Fundamentals of Organizing Students' Independent Work Using Mobile Applications

Jurayeva Nargiza Oltinboyevna

Bukhara State University

PhD student of the Department of Physics

UZBEKISTAN

Received 2022 March 10; Revised 2022 April 15; Accepted 2022 May 02

Abstract – In this article, there is a brief description of the use of mobile software applications in the organization of students' independent education and the ways to increase the efficiency of students' independent education and the ways to increase students' self-confidence and interest in science with the help of mobile software applications; data is provided.

Without improving the independent learning of educational materials by students, it is impossible to fulfill the tasks set before modern education at the required level.

The development of the reasons for independent learning encourages the subject to organize his creative activity and thus raises the question of how independent learning should be.

The technology of independent learning and the reasons for independent learning are related: the lack of confidence in the ability to achieve a specific result deters the learner from independent learning more than any other reason and prevents independent work.

The creation of independent learning technology involves solving several specific problems. Among them, the goal of regular education stands out. If education serves to ensure general development, then the goal of independent education is to develop professional skills or professional skills and become a mature person in one's field.

Tasks that allow for independent learning are intended to create favorable conditions for students whose mastery of concepts, reasons, and value orientations is low and unsatisfactory. The feeling of success alone creates a psychological state that encourages the learner to learn independently.

The independent work of a learner means a set of independent work carried out in the classroom and outside it, under the guidance of a teacher or without the participation of a teacher. However, we cannot say that all students will search independently without the participation of a teacher. Because the lack of self-confidence in the majority of learners prevents them from learning independently. Therefore, in order to increase the self-confidence of learners, it is necessary to enrich the knowledge of the subject, and to convey to the student with the help of concrete examples that every subject is necessary in every aspect of life.

Key words: independent education, mobile application, mobile education, information and communication.

I. Introduction

It's no secret to all of us that nowadays society cannot be imagined without information and communication technologies. In general, the development of each country can be assessed by the introduction of modern information and communication technologies in all areas. A number of works are being carried out for this in our country. In particular, the introduction and development of modern information and communication technologies by our government (PQ-1730 dated 21.03.2012), further improvement of the personnel training system in the field of

information and communication technologies (PQ-1942 dated 26.03.2013), software developers it is possible to cite measures for further strengthening of incentives (PQ-2042 dated 20.09.2013).

In addition, according to the Decree of the President of the Republic of Uzbekistan "On the establishment of the Ministry of Information Technologies and Communications Development of the Republic of Uzbekistan" (04.02.2015 PF-4702), one of the main tasks of the newly established ministry is "the development of competitive software products." to support the development of production and domestic market of our country and the services provided to them and to ensure its coordination, introduction of modern software products, information systems and information resources in the sectors of the real sector of the economy and consumers".

The effectiveness of the educational system is directly ensured by the level of the teacher, the needs of students, the content of educational literature, and the infrastructure aimed at the formation of independent education. therefore, the training of advanced personnel, increasing their competitiveness in accordance with the requirements of the labor market, and the cultivation of creatively thinking specialists are closely related to the educational process established in educational institutions. Decree No. PF-5847 dated October 8, 2019 "On approval of the concept of development of the higher education system of the Republic of Uzbekistan until 2030" was signed by the head of our state. In this important programmatic document, the task of "...step-by-step transfer of the educational process in higher education institutions to the credit module system" was set. The credit-module system is considered the most advanced form of modern education.

According to the credit-module system, training sessions are based on individualized teaching technologies and independent study of the student.

In the credit-module system, two types of independent student work are distinguished:

- in the auditorium - this is independent work performed directly under the guidance of the teacher;

- out of the classroom - independent works given by the teacher, but performed by the student without his participation.

The content of independent work of students in the auditorium and outside the auditorium is determined based on the recommended educational tasks specified in the working program of the academic subject.

II. Literature review

It is known that nowadays, the creation of a software or software product is done by a team of software development experts.

