

## Мектеп жасына дейінгі балалардың шығармашылық қабілеттерін дамыту шарттары өнер сабақтарында

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### Аңдатпа

Барлық адамдар табиғатынан шығармашылық бейімділікке ие деп саналады. Ал егер ата-ана баланың бойында шығармашылыққа деген құштарлықты байқап, қабілеттерін дамытуға үлес қосса, оның шығармашылық дарынды болатынын даулауға болады. Көбінесе мұндай балалар отбасында ерте танылады және «біртүрлі» ретінде сипатталады. Баланың рухани, әлеуметтік және қажеттіліктерін жүзеге асыра алатын бос уақыты болуы керек. Ата-аналар мен тәрбиешілер балаға белгілі бір нәрсеге көмектесу үшін мұқият болуы керек. Қазіргі қоғамның әлеуметтік тапсырысы сәндік сурет салуды халық өнері арқылы оқытудың мазмұнында көрініс табуы керек. Барлық адамдар табиғатынан шығармашылық бейімділікке ие деп саналады. Ал егер ата-ана баланың бойында шығармашылыққа деген құштарлықты байқап, қабілеттерін дамытуға үлес қосса, оның шығармашылық дарынды болатынын даулауға болады. Көбінесе мұндай балалар отбасында ерте танылады және «біртүрлі» ретінде сипатталады. Баланың рухани, әлеуметтік және қажеттіліктерін жүзеге асыра алатын бос уақыты болуы керек. Ата-аналар мен тәрбиешілер балаға белгілі бір нәрсеге көмектесу үшін мұқият болуы керек. Қазіргі қоғамның әлеуметтік тапсырысы сәндік сурет салуды халық өнері арқылы оқытудың мазмұнында көрініс табуы керек. Осы мақсатта дидактика тұрғысынан тәрбиенің мазмұндық және процессуалдық аспектілерінің бірлігін, балабақшадағы бейнелеу өнерін оқытудың қазіргі жағдайын дамытуды ескердік.

*Түйін сөздер:* білім, бейнелеу өнері, шығармашылық, тәрбие, мектепке дейінгі жас.

## Conditions for the development of creative abilities of preschool children in art classes

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### Abstract

It is believed that all people have creative inclinations by nature. And if parents can recognize in a child a craving for creativity and contribute to the development of abilities, it can be argued that he will become creatively gifted. Often such children are recognized early in the family and are characterized as "strange". The child should have free time in which he can realize his spiritual, social and needs. Parents and educators should be careful to help the child towards something specific. The social order of modern society should be reflected in the content of teaching decorative drawing by means of folk art. To this end, we took into account the unity of the content and procedural aspects of education from the point of view of didactics, the development of the current state of teaching fine arts in kindergarten.

*Keywords:* education, fine arts, creativity, upbringing, preschool age.

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## THE TRAJECTORY OF TRAINING IS THE KEY TO THE SUCCESSFUL TRAINING OF IN-DEMAND SPECIALISTS IN THE LABOR MARKET

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### *Abstract*

The dynamically changing world poses great challenges to the economy and education, while the introduction of new specialties in the field of information technology requires some time and the training of teachers themselves. In the new conditions, society and the economy place high demands on the free possession of information and digital technologies, which continue to appear and change every day. Robotics and automation replace human labor and many will have to retrain and change their profession. In this regard, it is necessary to develop new teaching methods for the comprehensive development of human abilities, as well as the purposeful formation of individual and collective consciousness of many people. The main trend of our time is constant self-development and self-improvement with a planned learning trajectory. The world's leading universities predict new professions in all sectors of the economy that will be in demand in the next 20-30 years. A modern teacher in the learning process should not only rely on new technologies, but it is also necessary to organize feedback with the student in order to take into account the degree of mastering the discipline. Therefore, the formation of the learning trajectory and the introduction of such new formats as mastermind, hackathon, expert games, pecha-heap, world cafe, etc. are of great importance. Understanding the features of each of these techniques makes it possible to integrate them into the educational process, thereby expanding the range of cognition and assimilation of the subject area. All this in a complex should form professionally significant qualities in students and orient them to a clear understanding of the applied purpose of their knowledge in the chosen profession and thereby be as ready as possible for professional activity. Choosing a profession and following a certain learning trajectory will allow you to gain specific knowledge and practical skills. This article notes the importance of forming a learning trajectory that lays the most relevant and in-demand knowledge.

*Keywords:* transformation of education, teaching methods, register of professions, innovations, trajectory of education, educational platforms.

### **Introduction**

The Internet, automation, mobile applications and artificial intelligence lead to a change in the labor market: many professions disappear and continue to disappear and absolutely new ones appear. Other factors that affect all sectors of the economy and industry are the digital transformation of society and the continuous updating of information and communication technologies. The profound impact of exponential technologies, digitalization and Industry 4.0 is described in [Schwab K., 2018].

