ORGANIZATION OF INDEPENDENT EDUCATION THROUGH MODERN INFORMATION TECHNOLOGIES IN PHYSICS IN DISTANCE EDUCATION

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ABSTRACT

In the context of Distance Education, a professor and a student are an opportunity to study independently in a virtual environment, as they are separated by distance or time in mutual thinking and reasoning. In the organization of independent study of students in the conditions of distance education, communication through modern didactic methods of teaching (video lecture, visual practical training, virtual laboratory), and not through question and answer in the virtual environment of teaching through an online platform, causes positive results. As in all aspects of our life, the radical reform of higher education, new approaches have been established in the educational system, in which it is important to bring modern information technologies into the educational process, solve the problems of computerization of Education. Currently, the emphasis on the main form of educational work in higher educational institutions is increasing-the effective organization of the teaching process and the impartial assessment of the level of knowledge of students. In a period when socio-economic and scientific and technical changes are taking place, it is necessary to make positive changes, innovations in the system of the educational process. The development of Science and technology, the introduction of new pedagogical and information technologies into the educational process requires improving the forms and methods of teaching subjects in accordance with its content, improving their effectiveness, controlling the process of Mastering by students and organizing the processes of assessing the knowledge acquired by them using computer technology.

Keywords: Distance learning, independent reading, video lecture, visual practical training, virtual laboratory, computer technology, platform, resource, Online.

INTRODUCTION

The decree of the president of the Republic of Uzbekistan dated June 5, 2018 PD-3775 “on additional measures to improve the quality of education in higher educational institutions and ensure their active participation in large-scale reforms carried out in the country has become the center of legal foundations of fundamental changes in the field of education in Uzbekistan. Under this law, the creation of new higher educational institutions in the regions, the opening of modern educational and specialization areas for training personnel, as well as correspondence and evening education departments, the increase in admission quotas to higher educational institutions became important reforms. Now in the field of education, the introduction of modern forms of teaching, which include modern mixed forms, tabora is gaining importance. Strengthening effective innovation, education by regulation is also an urgent task [1].

In the decree of the president of the Republic of Uzbekistan dated April 19, 2019 No. 5712 “on approval of the concept of development of public education of the Republic of Uzbekistan until 2030”, as of 2030, access to 30 advanced mamalakats. It is aimed at assessing the level of

literacy from mathematics and Natural Sciences. The task of creating a national system for assessing the quality of education is established [2].

Distance learning platforms were launched from April 1, 2020, in order to ensure the continuity of the educational process in higher educational institutions of the Republic and to provide remote methodological support for students ' learning activities. Such platforms, above all, gave students with the opportunity to organize the educational process by forming an audience of professors and students in a completely new format, that is, in a virtual environment[1]

Therefore, each faculty member should direct students to work on innovative ideas that are able to think freely, creatively, critically, to develop the competencies of independent search for information, analysis.

Today's task of distance education is aimed at improving the ability of professors to operate independently of modern technologies, which are improving every day, independently improving their knowledge during their activities, sorting out the necessary information. To do this, students are explained that each professor has the opportunity to work independently in the distance education (platform) system and can use it to further strengthen their knowledge.

In the age of modern technologies, which is rapidly developing today, the effectiveness of the lesson will increase in a sizeable way if online lessons conducted by a professor are conducted using modern pedagogical techniques in the education of knowledgeable students working on loyhas of various directions that can meet international requirements. We know that since in distance education it is impossible to gather students in an online audience at one time, a webinar lesson and vedioroans on a pre-prepared topic are downloaded to the regular system.

MATERIALS AND METHODS

Analysis of the scientific literature has shown that the technique of improving the teaching of physics, which is the basis of FA, is considered one of the pressing problems of modern engineering education. Scientists of our republic, including K.P. Abdurakhmanov, E.Z. Imamov, V.S. Vohidov, N.A. Many educational textbooks on teaching and improving physics were developed by the akhmedovas[9]. From the stage of development of engineering education, physics virtual laboratory classes have been important in the preparation of engineering technicians. The physics course and other general education subjects in undergraduate studies are aimed at solving the problems of students ' formation of skills necessary for the formation of independent highly qualified specialists. The necessary abilities for the specialty are the process of consistent and logical thinking, planning and organizing work, working with devices and techniques in a virtual environment, applying skills in future labor activities. Psychological studies have shown that the role of mativotia in this is very important [5].

The Tashkent University of Information Technology named after Muhammad al-Khwarazmi introduced a distance education form in the academic year 2022-2023, along with full-time and part-time forms of Education. Students were admitted to distance education in the areas of education available at the University (Computer Engineering (“Computer Engineering”, “at-service”, “Multimedia technologies”), software engineering). In this regard, a separate distance education faculty was organized and educational programs (syllabus, video lectures, practical, virtual laboratories, electronic textbooks, electronic library, etc.) were developed by professors in each subject. [1] In the form of distance education, all educational content was created for students to study and placed in the teaching management system.

