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## **THE CONCEPT OF INFORMATION AND EDUCATIONAL ENVIRONMENT IN THE CONTEXT OF UPDATED EDUCATION**

**Abstract.** Currently, there is a rapid development of information technologies, the restructuring of the system of education and upbringing of the younger generation to a new level. All this forces modern society to move forward, keep up with scientific and technological progress and time. Today, the key issue of modernizing education is to improve its quality and bring it in line with international standards. The emphasis is not on the acquired knowledge, but on the process of applying this knowledge.

The article deals with the main directions of development of the education system and theoretical aspects of the development of the information and educational environment in the context of updated education. A new generation of school children can easily master any new digital and multimedia technology. Teachers are tasked with directing the student's development vector in the right direction. To do this, methods of working with students are being improved.

The article describes pedagogical technology as information technology, since the basis of the technological process of learning is the acquisition and transformation of information. The paper considers a single information and educational space that can provide students with the opportunity to use a wide range of educational content (electronic textbooks, video courses, etc.), using interactive technologies to compensate for gaps in education, to realize their creative abilities through participation in various competitions, olympiads, festivals, conferences. Use the system of additional education without interrupting training due to various factors. The Internet environment for teenagers has long been clear and close, and it is believed that it can become a productive platform for improving education. As one of the areas of relevance of the research, the authors will determine the current trends in the development of computer science as a science, in particular, the transition to e-learning in the framework of updated education.

The developers of modern educational standards emphasize the need to create an information and educational environment (IEE) in educational organizations that ensures the formation of universal educational actions of students. Thus, the understanding of the environment as a field of obtaining information is replaced by the understanding of the environment as a field of constructing ways of students' activities. Such an environment from the point of view of the conducted research should be created on the basis of the system integration of ICT tools into the traditional educational environment. The complexity of the work of teachers is due to the lack of a unified model of integrative IEE in educational organizations. The search for effective ways to integrate traditional and innovative environments largely depends on the activities of subject teachers, who are able to turn the potential of the subject-oriented IEE to achieve qualitatively new educational results. The article presents a theoretical description of integrative activity-based IEE, which can serve as a basis for innovative activity of teachers.

The article reveals the content and structure of the information and educational environment. The leading approaches to defining the concept of information and educational environment in pedagogical science are substantiated. The features of creating this environment in a secondary school are revealed. The authors conclude that the creation of an information and educational environment is one of the most important indicators of the quality of the education system.

**Key words:** educational environment, updated education, information support, innovations in education, pedagogy, education, modernization, training.

**Introduction.** The concepts of "educational environment" and "informational educational environment" are not identical. The modern stage of education development is characterized by informatization, as a result of which the educational environment has become an information-informational and educational environment (IEE). IEE is a product of Informatization of the educational sphere [1]. The main goal of the IEE is to ensure the transition of education to a new quality state corresponding to the information society. IEE is a means of implementing and implementing the educational process and educational interaction, which has become informational under the influence of Informatization [2].

The IEE is a multi-level hierarchical environment. There are the following levels:

- General education IEE,
- IEE of an educational institution
- personal IEE [3].

The IEE contains resources of the social and information environment used in education, specialized resources – information and educational (IER) and electronic educational (EER) resources, methodological resources, and ICT resources. In modern education, they have become a means of supporting the teaching of any educational course in educational institutions at all levels [4]. It should be noted that the state educational standard in the Republic of Kazakhstan is part of the educational environment. This is a legal document that expresses the company's order, the procedure and conditions for its implementation. At the same time, it regulates not only the implementation and development of education, but also the development of the educational environment itself [5]. The formation of information and educational environment in the context of updated education is impossible without the design of certain electronic educational resources (table 1).

Table 1 – Examples of different media and tools for various pedagogical tasks in the creation of electronic educational resources

Educational task	Media and tools
Navigation	Buttons, links, animations, maps pages, table of contents, navigation tree, search, help
The clarification, document, observation	Text (explanation, detail, guidance on the use, the comment text, tooltip)
The show models, examples, presentations	Photos (new camera) Diagram (it depends on the quality of the image from the selected resolution when shooting) Screenshot (how to transfer photos to the computer) Circuit (diagram of the parts of the camera) process Model (block diagram) [6]
Demonstration of qualitative and quantitative relations	The concept map (Visual map of the distribution of the distance learning system MOODLE in the world) Diagram (structure of the institution) Graph (correlation between stress and life expectancy) [7]
Show changes over time	Animation (change of clouds before a storm) Applet (effect of standard deviation on shape of normal curve distribution), Video (display of the electronic shutter of the camera) Simulation (how alcohol affects reaction time) [8]
Show hidden concepts (difficult in a simple explanation, abstract)	Graphic analogies (how to calculate compound interest) Animation (how blood flows into the heart and out of it) [9]
Video practical work	Simulation (adding and dropping a paragraph of text in the document)
Note: compiled by the authors	

