

## IMPROVING THE USE OF E-LEARNING ENVIRONMENT IN TEACHING WEB PROGRAMMING

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### ABSTRACT

The article gives an idea of the fundamental changes taking place in education in the society at the present time, practical actions on the gradual transition to an informed society and wide reforms carried out for integration into the education system. Within the framework of the project "five initiatives" on youth education and women's employment, opportunities for the development of e-learning are presented. The concept of e-learning, the possibilities of e-learning, the advantages of combining e-learning technologies with traditional technologies were discussed. In education, attention was paid to such issues as the introduction of information and communication technologies and pedagogical conditions for increasing its effectiveness, the development of e-learning, the possibility of creating and applying software shells. The analysis of scientific research and research of scientists from Uzbekistan, CIS and the world is presented. The stages of formation of compensation in the teaching of students on the basis of the electronic environment that teaches the created web programming are presented. On the basis of the methodical model of teaching, the education of schoolchildren of four regions of Uzbekistan was observed and it was determined that the competences were developed. Pedagogical experience-the analysis of the results of the test is presented. The level of effectiveness of development of students' competences on the basis of electronic environment that educates the students of secondary schools in general has been determined and the indicators are given. This article presents the program of experimental-test works. The result of the work carried out on the basis of the program was shown in the form of an indicator diagram

**Keywords:** Electronic education, instructional electronic environment, pedagogical experience, students.

### INTRODUCTION

Currently, the fundamental changes taking place in our society, the practical actions on the gradual transition to an informed society and the wide reforms carried out for integration into the world education system necessitate the wide introduction of modern information and communication technologies in the educational process.

Within the framework of the "five initiatives" Project on youth education and women's employment, jointly with the ministry for development of Information Technologies and communications of the Ministry of public education of the Republic of Uzbekistan, starting from September 1, 2020 in separate secondary educational institutions, electronic education of children in school subjects, including Electronic Classroom magazine, digitization of student diaries and electronic, as an experiment involving virtual laboratories and others), it is envisaged that information systems will be introduced with the abolition of paper documents.

E-learning is a technology based on the use of computer technology and data transmission systems to provide and deliver knowledge, to support the interaction between the reader and the teacher, as well as to manage knowledge [26].

Currently, the use of e-learning technologies has become the first in the field of education all over the world. This is very important in the context of the education of educational institutions in which there is an attempt to combine the most modern pedagogical technologies, including e-learning technologies with traditional technologies. To constantly increase the level of informatization of society, the existing conditions determine the direction of action and its most important and basic structure - the development of Education. [7-8-9-10].

Information learning environment has always been the foundation of any educational system. Changes in the economic and social life of society, rapid development of information technology, changes in the labor market, all this seriously affect the formation of the modern information and educational environment of the educational institution and its role in the educational system.

Distance learning is a new emerging educational technology, the materials of the educational science are placed in the Electronic Library System of the Departments of public education and are accessible to all students of schools through distance technology. The role of the teacher is changing significantly. It is possible to distinguish two components: the development of electronic courses and the conduct of practical classes and consultations. Serious changes are taking place in the organization of the educational process. Video lectures and webinars, online tips, classroom projects, virtual laboratories using modern computer and telecommunication technologies.

## LITERATURE REVIEW

The following scientists studied the pedagogical conditions for the introduction of information and communication technologies in education and increasing its effectiveness, the development of electronic education, the creation and application of electronic information and educational resources and software shells A.A.Abdukodirov [1], M.M.Aripov [2], U.Begimkulov [3], M.Fayzeva[4], R.R.Bokiev [11], L.Nabiulina, F.M.Zakirova [5], N.I.Taylakov, M.Ergashov, U.Y.Yuldashev, D.N.Ashurova's on the content of teaching science and the development of compensations for science M.E.Mamarajabov [8], N.A.Muslimov, Q.T.Olimov, M.B.Urazova, O.Turaqulov, R.D.Shodiev's scientific research has been carried out by.