It is also noted that the fourth industrial revolution is seriously transforming the education system and methods of training specialists. In order to predict the demand for specialists, leading experts created the Atlas of New Professions and Competencies project, which is already being guided by a number of higher educational institutions in Kazakhstan [Atlas of new professions, 2023]. This register of professions is projected for the next 5-10 years. Taking into account the increasing requirements for the training of specialists, it is necessary to explore various learning scenarios, update educational programs, introduce intelligent algorithms and semantic networks. In addition, some developments relate to the creation of performance monitoring systems, namely, the generation of computer tests based on the extraction of knowledge from the texts of textbooks. New e-learning tools based on database technologies and decision tree methods are also being developed.

Sociological studies of the labor market reveal the needs not only for new specialties, but also for specialists competent in related fields. This requires universities to involve students in practical activities from the first year of study, to monitor the market demand of specialists, in order to bring the training of students closer to the realities of life.

Technologies continue to appear and change every day. At the same time, new teaching methods are being developed that allow complex and active development of human abilities, as well as purposefully forming the individual and collective consciousness of many people. The main trend of our time is constant self-development and self-improvement with a planned learning trajectory.

### **Main body**

The level of modern society requires high competence from specialists of various professions. Training planning is of great importance. Especially training in the field of information technologies,

which are most actively developing and cover more and more new areas of human activity. However, the education system in the field of information technology has a number of features related to the time factor. Namely, there is a time interval between theoretical developments, the creation of a prototype and serial production. The time interval is also present when technological innovations appear and are available for mass consumption. This is reflected in the learning process in the field of information technology, which lags behind the emergence of new knowledge. This means that some disciplines lose their relevance and most of the knowledge that exists at the time of the student's admission to the first year becomes obsolete by the end of the fourth.

This circumstance dictates the importance and necessity of conscious choice and planning of one's own education in order to correspond to future work after graduation. And another important problem that exists in the training of IT specialists is the imbalance of theory and practice.

In the first case, it may be a focus on the technologies of a separate manufacturer (for example, Microsoft), which limits the holistic vision of technology development, and in the second case, it is insufficient instilling of technical skills for the implementation and maintenance of software products so necessary to work in the market of competitive software development and services, or focusing on the wrong ones areas of activity.

Thus, for successful and useful training of students at the university, it is necessary to form professionally significant qualities in them, focus on a clear understanding of the application of their knowledge in their chosen profession and provide them with the most modern educational programs.

Due to the presence of a number of features in the training of IT specialists, it is possible to identify tasks that can be assigned to both the teacher and the student. In modern conditions, a teacher must constantly improve his professional level and be a "carrier" of new technologies, be ready for new teaching conditions, use additional opportunities along with traditional teaching methods, comprehensively solve scientific, pedagogical and organizational issues. The readiness of teachers to take additional training courses on the latest technologies will allow them to update the content of courses or create new ones [Selevko G., 1998].

The role of the student in the education system has also grown significantly. It is impossible to get knowledge in a passive way, i.e. what was asked, that was learned. Educational activity becomes interactive: in addition to the fact that the volume of lectures and practical classes increases, the share of independent work of the student increases. For this, the usual skills of using computer technology and information and telecommunication systems are no longer enough. The student is required to:

- willingness to perceive and use new information, i.e. assumes a certain level of intelligence development;
- proficiency in the main international languages in which modern scientific, technical and other knowledge is presented today;
- the ability to communicate with other people, conduct a dialogue with them, clearly and intelligibly express their thoughts and intentions.

Given the importance of developing these skills, the teacher in the learning process should not only rely on modern technologies, but it is necessary to organize feedback with the student, because it is necessary to take into account the degree of mastering the discipline, which is influenced by the character of a person, his well-being, perseverance, the presence of horizons, some skills, sociability, etc. For this, the teacher can use various methods of conducting lectures and laboratory classes. For example, some section of theoretical material should be presented in the form of a training, and a laboratory workshop in the form of direct execution of the task by students and justification of the chosen method in front of the group [Bologna process NATIONAL REPORTS 2004-2005].

A student, having chosen his specialty, does not always understand who he will be, what his work will be in the future. In this regard, the modernization of educational programs is carried out in the concept of transition to the selection of necessary courses in specializations. In these matters, he will

be helped to understand the developed training system, which allows him to simulate an individual learning trajectory.

Full-fledged specialists are trained at two levels: bachelor and master. The difference between both diplomas lies in the depth of study of the material and the number of practical classes [Ostapenko A., 2007].

The Bachelor's degree program in Computer Engineering and Software is divided into two specialties: Computer Engineering and Software.

Due to the fact that at present there are periodic changes in course programs, then disciplines change, then there is a need for new courses, new programs have to be compiled. The technology of the educational process should represent the development and accumulation of knowledge, smoothly connecting new information with basic knowledge. The model is implemented in the traditional way, i.e. knowledge about the subject area is presented in the form of a declarative (descriptive) model of the formation of the knowledge base and the corresponding rules of inference from it. A network model of knowledge representation is used, the main advantage of which is a visual representation of cause-and-effect relationships between elements. When processing the knowledge model, logical inference procedures are used, and general patterns and rules describing the subject area are established in the knowledge base.

Thanks to the general system, it is possible to observe the trajectory of progress in mastering the content of disciplines for a specific profession and a holistic perception and presentation of the entire volume of information of the educational process [Lobato J., etc, 2017]. And if it is necessary to update any course, this will be done taking into account the relationship with other disciplines and will prevent the problem of "fragmentation" of knowledge.