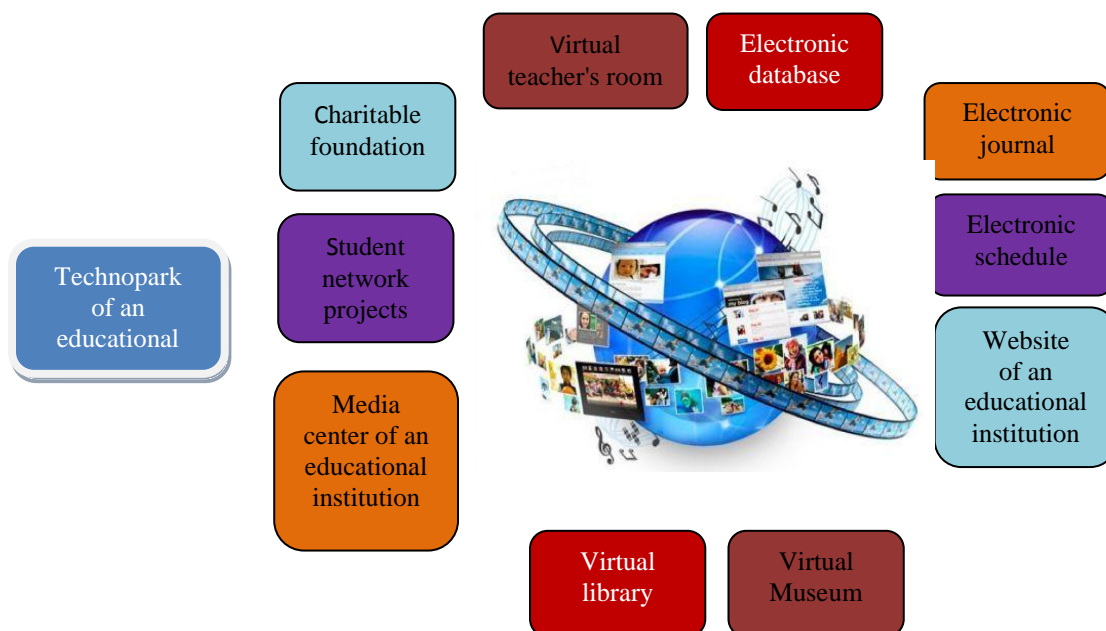
**Methodology.** In the course of the research, General research methods were used: methods of analyzing the educational process: horizontal, vertical, ratios, comparisons, and others.

To study the essence of the information and educational environment in the context of updated education, general scientific and special research methods were used:

- review of literature sources, legal framework;
- analytical method;
- observation;
- learning experience;
- pedagogical experiment, etc.

**Results.** Creating an information and educational environment in an educational organization is one of the main tasks and means of solving high-quality training of students [10]. The main direction in the activity of the school at present is to teach students the skills to work with information. In this regard, the information educational environment of the organization should include a system of hardware, software, specialists and users, databases that implement information processes. In the content context, these are

media libraries, websites, virtual information boards, e-learning applications, methodological developments, Internet resources, etc. [11]. In fact, the information and educational environment is a system in which the structure and information flows are optimized taking into account new approaches to the organization and content of all educational activities in the organization (figure).



Author's model of information and educational environment in the context of updated education.

Note: compiled by the authors

An effectively developed information and educational environment includes five elements:

1. Displaying information;
2. Guide to what to do [12];
3. Exercises for understanding and remembering;
4. Evaluation to determine whether it is necessary to repeat or move to the next stage;
5. Interactivity [13].

These five elements can be embedded in e-learning or used in combination with mixed learning. Although almost all of these items can be implemented without the use of mass media, multimedia makes them more effective and meaningful [14]. Providing a person with the ability to perceive video and audio media has an advantage over each of these capabilities separately (table 2).