In pedagogical activity, the content and essence of Web technologies in increasing the competence of pupils and teachers in secondary schools through the use of Web technologies, the development of creative thinking and mediacompetence of students, the identification of intellektual characteristics of Web programmers, the development of e-learning, the formation of software for distance learning, the competitions of educational schools on Web programming for, scientists of the CIS on the creation of electronic information and educational resources and programming shells for secondary school students, as well as opportunities for application and improvement R.N.Abaluev, Y.K.Babansky [12], T.N.Baybikova, A.V.Petrova, Y.D.Babaeva, A.I.Bashmakov, L.X.Zaynutdinova, I.G.Zakharova, A.M.Zimin [13] and others have been studied in their research.

Research work on the introduction of information and communication technologies in foreign countries B. Masked [14], J. V. Maxwell [15], Q. Chutts [16], J. Adams [16], as such, is conducted by scientists.

Recently, e-learning has become an integral part of the educational process in secondary schools and is used in all forms of Education. Its application allows students to improve the quality of education by independently assimilating the material with the use of Electronic Technologies, which are rapidly replenishing the world educational resources, as well as the use of elements of electronic education and distance learning technologies. Such training is associated with the introduction of a new generation of federal state educational standards and the reduction in the volume of classroom work, the multiplication and expansion of independent forms of work, which opens up new opportunities for the organization of e-learning.

## **METHODOLOGY**

In an e-learning environment, general secondary school students are focused on developing competencies in web applications. A methodological model of e-learning has been developed, based on which the development of school students' competencies in four regions of Uzbekistan has been observed. In order to determine the effectiveness of the development of students' competencies on the basis of an electronic environment that teaches students of secondary schools in the analysis of the results of pedagogical experiments, Surkhandarya region Termez secondary school No 13, Boysun district 5, 33 Secondary schools No 32, Khorezm region Khazarasp district No 32, Bukhara region Peshku district 35, 36 schools, Namangan region Turakurgan district 18, 19, 20, 62 The control group consisted of 285 students from the schools, and the experimental group was conducted by 289 9th grade respondents from these educational institutions. At the same time, the experimental and control groups involved in the pedagogical experiment were on an equal footing, ensuring the necessary objectivity of the information we received.

Pedagogical experiments were conducted in the academic years 2020-2021, 2021-2022.

## **RESULTS and DISCUSSION**

It was approved to experiment with the use of modern pedagogical technologies in the development of web competence of students on the basis of an electronic environment for teaching web programming. In the proper organization of experiments, it was found expedient to systematize practical actions in accordance with pedagogical approaches. We conducted the experimental tests in the following program sequence:

- Polls.
- Defining the purpose of the experiment.
- Advance a group of research hypotheses.
- Survey briefings.
- It was announced when the respondents had to choose the answer and mark it.
- Completed questionnaires have been collected.
- An answer sheet has been developed and submitted.
- The results were analyzed.
- Phased experiments were carried out.
- Necessary adjustments have been made to the methods and forms of research.
- Describe and describe the results of experiments.
- Qualitative analysis and interpretation of experimental results.

From the above information, it can be seen that if education is organized correctly on the basis of an electronic environment (site) that teaches web programming, students will have a complete picture of web programming, their knowledge will be in memory. is maintained for a long time and improves web competence.