In general, nowadays, every software or application development can be considered as a practical project. Because each developed software application is directed to solving certain problems in a certain field (social, economic, industrial, public economy, etc.) or providing instructions for their implementation.

A systematic and comprehensive approach to software development gave rise to the concept of software engineering. Let's dwell on the reasons for the emergence of the concept of software engineering. The development of software development activities can be explained by the emergence of a number of software-related problems and the actions taken to solve them. The main problems that arose in the development of software were as follows:

 \Box very high cost of software;

 \Box the complexity of creating the required software;

 \Box the emergence of a need for management and forecasting of software development processes, etc.

Software engineering is an applied science that deals with improving and optimizing the efficiency of software development, which includes scientific methods for designing (analyzing), developing, implementing and monitoring software creation.

Mobile applications are components installed on mobile devices (phones, communicators, smartphones, etc.) under a specific platform (Android, iOS, BlackBerry, HP webOS, Symbian OS, Bada from Samsung and Windows Mobile), which connects to a mobile server and controls the user interface. This article covers mobile application concepts, software application life cycle, software application development models and technologies, software application architecture, software application testing and verification methods, software application development scenarios and ways and methods to overcome them, software application development application quality, software application development and testing standards issues are described.

Mobile learning is a systematic activity carried out through compact, portable, mobile devices and technologies that allow learners to be more effective in the learning process by receiving, creating, and communicating information.

III. Analysis

Distance education is the best option for students who are eager to learn. In this way, by offering the student to work in various programs and applications, it is possible to form 21st century skills in them and organize it at a higher level than even classroom training.

Currently, many interactive teaching methods used in the fields of language learning and economic knowledge are popular in the educational system. Many of them can be effectively used in teaching technical knowledge.

As we know, independent education consists of 2 methods: teacher-led and independent work of the student. Taking into account that the student's independent work is rising to the main stage in the credit module system today, the basis of this work is to convey to students the methods and means of self-study of students through mobile applications using modern educational methods.

In this case, the "Tree of Decisions" is mainly aimed at mastering complex topics related to the basics of a certain science, course, coming to certain conclusions based on a comprehensive and careful analysis of certain issues, and finding the most optimal solution among several conclusions expressed about a problem.

"Boomerang" technology aims to enable students to work with various literature and texts during the course of the lesson, outside of the lesson, to memorize the learned material, to be able to speak it, and to express their opinion freely.

"Insert" (BBB) method is a technology used in mastering and strengthening educational material, developing students' skills in working with books, and performing independent educational tasks individually.

Statement of the problem

Modern information technologies open the opportunity for students to turn to non-traditional sources of information. It increases the efficiency of independent work and gives them a wide opportunity to engage in creative activities. In addition, as a result of the use of new information technologies based on the use of telecommunication networks, students will not only increase their level of information provision, but will also have a great opportunity to communicate with colleagues from almost all over the world.

First, independent learning: In this, the possibility of independent learning due to the ease and simplicity of using materials based on mobile learning technologies, interactivity, and the availability of special applications that allow self-management and self-assessment is created.

Secondly, the ideas of M-Learning can be equally applied in the educational system, as well as in the traditional educational process in higher education institutions.

Third, mobile learning can be an effective complement to distance or corporate training courses.

If we give information about mobile platforms Android, Windows Phone, IOS (table 1): the Android platform already supports Wi-Fi Direct, NFS and allows the transfer of multimedia files. It is also possible to connect smartphones and tablet computers based on this operating system through the USB port: cameras, TV tuners, flash memory devices. The installed and updated security system prevents the reception of uncertified and malicious programs. Android 4.3

(JellyBean) version supports Bluetooth smart functions, which allows you to communicate with any Bluetooth devices without headphones, and you can work with OpenGLES3.0 software.

With the release of Windows Phone 8, users are able to integrate their smartphones, tablets, and PCs into a single system (which allows mobile app developers to port apps to different devices). The main difference of this platform is to run programs in the background and independently manage the amount of RAM.