Table 2 – Principles of effective use of electronic educational resources in the formation of information and educational environment with elements of updated education

Principles	Description
Multimedia	Training with the use of text and graphics is better than using only text
Spatial relationship	While teaching, accompanied by text and graphics is better when corresponding text and graphics are placed next to each other [16]
Temporary link	While teaching, accompanied by text and graphics is better when corresponding text and graphics are displayed simultaneously, not one after another
Consistency	When training it is better if the text, graphics, or sound is not redundant.
Modality	When learning is better when animation is accompanied by narration than animation accompanied by onscreen text.
Redundancy	When learning is better when animation is accompanied by narration than if the animation is accompanied by narration and on-screen text [17].
Individual differences	The effect of these principles more strongly expressed when learning the initial knowledge than the knowledge of a high level, and for very remote students than for geographically remote little

Note: compiled by the authors.

In addition, since these two channels are designed to process different information, their integration into multimedia tools is very successful, since it takes advantage of both systems [15]. The link between text and graphics potentially allows you to better understand and build a mental model.

Modern science is continuously and dynamically developing and differentiating. The flow of scientific information is growing. Categories and concepts of science are becoming more complex and more capacious. The effectiveness of students' training is determined to a large extent by the quality of their mastery of innovative technologies.

**Conclusions.** Thus, the results of the study confirmed the hypothesis, showing the importance of improving the information and educational environment of the university, as well as the theoretical and practical significance of the phenomenon of "pedagogical Informatics" as the most important determinant of the effectiveness of the educational process at the university.

In this study, a structural and functional model of information - the role and place of pedagogical Informatics in the structural and content model of the fundamental educational process, the theoretical and methodological model of the information culture of the individual and the use of electronic educational resources are presented, the pedagogical conditions for the effective functioning of the information and educational environment of the University are identified, the content of the technologization of training in higher school is determined, a pedagogical technology for forming the basic principles of using electronic educational resources as an important component of the formation of the information and educational environment in the context of updated education is proposed.

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#### **ЖАҢАРТЫЛҒАН БІЛІМ БЕРУ КОНТЕКСТІНДЕГІ АҚПАРАТТЫҚ-БІЛІМ БЕРУ ОРТАСЫ ҰҒЫМЫ**

**Аннотация.** Қазіргі уақытта ақпараттық технологиялардың қарқынды дамуы, өскелең ұрпақты тәрбиелеу мен білім беру жүйесін жаңа деңгейге қайта құру жүріп жатыр. Осының барлығы заманауи қоғамды алға жылжуға, ғылыми-техникалық прогреске және уақыттан қалмай әрекет етуге мәжбүрлейді. Бүгінгі таңда білім беруді жаңғыртудың басты мәселесі – оның сапасын арттыру, әлемдік стандарттарға сәйкестендіру. Алынған білімге емес, дәлірек айтқанда, осы білімді қолдану үдерісіне баса назар аударылады.

Мақалада білім беру жүйесін дамытудың негізгі бағыттары және жаңартылған білім беру контекстінде ақпараттық-білім беру ортасын дамытудың теориялық аспектілері қарастырылады. Оқушылардың жаңа буыны сандық және мультимедиялық техниканың кез келген жаңалықтарын қиындықсыз меңгереді. Педагогтердің алдында оқушының даму векторын қажетті бағытқа бағыттау міндеті қойылады. Ол үшін білім алушылармен жұмыс істеу әдістері жетілдіріледі.

Мақалада педагогикалық технология – ақпараттық технология ретінде сипатталған, өйткені оқытудың технологиялық процесінің негізі ақпаратты алу және түрлендіру. Жұмыста бірыңғай ақпараттық-білім беру кеңістігі қарастырылады, ол оқушыға білім беру контенттерінің (электрондық оқулықтар, бейне курстар және т.б.) кең жиынтығын пайдалану мүмкіндігін, интерактивті технологиялар арқылы білім берудегі олқылықтарды өтеу, түрлі конкурстарға, олимпиадаларға, фестивальдерге, конференцияларға қатысу арқылы өзінің шығармашылық қабілеттерін іске асыру мүмкіндігін береді. Әртүрлі факторларға байланысты оқуды үзбей қосымша білім беру жүйесін пайдалану. Жасөспірімдер үшін интернет ортасы бұрыннан түсінікті және жақын, ол білім беруді жетілдіру үшін өнімді алаңға айналуға қабілетті деп саналады. Зерттеудің өзектілігі бағыттарының бірі ретінде авторлар информатиканың ғылым ретінде дамуының заманауи үрдістерін, атап айтқанда, жаңартылған білім беру аясында электрондық оқытуға көшуді анықтайды.