The following aspects were in the focus of our attention during the experiment:

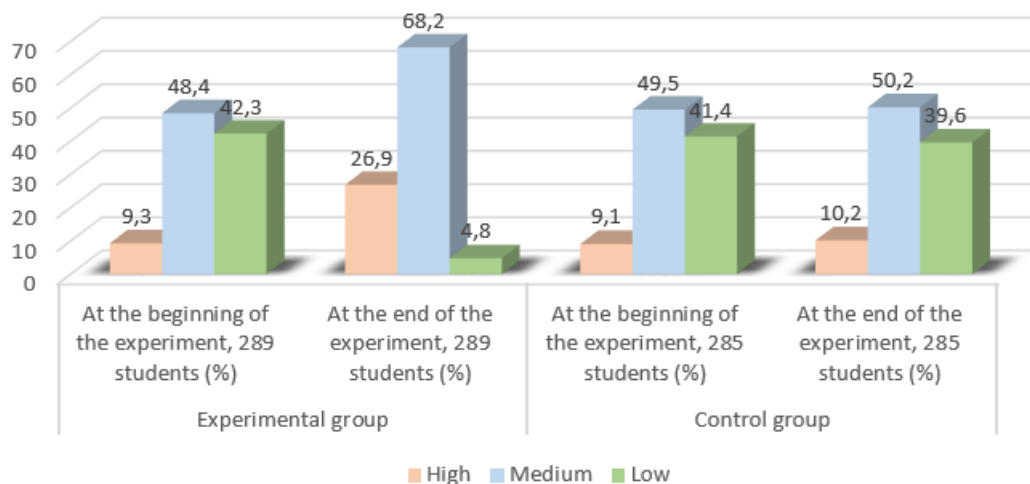
1. Compliance of the content of the training materials prepared on the basis of the improved content of the subject "Web programming" with the requirements of the curriculum.
2. Scientific and methodological relevance of practical and laboratory classes on the topic.
3. To what extent do students master theoretical and practical lessons.
4. Advantages of using the manual in the performance of practical and laboratory tasks.
5. To control the level of mastery of control tasks developed on the basis of the improved content of the subject "Web programming".
6. Introduce a system designed for students to learn and determine their level of knowledge..
7. Increased interest of students in mastering the training materials prepared for the experimental groups.
8. As a result of practical and laboratory exercises prepared for experimental groups, students' skills in working with the system increase, their interest in science increases and their independent thinking develops.

Experimental work was carried out in three stages: the first - the foundation stage, the second - the confirmation stage, the third - the formulation stage.

Our focus was on self-management and development, database management, and the formation and development of Web programming competencies in the teaching of students based on the electronic environment (site) that teaches web programming.

**Table 1: Levels of development of competencies based on the electronic environment that teaches web programming to students of general secondary school experimental and control groups (in general)**

Levels of development of competencies based on the electronic environment that teaches students web programming	Experimental group				Control group			
	289 students				285 students			
	Determining stage		The shaping phase		Determining stage		The shaping phase	
	num ber	%	num ber	%	num ber	%	num ber	%
High	27	9,3	78	26,9	26	9,1	29	10,2
Medium	140	48,4	197	68,2	141	49,5	140	50,2
Low	122	42,3	14	4,8	118	41,4	110	39,6



**Picture 1. Educational electron environment based level of competence development diagram**

Mathematical statistical techniques were used to determine the degree of development of web competence based on the electronic environment in which their students teach web programming. The bundaududent criterion was used.

The data obtained show that the low level of web competency was developed for 42.3 percent of students in the pre-test experimental group, and 4.8 percent after the experiment. The median was 48.4 percent before the experiment, 68.2 percent after the experiment. The higher level showed 9.3 foizni before the experiment, and 26.9 percent after the experiment-test. Experience-the important dynamics of the performance of the experimental group after the test reflects the increase in the level of formation of web competence based on the electronic environment that teaches students web programming.

## CONCLUSIONS

In accordance with the methodological model of web competence development, an electronic environment for teaching Web programming using modern pedagogical technologies has been developed, including increasing the interest of students in the electronic learning environment, engaging in teaching and learning based on the psychological characteristics of students. Enhanced teaching aids (presentation, video lessons, animations and assignments) to ensure the implementation of education and training (theoretical, practical, laboratory, independent and clubs).

