ru/tech/60693-wozinterview>
3. Stults R. Media Space. Xerox PARC, 1986
4. School of programmers platform [Electronic resource] - <https://itvdn.com/ru>
5. Programming training site [Electronic resource] - <https://itvdn.com/ru>
6. Electronic educational system [Electronic resource] - <https://moodle.org/>