Қазіргі заманғы білім беру стандарттарын әзірлеушілер білім беру ұйымдарында білім алушылардың әмбебап оқу іс-қимылдарын қалыптастыруды қамтамасыз ететін ақпараттық-білім беру ортасын (АББО) құру қажеттілігін атап көрсетеді. Осылайша, ақпаратты алу саласы ретінде ортаны түсіну білім алушылардың қызмет тәсілдерін құрастыру саласы ретінде ортаны ұғынумен алмасады. Мұндай орта жүргізілген зерттеулер тұрғысынан АКТ құралдарын дәстүрлі білім беру ортасына жүйелі интеграциялау негізінде құрылуы тиіс. Педагогтардың жұмысындағы қиындық білім беру ұйымдарында интегративтік АББО бірыңғай моделінің жоқтығынан туындайды. Дәстүрлі және инновациялық орталарды интеграциялаудың

тиімді тәсілдерін іздеу көбінесе пәндік АББО әлеуетін сапалы жаңа білім беру нәтижелеріне қол жеткізуге аударып алатын пән мұғалімдерінің қызметіне байланысты. Мақалада педагогтардың инновациялық қызметіне негіз болатын интегративті іс-әрекет – АББО теориялық сипаттамасы берілген.

Мақалада ақпараттық-білім беру ортасының мазмұны мен құрылымы ашылады. Педагогикалық ғылымдағы ақпараттық-білім беру ортасының ұғымын анықтаудың жетекші тәсілдері негізделген. Жалпы білім беретін мектепте осы ортаны құру ерекшеліктері анықталды. Авторлар ақпараттық-білім беру ортасын құру білім беру жүйесі сапасының маңызды көрсеткіштерінің бірі деген қорытындыға келеді.

**Түйін сөздер:** білім беру ортасы, жаңартылған білім беру, ақпараттық қамтамасыз ету, білім беру инновациялары, педагогика, тәрбие, жаңғырту, оқыту.

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### ПОНЯТИЕ ИНФОРМАЦИОННО-ОБРАЗОВАТЕЛЬНОЙ СРЕДЫ В КОНТЕКСТЕ ОБНОВЛЕННОГО ОБРАЗОВАНИЯ

**Аннотация.** В настоящее время происходит стремительное развитие информационных технологий, перестройка на новый уровень системы образования и воспитания подрастающего поколения. Все это заставляет современное общество двигаться вперед, успевать за научно-техническим прогрессом и временем. На сегодняшний день ключевой вопрос модернизации образования – это повышение его качества, приведение в соответствие с мировыми стандартами. Делается акцент не на полученные знания, а именно на процесс применения этих знаний.

В статье рассматриваются основные направления развития системы образования и теоретические аспекты развития информационно-образовательной среды в контексте обновленного образования. Новое поколение школьников без труда осваивает любые новинки цифровой и мультимедийной техники. Перед педагогами ставится задача направить вектор развития ученика в нужном направлении. Для этого совершенствуются методы работы с обучающимися.

В статье описана педагогическая технология как информационная технология, так как основу технологического процесса обучения составляет получение и преобразование информации. В работе рассматривается единое информационно-образовательное пространство, которое может предоставить учащемуся возможность пользоваться широчайшим набором образовательных контентов (электронных учебников, видеокурсов и т.п.), с помощью интерактивных технологий компенсировать пробелы в образовании, реализовать свои творческие способности через участие в различных конкурсах, олимпиадах, фестивалях, конференциях, пользоваться системой дополнительного образования, не прерывая обучение из-за разных факторов. Интернет-среда для подростков давно понятна и близка и считается, что она способна стать продуктивной площадкой для совершенствования образования. Как одно из направлений актуальности исследования авторами определяются современные тенденции развития информатики как науки, в частности, при переходе к электронному обучению в рамках обновленного образования.

Разработчики современных образовательных стандартов подчеркивают необходимость создания в образовательных организациях информационно-образовательной среды (ИОС), обеспечивающей формирование универсальных учебных действий обучающихся. Таким образом, понимание среды как области получения информации сменяется пониманием среды как области конструирования способов деятельности обучающихся. Подобная среда с позиций проведенных исследований должна создаваться на основе системной интеграции средств ИКТ в традиционную образовательную среду. Сложность в работе педагогов обусловлена отсутствием единой модели интегративной ИОС в образовательных организациях. Поиск эффективных способов интеграции традиционной и инновационной сред во многом зависит от деятельности педагогов предметников, которые способны обратить потенциал предметной ИОС на достижение качественно новых образовательных результатов. В статье представлено теоретическое описание интегративных деятельностных ИОС, которые могут служить основой для инновационной деятельности педагогов.