The results of the pedagogical experiment were to implement the development of web competencies based on an electronic environment that teaches general secondary school students web programming. An analysis of the results of pedagogical experiments shows that the development of web competence in experimental groups increased by an average of 14%. This proves the effectiveness of the electronic environment and web-based teaching methodology taught to our students.

## REFERENCES

1. Abduqodirov, A.A. Axborot texnologiyalari. – Toshkent, 2004. – B.
2. Aripov M., Fayzieva M., Dottoev S. Web texnologiyalari / O‘quv qo‘llanma. – T.: O‘zbekiston faylasuflari milliy jamiyati, 2013. 17.5 b.

3. Begimkulov U.Sh. Pedagogik ta'limda axborot texnologiyalaridan foydalanish muammolari va istiqbollari. // «Info.kom Uz» jurnali. - №3, 2006. – B.64-65.
4. Fayzieva, M. O'quv jarayoniga moslashuvchi Web tizim yordamida “Web dasturlash” fani darslarini tashkil etish // Fizika, matematika va informatika. – Toshkent, 2017. – №2. – B. 89-97
5. Закирова, Ф.М. Подготовка будущих учителей к профессиональной деятельности в среде ИКТ. – Т.: 2007
6. Mamarajabov, M.E., To'raev, R.N. O'rgatuvchi elektron darslik yaratish va undan foydalanish. // Fizika, matematika va informatika. -T.2021.-1 s. 43-48 b.
7. Mamarajabov, M.E, Turaev, R.N. Methodological requirements for the creation of an electronic teaching environment (e-teaching).//Journal of academic research in educational sciences.T.2021
8. Mamarajabov, M.E., To'raev, R.N. O'rgatuvchi elektron muhitni yaratishga qo'yiladigan metodik talablar.//Oriental Renaissance:Innovative, educational, natural and social sciences.T.2011.11
9. Mamarajabov, M.E., To'raev, R.N. Umumta'lim maktablarida elektron o'quv muhitini shakllantirish bosqichlari // Xalq ta'limi. T.2021. 9-11 b.
10. Mamarajabov, M.E., To'raev, R.N. O'rgatuvchi elektron darslik yaratish va undan foydalanish //Xalq ta'limi.T.2021.
11. Boqiev R.R. Elektron-o'quv metodik materiallarni ishlab chiqarish va qo'llashning didaktik va psixofiziologik jihatlari // Pedagogik mahorat. – Toshkent, 2005. – № 2. – B. 62-65.
12. Бабанский, Ю.К. Методы обучения в современной общеобразовательной школе [Текст] / Ю.К. Бабанский. – М.: Просвещение, 1985. –208 с
13. Зимняя, И.А. Ключевые компетенции – новая парадигма результата образования // Высшее образование сегодня. 2003, № 5
14. Moskal, B. Evaluating the effectiveness of a new instructional approach / B. Moskal, D. Lurie, S. B. Cooper //ACM SIGCSE Bulletin. - ACM, 2004. - Т. 36.-№.1. - P. 75-79. [https://www.researchgate.net/publication/221538824\\_Evaluating\\_the\\_effectiveness\\_of\\_a\\_new\\_instructional\\_approach](https://www.researchgate.net/publication/221538824_Evaluating_the_effectiveness_of_a_new_instructional_approach).
15. Maxwell, J.W. Tracing the Dynabook: A Study of Technocultural Transformations: PhD Dissertation / John W. Maxwell; The University of British Columbia. - Vancouver, 2006. - VIII+303 p.
16. Cutts, Q. Expeditions through Alice / Q. Cutts, S. Esper, B. Simon [Electronic resource] URL:<http://www.alice.org/index.php?page=documentation>. Dann, W. Learning to Program with Alice / W.Dann, St. Cooper, R. Pausch [Electronic resource]. URL: <http://www.alice.org/index.php?page=documentation>.
17. Adams, J. Alice 3 in Action: Computing Through Animation / J. Adams [Electronic resource]. URL: <http://www.alice.org/index.php?page=documentation>.