The iOS mobile platform has a simple and clear interface, and the software works quickly and efficiently. Having a reliable security system prevents suspicious programs from running and thus damaging the system. The disadvantage of this platform is that it does not support NFS and Wi-Fi Direct technologies, so music can only be downloaded through iTunes. Added news allows you to listen to music online.

IV. Discussion

It is known that in today's rapidly expanding range of information and knowledge, it is difficult to convey all the information to students only during classes.

The use of mobile applications in improving the effectiveness of independent education gives good results. In distance education, the duration of the educational process is not fixed. The student performs the control work and sends the answer independently, at a time convenient for him. This situation serves to increase the effectiveness of education.

In order to check the level of mastering of theoretical and practical knowledge of students, the level of preparation for practical training (practice, laboratory classes) and the quality of the performance of homework, the first type of work usually consists of taking control tasks, question-and-answer, conversation, discussion, and practical assignments. try out etc. in the methods, control (current control) is carried out mainly in practice classes.

In the current control, the student's activity, performance level and level of mastery in mastering the materials taught during the lesson and in completing homework tasks are taken into account.

The second type of work is carried out in the form of independent search, analysis, synopsis and assimilation of information and information on the subject that is determined to be mastered outside the classroom in the working curriculum of the subject, as well as performing practical tasks that require a creative approach. The process of performing this type of work and the control of the quality of learning is carried out outside of school hours, during specially designated consultation hours.

We have to admit frankly that until today we have been puzzled over the problem of "how to teach a student?".

Now, in the credit-module system, "how should a student study?" the problem is put transversely. We will explain it in detail. In the current educational system, more attention is mainly paid to lectures in the auditorium, and independent work of the student is not given serious attention, because this type of activity has not been studied in depth. The experience of the educational system of developed countries shows that if we do not organize the independent work of the student, no matter how hard we try, the effectiveness of our work will not be as high as we set before ourselves.

Independent work of a student under the guidance of a teacher (IWSGT)



There are many reasons for this. For example, learning processes or modules do not always include classroom hours. For example, we can cite the graduation practice, diploma work, and similar study elements and modules in the curriculum. As you can see, these reading items do not have audience hours. But when we analyze the practice of universities operating in the credit-module system, we can observe that in most of them, the ratio of classroom hours to independent study hours is 40% to 60% in subjects and modules with classroom hours. In other words, this ratio is 1:1.5. That is, for every 1 hour of a lesson in a particular subject, a student will have to study and prepare for an hour and a half outside of class.

V. Conclusion

Purposes of Mobile Apps The purposes of these apps run the gamut from entertainment, productivity, and entertainment to entertainment, sports, fitness, and anyone else imaginable. Social media is one of the most popular areas for mobile app development and adoption. In fact, Facebook is the most used app in 2017 across all platforms.

Many online properties have mobile websites and mobile apps. In general, the difference is focused on one goal: an app is usually smaller than a mobile website, offers more interactivity, and provides more accurate information that is easy to use and intuitive on a mobile device.

Operating system compatibility

A mobile application developer creates a custom application for the operating system it runs on. For example, mobile apps for the iPad work on Apple iOS, but not Google Android. An Apple app will not work on an Android phone and vice versa. Often, developers create a version of each; For example, a mobile application in the Apple Store may have a counterpart in Google Play.

The application we offer includes the following sections:



in which the student gets answers to all the questions about the IL that he is interested in, and the importance of the application plays a huge role in eliminating the difficulties in completing the IL.

Textbooks and tutorials in the form of a mobile application provide learners with the following advantages:

• first of all, there is no need to carry heavy books with you. All necessary textbooks, books and manuals are at hand at any time;

• mobile books do not get lost, torn or worn out;

• mobile textbooks are very convenient to use, and when using them, you can set the settings according to your needs, that is, see the text in a larger font, enlarge the pictures, set letters in the necessary places, continue reading from where you came, etc.;

• mobile textbooks and educational guides help in independent study of the subject and strengthening of knowledge.