В статье раскрывается содержание и структура информационно-образовательной среды. Обоснованы ведущие подходы к определению понятия информационно-образовательной среды в педагогической науке. Выявлены особенности создания данной среды в общеобразовательной школе. Авторы приходят к выводу о том, что создание информационно-образовательной среды выступает одним из важнейших показателей качества системы образования.

**Ключевые слова:** образовательная среда, обновленное образование, информационное обеспечение, инновации в образовании, педагогика, воспитание, модернизация, обучение.

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**REFERENCES**

- [1] Gussenova M., Gussenova S. (2019) Innovative educational technology in higher education and the creation of information educational environment using elements of the updated education in the training of competitive specialists of new formation // News of the national Academy of sciences of the Republic of Kazakhstan. Series of social and human sciences. Vol. 5, N 327 (2019), 156-160. <https://doi.org/10.32014/2019.2224-5294.181>
- [2] Sevil Gussenova (2019) Creation of information and educational environment in educational institutions as a condition for achieving a new quality of education // News of the national Academy of sciences of the Republic of Kazakhstan. Series of social and human sciences. Vol. 5, N 327 (2019), 108-112. <https://doi.org/10.32014/2019.2224-5294.172>
- [3] Karbozova Zhanar Zh., Abdymanapov B.Sh., Salbyrova M.T., Oralova S.Sh., Gussenov Barkhudar. Principles of design of electronic educational resources. Revista Espacios. 2018. Vol. 39, N 17. 25 p. Recovered from: <http://www.revistaespacios.com/a18v39n17/18391725.html>
- [4] Zainutdinova L.H. (1999) Creation and application of electronic textbooks (for example, technical disciplines): monograph / L.H. Zaynutdinova. Astrakhan: CINTEP. 74 p.
- [5] Savelyeva V.V. (2018) Historical and pedagogical bases of formation and development of credit technology in Kazakhstan // News of the national Academy of sciences of the Republic of Kazakhstan. Series of social and human sciences. Vol. 6, N 322 (2018), 160-164. <https://doi.org/10.32014/2018.2224-5294.49>
- [6] Patrikova E.N. (2013) Computers as a means of improving the quality of education. Collection of scientific and methodological materials. Management of educational process and modern technologies of training. Publishing House "TSU". P. 177-179.
- [7] Gershunsky B.S. (1998) The philosophy of education. M.: Moscow psycho-social Institute, Flint publishes. 84 p.
- [8] Ibrahimova N.Ah. (2013) Competence-based approach to training Technical and vocational education. N 3. 19 p.
- [9] Poltavec V.V. (2015) Training of competitive personnel. (Internet resource). <https://nsportal.ru/shkola/raznoe/library/2015/01/21/podgotovka-konkurentosposobnykh-kadrov>
- [10] Bekboev I.B. (2015) Questions of methodology and methods of teaching and education of schoolchildren. Collection of scientific and pedagogical articles. Second book. Bishkek. 464 p.
- [11] Burganova R.I., Abdugalina S.E., Tuyakova A.E. (2018) Improving the quality of education through student-centered education // News of the national Academy of sciences of the Republic of Kazakhstan. Series of social and human sciences. Vol. 6, N 322 (2018), 102-104. <https://doi.org/10.32014/2018.2224-5294.40>
- [12] Gura V.V. (2007) Theoretical principles of pedagogical projecting of personality-oriented e-learning resources and environments: abstract. dis. Dr. PhD. Sciences / V.V. Gura. Rostov n /D. 45 p.
- [13] Krasnov G.A. (2012) Technology of creating e-learning products / G.A. Krasnov, A.V. Solovov and M.I. Belyaev. M.: MGIU. 202 p.
- [14] Norenkov I.P. (2005) Educational environment on the basis of the ontological approach / I.P. Norenkov, M.Yu Uvarov// Internet portals: content and technology: collection of scientific works.St. / redkol.: A.N. Tikhonov (pred.) [et al.]; FGU GNII ITT "Informika". M.: Education. Vol. 3.
- [15] Osin A.V. (2014) Multimedia in education: the context of Informatization / A.V. Osin. M.: Publishing service. P. 27-31.
- [16] Radchenko A.K. (2003) Design technology technical studies: proc.manual / A.K. Radchenko. Minsk. 112 p.
- [17] Samples P.I. (2004) Didactics of higher school: studies.manual / P.I. Obratsov, V.M. Coshin. Eagle: Academy of special communication. 24 p.