Professional skills are performed in Physics in a virtual laboratory training, in a virtual environment, and the analysis of the results obtained is studied. Therefore, the work of a virtual laboratory is widely allowed by the student to understand in the virtual environment, the essence of the phenomenon under study, to understand and remember it more deeply [4].

In addition, because it is possible for students to carry out direct laboratory training in physics online classes, laboratory work prepared in advance by professors for students is loaded into the system in the form of vedioro. In this, the student, after seeing the vediorolik, analyzes the work of the laboratory for himself and performs the calculations to evaluate the result. In this case, the student will be able to analyze the laboratory work by seeing the vediorolic done online on the topic mentioned. It will also be possible for a student to make and experiment with the same laboratory guard in practice if they have a desire. This means that the student has the knowledge, skills and qualifications of the subject mentioned. Such students can usually grow up to be devotional and young scholars working on various loyhas. For this, of course, the professor will have to carefully prepare each lesson, using quality and modern technologies. It will be possible to increase the number of students in the online audience sizeable if the assessment system is introduced by the professor when students are given an online test view of each topic at the end of the subject [3].

In each lesson, it is necessary for a professor to be prepared with information that is rich in New thoughts and innovations, since every minute is changing rapidly. The fact that today's students also change in harmony with the Times is a taboo. Each of the students is kept abreast of the Daily News from the available cellular media. Therefore, the professor must carefully prepare during the transition to a new topic, the reason is that he should also be able to illustrate the innovations related to the lesson as an example. Then the student will learn to think independently and analyze the situation. In an online lesson, it may not be visible to students from a distance that they are interested in the lesson, but can organize a quality lesson according to the profesonal ability of each professor.

The student monitors innovators from different sites and on television online for the news that is happening every day, and expects it to be repeated in the information provided by the professor. The effectiveness of the lesson will increase significantly if the professor manages to link the lessons to the news that is happening.

Today, the use of unconventional forms of remote Organization of educational processes is required to improve the quality of education in accordance with the requirements of a society that is rapidly changing on the basis of modern approaches to teaching.

Distance learning technologies have their own advantages, allowing students to get an education in a comfortable environment and Environment, choose the time and direction of independent classes (a video lecture can perform and repeat classes in a virtual laboratory).

During the day, a student can study data from electronic textbooks in the study of physics, for example, perform assignments, perform even small laboratory work, by revising video lectures on a topic and virtual labaratory sessions, and make an experiment, thereby being able to consolidate the knowledge gained [6-8].

In traditional education, the student is accustomed to assessing his performance, that is, he always expects to evaluate his results (like praise from the professor, applause from fellow students). In the organization of non-traditional classes, the topics of science are memorably transferred by the

professor using various interesting pedagogical techniques when they are explained. But an online lesson is that when a lesson is held on the zoom platform, the student needs to take part in the lesson in time (the classroom must be provided with enternet)so that he can master the science well and receive answers to questions posed on his own. Of course, the student may have difficulty mastering the subject if any aspect of the above conditions is not met. Looking at the fact that it will be, of course, the work of the professors (webinar, vedioma'ruza and virtual laboratory) is uploaded to the system. Thus, the student will be able to find answers to the questions posed by him using the aforementioned resources online and independently. Only if the student has the desire to do so it will be easy for them to master the tasks given by revising all online classes.

For students studying in distance education, a separate audience and a solution to a large problem that will have to allocate the teacher the time of the lesson depending on the time. Therefore, the student will have the opportunity to complete the tasks assigned in his free time. This results in the student and faculty saving time, and the student can independently study the same subject online to master another subject without having to go to another audience at the same time [7].

In obtaining an independent education, the student develops skills in self-management, independent thinking, working on new ideas and self-education, such success has a positive effect not only during the period of study at the university, but also in subsequent professional activities and lifestyle.

In particular, there are not some disadvantages in distance learning, along with the fact that the student has a lot of opportunities for example:

- inability of the faculty to control students in the auditorium at the same time;
- faculty and students cannot communicate face to face at the same time.

For this reason, sizilar problems may arise. In addition to him, in an offline lesson, the student will be able to make questions and answers and discussions in the audience along with his classmates. In this aspect in distance learning, the student feels lonely. But in this case, the student should not fall into depression, but rather be happy. At this time, the student learns to independently fix and make a sharp decision at the right time. It is considered his achievement if the student can feel in himself that a positive qualification is formed.

Parents, in turn, will be able to control their children for this, the system will be able to monitor the level of assimilation of the student (login, password) from time to time. In this, the parent must take into account the characteristics of the character of the student (child) (that is, become a psychologist), get used to independent work, help him not to perform tasks, but, on the contrary, allow him to think independently, help himself with the most necessary things that give him the opportunity to conclude and enjoy it.

In the process of distance education, parental control should be reasonable, not to force the student (child) and not put pressure on him (except for simple laziness and disobedience).