Textbooks and tutorials in the form of a mobile application provide learners with the following advantages:

First of all, there is no need to carry heavy books with you. All necessary textbooks, books and manuals are at hand at any time;

• mobile books do not get lost, torn or worn out;

• mobile textbooks are very convenient to use, and when using them, you can set the settings according to your needs, that is, see the text in a larger font, enlarge the images, install letters in the necessary places, continue reading from where you came, etc.;

• mobile textbooks and educational guides help in independent study of the subject and strengthening of knowledge.

As we know, independent education of students can be conditionally divided into 3 types. These are:

1. Written independent assignments, which include: performing tasks given for calculation, filling in summarizing and repeating tables, developing technological maps, drawing up reports on laboratory and practical work, organizing student activities based on various organizers etc.

2. **Graphical independent assignments** can include the following: preparation of various projects, sketching of drawing works, depiction of sections and intersections (drawing some details and nodes, etc.), drawing up schemes, graphs, diagrams, describing the results of observations and includes similar tasks.

3. Independent assignments of a practical nature, which can include the following tasks: preparation of items and products, repair of equipment and equipment, product processing, calculation, new they carry out work such as design of devices, layouts and models, preparation of samples.

As an example of graphic independent tasks, we can recommend a course work project prepared on the topic "Information Coding".

Humans use different notations to collect, store, and process information conveniently and concisely. An example of this is the representation of sounds through letters and numbers, musical sounds through notes, mathematical, physical, and biological laws through formulas.

About encoding information, because a person is a part of existence, he always feels the influence of existence. We perceive this effect in the form of various signals (sound, light, electromagnetic, nerve, etc.). Information that has a continuous effect on a person is called analog information

A person separates and analyzes a part of analog information in order to process it. In the process of analysis, it transfers information to a view that is convenient for processing. In this, a person uses different symbols. For example, the letters of the alphabet that you know represent sounds that are understandable to humans, and musical notes represent musical sounds. With the help of these symbols, it is easy for a person to write down what is heard, speech or music. So, a person transforms information into a continuous view to process it. Such a continuous display of information is called discrete information.

Among man-made devices, there are those that work with analog information and those that work with discrete information. The most widespread of discrete information is digital information, that is, continuous information is represented by numbers. Devices that work with analog signals are called analog devices, and devices that work with digital information are called digital devices. Examples of analog devices include television, telephone, radio, camera, video camera, and digital devices include a personal computer, digital telephone, digital camera, and digital video camera.

Data encoding. Humans use different notations to collect, store, and process information in a convenient and concise manner. An example of this is the representation of sounds through letters and numbers, musical sounds through notes, mathematical, physical, and biological laws through formulas.

Being a part of existence, man always feels the influence of existence. We perceive this effect in the form of various signals (sound, light, electromagnetic, nerve, etc.). Information that has a continuous effect on a person is called analog information

A person separates and analyzes a part of analog information in order to process it. In the process of analysis, it transfers information to a view that is convenient for processing. In this, a person uses 13 different symbols. For example, the letters of the alphabet that you know represent sounds that are understandable to humans, and musical notes represent musical sounds. With the help of these symbols, it is easy for a person to write down what is heard, speech or music. So, a person transforms information into a continuous view to process it. Such a continuous display of information is called discrete information.

Among man-made devices, there are those that work with analog information and those that work with discrete information. The most widespread of discrete information is digital information, that is, continuous information is represented by numbers. Devices that work with analog signals are called analog devices, and devices that work with digital information are called digital devices. Examples of analog devices include television, telephone, radio, camera, video camera, and digital devices include a personal computer, digital telephone, digital camera, and digital video camera.

The process of converting information to another form based on specific rules to facilitate operations on information is called information encoding. Coding of information has been used by mankind not only to facilitate operations, but also to keep information confidential. This form of encoding is called encryption.

The process of converting information to another form based on specific rules to facilitate operations on information is called information encoding. Coding of information has been used by mankind not only to facilitate operations, but also to keep information confidential. This form of encoding is called encryption.



Encoding information in ancient times There are many ways to encode information in life. The first person to use coding is the ancient Greek general Lysander. He invented a "Ssital" stick of a certain thickness to keep information confidential, that is, to encode it. This method of coding is called permutation method.