For students, we can exemplify the specificity of distance learning methods, high-quality classes (vedio lectures, virtual laboratory work, electronic resources and study files) with the help of modern technical equipment. Great responsibility for the effectiveness of the results of educational activities is assigned to the student and their parents.

Currently, distance learning has been taken as a necessary measure, but it is no doubt that in the

future it will remain an additional form of comfortable, developing and independent distance learning for students of different ages.

Distance learning gives an effective result in the following cases:

• for children with disabilities;

• those who wish to receive education in some Advanced Higher country, but do not have access to highly qualified pedagogical assistance due to the remoteness of the territory;

• further education;

* work with gifted students in accordance with the individual pace of educational activities;

• for students in need of temporary home education due to illness and causes.

In its place, the organization of the distance learning process also imposes a number of modern requirements on professors:

* transition to new, innovative solutions to increase competence through independent work on oneself;

• teaching staff to shape their electronic library, i.e. collect, store, update and learn to communicate digital information educational resources to students;

* build computer hardware, Local Area Network and internet connectivity and performance capabilities;

* efficient use of didactic, methodological and e-learning resources (official education portals and websites).

Able to embody the above-mentioned qualities, the professor will certainly be able to shape the ability to independently think and make drastic decisions of our young personnel, which are maturing in the future.

CONCLUSION

In distance education, modern Information, Telecommunications and webtechnologies are attracted by their colorfulness, adaptability to students, according to their capabilities. As a result, students can receive independent education and effectively use e-learning resources, allowing them to quickly communicate news.

To students of the distance learning form, the abundance of virtual laboratory work and the selection and discussion of laboratory work on the topic. It is organized taking into account exactly which of the existing virtual laboratory work the student performs, the application of the work performed in the results of the training in production, students with varying degrees of knowledge.

Carrying out Virtual laboratory work, performing measurement results through processing methods, will be more efficient work than in a typical laboratory. From the performance of any virtual laboratory work to the receipt of the final results, the reason, discussion and conclusion of all physical processes occur is given in the essay. If the student is able to fully answer similar questions will be assessed positively if the opposite is assessed on the basis of the written FIRs. At the end of this work, the stability of student knowledge is once again tested and significant effectiveness is achieved in teaching.

REFERENCES

1. Xalilov S.S., Suyarov K.T. Masofaviy ta'lim sharoitida fizika fanidan talabalar bilimlarini Freyim modeli orqali mustahkamlash. Science and innovation international scientific journal volume 1 issue 7 uif-2022: 8.2 | issn: 2181-3337. Toshkent -2022. №7. –b. 1570-1573.
2. O'zbekiston Respublikasi Prezidentining 2019 yil 29 apreldagi "O'zbekiston Respublikasi xalq ta'limi tizimini 2030 yilgacha rivojlantirish konsepsiyasini tasdiqlash to'g'risida"gi PF-5712-son Farmoni. – T. Qonun hujjatlari ma'lumotlari milliy bazasi. 06/19/5712/3034-son, 29.04.2019 y.
3. Sirjiddinova M., Akbarova A. Scientific progress volume 3 | issue 3 | 2022 issn: 2181-1601 Page 481 Uzbekistan www.scientificprogress.uz
4. Xalilov S.S. organization of virtual laboratory learning with using the frame model. Science and innovation international scientific journal volume 2 issue 3 march 2023 uif-2022: 8.2 | issn: 2181-3337 toshkent -2023. №2. –b. 567-573.
5. Xalilov S.S. evaluation of students using frame model in teaching physics in distance education. Galaxy international interdisciplinary research journal (giirj)issn (e): 2347-6915vol. 11, Issue 04, April(2023).
6. Э.З. Имамов, Х.Н.Каримов, С.С.Халилов, А.Э.Имамов // Будущее за обучением с активным процессом самообразования студентов // "Science and innovation" international scientific journal. (ISSN: 2181-3337) 2022. № 5.-С. 479-482. URL: //cyberleninka.ru/article/n/buduschee-za-obucheniem-s-aktivnym-protsessom-samoobrazovaniya-studentov/viewer
7. K.P.Abduraxmanov, Sh.X.Ismoilov, B.Ibragimov, S.S.Xalilov, Oberbek mayatnigidan fizik mayatnik sifatida tebranma harakatni o'rganishda foydalanish. "Fizika, Математіка va Inforformatika" jurnali. 2020 yil. 1-Son. -B. 99-103
8. Халилов С.С, Суяров К.Т, Аширбаева А.К. «Возможности самостоятельного развития студентами дистанционного обучения в вузе через систему elms» XI Международная научно-практическая конференция "Наука и образовование в современном мире: вызовы XXI века". Астана-2022. октябрь –С. 12-14
9. Q.P. Abduraxmanov, V.S.Xamidov, N.A. Axmedova. "FIZIKA" Darslik. Toshkent. 2018 y.