Text: "VATAN-ONA". Coding result: "VAOANNT-A"

The ancient Roman emperor Julius Caesar also invented a method of encoding text to keep information confidential. In "Caesar Cipher", a letter in the text is replaced by the third letter that comes after it in the alphabet. In this case, the alphabet is written in a circle. This encoding method is called the alphabet push method.

Text: "The future of Uzbekistan is a great country"

Text: "Oʻzbekiston kelajagi buyuk davlat"	When	used	in	the	"Caesar	Cipher"	method:
	"Ashfh	nivxrq-1	nhoe	mejl fy	oʻyn gezo	ex"	

When using the Caesar method, the mark can be moved as desired.

Information coding methods Samuel Morse invented the electromagnetic telegraph device in 1837 and developed the telegraph code for this device in 1838. In it, various letters and numbers are expressed in the form of a special sequence of dots and dashes, that is, information is encoded using three symbols: "long signal" (expressed by a dash), "short signal" (expressed by a dot), "no signal" (space, represented by a pause). This coding method is still used today. The Morse coding method is called an uneven (variable) code. Symbols known to mankind are represented using two or more symbols in this method. In general, if the number (size) of symbols involved in the coding method is the same, it is called a flat coding method, and if the number (size) of symbols is not the same, it is called a non-uniform coding method.

Letter	Representation of in Morse method	Number of characters		Letter	Representation of in Morse method	Number of characters	f
--------	-----------------------------------	----------------------	--	--------	-----------------------------------	----------------------	---

Ν	- •	2	К	- • -	3
Т	-	1	Е		5
А	. –	2	R		3
L		4	0		3

If we write the word "electronic" using this method, it will look like this:

.....

On the one hand, the representation of symbols in the Morse method with various other symbols and several of them hinders the wide use of this method, on the other hand, its only two symbols - a dot and a dash - allow it to be used in technical tools. The Morse method is an example of an uneven coding method, and the following methods are an example of a flat coding method.

Another simplest way to encode information is to replace the letters of the alphabet known to us with numbers indicating their order:

А	В	D	Е	F	G	Н	Ι	J	K	L	М	N	0
01	02	03	04	05	06	07	08	09	10	11	12	13	14
Р	Q	R	S	Т	U	V	Х	Y	Z	Ch	0'	Sh	G'
15	16	17	18	19	20	21	22	23	24	25	26	27	28

If we use this method, for example, the information "It's very hot today" will look like this:

02 20 06 20 13 07 01 21 14 09 20 03 01 08 18 18 08 16

In this case, punctuation marks and other necessary symbols can be represented by special numbers and inserted into the text. There are many ways to arrange a sequence of letters in the alphabet. For example, we take the following order:

A	В	V	G	D	J	Z	Ι	Y	K	L	М	N
12	03	16	14	04	25	20	11	31	24	19	07	27
0	Р	R	S	Т	U	F	Х	Ch	Sh	Q	Н	G'
17	08	22	28	10	18	23	29	02	13	21	34	01

This is called the mixed alphabet method. The above text about air heat would in this case look like this:

03 18 14 18 27 34 12 16 17 25 18 04 12 11 28 28 11 21

It is very difficult to recode this information without knowing the information in the above table.

Coding of information is the representation of information in a form that is convenient for transmission and storage. In a narrow sense, the term "encoding" is the transfer of certain information from one form to another form that is easy to store, transfer, and process. Usually in coding, each form is represented by a separate symbol. A computer can only process information that is represented in digital form. All other data (for example, sound, image, device indicators, etc.) must be described in digital form for computer processing. For example, in order to convert a musical sound into a digital form, it is possible to measure the sound intensity of a certain frequency in a small-time interval and describe the

results of each measurement in a digital form. With the help of computer programs, it is possible to change the received information, for example, to connect different sounds together.

Analogously, a computer can process textual information. When entering a computer, each letter is coded with a certain number, and at the output, external devices (screen or printer) create an image of letters from these numbers for human perception. Matching a set of letters and numbers is called character encoding. According to the rule, all numbers in computers are expressed using zeros and ones (not from the decimal number system, no matter how much people are used to it). In other words, computers usually operate on a binary computing system because processing is significantly easier on these devices. Even if a person is used to entering numbers into a computer and outputting them for reading, all the necessary changes are made by computer programs.

Information encoding methods. Each piece of information can be encoded in several different ways. With the advent of computers, there was a need to encode all kinds of information used by individuals and all of humanity. But humanity started to solve the problem of encoding information long before the advent of computers.

The universal invention of mankind - writing and arithmetic - was nothing more than a system of encoding speech and digital information. Information has never been pure; it has always been encoded in some form. Binary coding is one of the most common ways to represent information. In computing machines, robots, machines controlled by digital programs, all information, all work performed by the hardware is coded in the form of binary alphabet words, as a general rule.

Coding of specific information. The main operation is performed on a separate character of the text - character comparison. The most important aspect in character comparison is not to repeat for each character and the length of this code, the choice of direct coding principle is practically not important. Different code tables are used for text encoding. It is important that the same table is used for encoding and decoding one or more texts. A coding table is a table containing a number of ordered encoding symbols and corresponding symbols in the binary code. Some popular encoding tables are: DKOI-8, ASCII, CP1251, Unicode.

Throughout its historical development, the quality code length for character encoding has been defined as 8 bits or 1 byte. Therefore, each character stored in the computer corresponds to one byte of memory. Different combinations of 0 and 1 are 2^8 =256 in 8-bit code length, so no more than 256 symbols can be encoded using one encoding table. 65536 characters can be encoded with a code length of 2 bytes (16 bits).

Coding of digital information. The similarity between the encoding of numerical and textual information is as follows: in order to be able to compare this type of information, different numbers must have different codes. The main advantage of numerical data over textual data is that, in addition to comparison, various mathematical operations can be performed on numbers: division, multiplication, root extraction, logarithm calculation, etc. in mathematics, the rules for performing these operations on numbers are developed in detail. The basic counting system for numbers entered into a computer is the positional binary system.

Coding of textual information. Currently, the majority of users process textual data consisting of letters, numbers, punctuation marks and other characters with the help of a computer. Let's calculate how many characters there are and how many bits we need. 10 numbers, 12 punctuation marks, 15 arithmetic operations, Latin and Russian letters: a total of 155 characters corresponding to 8 bits. Information measurement units:

1 bayt = 8 bit

- 1 Kbayt = 1024 bayt
- 1 Mbayt = 1024 Kbayt
- 1 Gbayt = 1024 Mbayt
- 1 Tbayt = 1024 Gbayt

The essence of coding is that each character is assigned one of the numbers from 00000000 to 11111111 in the binary code or one of the numbers from 0 to 255 in the decimal code. Currently, 5 different encoding tables (KOI - 8, SR1251, SR866, Mas, ISO) are used to encode Russian letters. Text encoded using one table will not appear correctly in another table.

		1	Exte	ended	ASC	CII Ch	nart	(ch	arac	ter	code	s 128	3 –	255)			
128	Ç	143	Ă	158	R.	172	4	186		200	L	214	Г	228	Σ	242	≥
129	ü	144	É	159	f	173	1	187	1	201	F	215	10	229	σ	243	\leq
130	é	145	æ	160	á	174	«	188	ī	202	<u>_</u>	216	÷	230	μ	244	Ĩ
131	â	146	Æ	161	í	175	»	189	Ш	203	īĒ	217	1	231	τ	245	
132	ä	147	ô	162	ó	176		190	3	204	F	218	1	232	Φ	246	÷
133	à	148	ö	163	ú	177		191	п	205		219		233	•	247	~
134	å	149	ò	164	ñ	178		192	L	206	₽	220	23	234	ß	248	0
135	ç	150	û	165	Ñ	179	*	193	T	207	<u>Ľ</u>	221	12	235	δ	249	
136	ê	151	ù	166	2	180		194	т	208	Ш	222		236	~	250	1
137	ë	152	ÿ	167	۰	181		195	3-22	209	Ŧ	223	10	237	φ	251	V
138	è	153	ö	168	3	182	4	196	<u>Chr</u> ee -	210	τ	224	α	238	ε	252	n
139	ï	154	Ü	169	-	183	Π	197	+	211	L	225	ß	239	Π	253	2
140	î	155	¢	170	÷	184	- -	198	8=33	212	F	226	Г	240	=	254	
141	ì	156	£	171	₩2	185	4	199	ŀ	213	E	227	п	241	±	255	
142	Ä	157	¥				374 1		38. 1		1						

The method of encoding the main characters is called ASCII (American Standard Code for Information Interchange) code and consists of a 16 by 16 table encoded in the 16-digit numbering system.

Coding of sound information. As you know from the physics course, sound is the vibration of air. By its nature, sound is a continuous wave. If we convert sound into an electrical signal (for example, using a microphone), we can see a uniform voltage that changes over time. In order for a computer to process an analog signal, we need to convert it to some sort of binary representation of a sequence of numbers. For this, discretization and numbering are needed. This work can also be in this form: determining signal amplitudes in a certain period of time and recording the obtained digital data in the computer memory.

Elle Balling Channel Spectrum 5	ACTERT/Centerets/vev
64 1000 128de jobres es, steres , son Left Owerel	- With the man
heaptheis scrittise).tl 0,0	
ACTION OF DISAPOSE AND AND A DISA	Meddle Madda and an

Coding of such information serves to provide the knowledge and information that students need to acquire in distance education in small volumes.

References:

- 1. Decree of the President of the Republic of Uzbekistan of October 8, 2019 No. PF-5847 "On approval of the concept of development of the higher education system of the Republic of Uzbekistan until 2030"
- 2. Law of the Republic of Uzbekistan "On Education" No. ORQ-637, adopted on September 23, 2020.
- 3. Address of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis on January 25, 2020. 5. Usmanov B.Sh., Khabibullaev R.A. Organization of the educational process in higher educational institutions in the credit-module system. Study guide. T.: "Tafakkur" publishing house, 2020. 120 pages.

- 4. D.M. Raxmonova Technology of preparing children for school" Improving the quality of education: problems. Republican scientific-practical conference VXTB and ..., 2020/5. B.454.
- D.M. Rakhmonova. Interdisciplinary consistency and connection is an important factor in the development of cognitive processes of students. Republican scientific-practical conference" Educational innovations in the development of pedagogical skills, the use of foreign experience and assessment systems: problems and solutions. Tom 2. B. 120. BVXTXQTMOHM. 2020/4/24
- 6.
 Юсупов С.Ю (2019).
 Олий таълим тизимини ракамли авлодга мослаштириш КОНЦЕПЦИЯСИ.
 Европа

 Иттифоки
 Эрасмус+
 дастурининг
 кўмагида
 Тошкент.

 https://hiedtec.ecs.uniruse.bg/pimages/34/3._UZBEKISTAN-CONCEPT-UZ.pdf
 Тошкент.
 Тошкент.
- 7. Trongtortam, Suparawadee (2019). A decision support model for mobile technology enhanced teaching. Diss. Liverpool John Moores University.104.
- 8. Н.О.Жўраева (2021). Таълим жараёнида мустақил ўқув фаолиятини ташкил этиш бўйича айрим кўрсатмалар. Таълим ва инновацион тадқиқотлар, №3. -170-176 б
- 9. N.O. Jo'rayeva (2022). Mustaqil ta'limni tashkil etish usullari. Amaliy matematika va axborot texnologiyalarining zamonaviy muammolari. -488-489 b
- 10. Jo'rayeva N.O (2022). Umumkasbiy fanlarda mustaqil ta'limni mobil dasturiy ilovalar asosida tashkil etish metodikasi. Educational Research in Universal Sciences (ERUS). TOM 1, 2-son. -175-181 b