The main essence of the training system is that each specialty contains its own course programs, but based on the market needs for specialists and ensuring flexibility in training, the path of acquiring knowledge can theoretically be divided into several trajectories (Figure 1):

First: with a bias of programming and management of software development projects.

Second: with a focus on system administration, network architecture and information infrastructure management.

Third: with a bias of programming and information security.

Fourth: with a bias of web programming and network technologies.

Fifth: with a bias of system programming and system programs.

Sixth: with a bias in the development of integrated circuits.

Seventh: with a bias in the design of computer equipment.

	1 course	2 course	3 course	4 course				
Directions					Specialists			
					system administrator	developer of integrated circuits	network technology engineer	information security engineer
Computer technology	Disciplines							
Software	Disciplines				software programmer	web developer (Back-end, front-end)	system programmer	
					mobile developer			

Figure 1. Choosing a profession

Thus, the training system allows you to choose a discipline from the base of elective modules based on the choice of a future profession, which will undoubtedly lead to a conscious study of the relevant disciplines and the scope of application of the acquired knowledge. A useful feature of the system is that the choice of elective disciplines is carried out not from the general set of courses, but based on

the chosen future profession. For example, if the profession of an integrated circuit developer is chosen, the system recommends a certain trajectory from elective disciplines, the study of which will lead to more complete knowledge in this profession. Also, for concreteness, you can view the content and prerequisites of a particular discipline. Thus, students will have a complete picture of their studies, know what skills they will possess and who they will work with.

This system can serve as a basis for structuring professional knowledge and a base for training competent specialists in the field of information technology. After all, in this case, the training will be directed to a specific field of activity, to the knowledge of their future functional responsibilities.

The possibility of choosing modules from different specialties should be flexible and it is impossible to draw a rigid and clear boundary between these two areas.

For example, if a student has chosen the profession of a system programmer from the specialty "Software", then this system will highlight a trajectory that will also contain modules from the specialty "Computer Engineering", such as "Modern computer architectures" and "Network Technologies".

This approach will ensure an increase in the level of education through the preliminary choice of a profession and familiarization with the brief content of the courses studied and the vision of a holistic picture of learning.

Thus, we can say that the educational process is moving into a stage of dynamism, interactivity, flexibility, greater interaction and professional focus, thanks to combined teaching methods, the formation of students' cognitive motivation, independence and creative activity.

Initially, two types of models are implemented in the system:

- training course models;
- the subject model.

The training course model is a series of logical blocks. The logic block is a discipline studied as part of the curriculum. In turn, each discipline is divided into a number of logical blocks corresponding to the topics studied.

The subject model is responsible for the semantic part of the training and includes the following components:

- thematic;
- functional.

The thematic model is a training course program in which sections and topics are highlighted, as well as the general structure of the course.

The functional domain defines the role of specific knowledge. This model allows students to structure their knowledge.

Also, this system allows you to monitor the status of courses and, if necessary, discuss and update their goals, content and prerequisites of disciplines.

Thanks to this system, the possibility of self-determination, reflection and decision-making together with a mentor, created by the conditions of choice, is provided.

Thus, it can be assumed that the foundations of the professional competence of the future specialist are initially laid.

## **Methods**

As practice shows, the education system does not have time to rebuild itself following the "dictates of time" either in terms of training the right specialists or in developing new curricula. But on the other hand, thanks to the Internet, the processes of globalization and integration, the development of social networks, many alternative ways of learning have appeared, namely, remote, electronic, training webinars, online courses and others. There has been a transformation of learning. New

information and communication technologies help to learn in a different way. Learning becomes contextual, targeted.

Such training formats as mastermind, hackathon, expert games, pecha-heap, world cafe, etc. were formed.

So, mastermind is learning in a group, it allows you to understand which methods work in certain conditions, as well as to share the accumulated experience, which speeds up the process of mastering knowledge [Chto takoe mastermajnd-gruppy?]. The mastermind is used to master specific skills and alternates well with lectures. To implement masterminds, in which the lecturer is both the person accompanying the group and the moderator, topics and tasks are defined, and students are grouped together. This format of training improves the quality of material assimilation, because participants help each other to achieve results, thereby improving the interaction between students.

Hackathon is a way of project-based learning and is more aimed at self-learning and acquiring practical skills in future activities [Confrey J., etc, 2018]. Hackathons are computer marathons in which teams consisting of programmers, designers in the field of computer graphics and other IT specialists work intensively on software development for a certain time. Following the results of the hackathon, the teams will present their results. Thus, project-based learning increases the level of systemic thinking, motivation to achieve practical results, and reduces the gap between theory and practice [Pshenichnaya V., 2019].

Expert games are games in a strictly fixed subject area [V. Burgat, 2014]. Expert games are a form of training in which a certain aspect of production activity is simulated, taking into account uncertainties and making mistakes, as a result of which participants acquire skills of collective interaction, responsibility, modeling of results and a more holistic understanding of professional activity.

Pecha-kucha is an unusual presentation format [Chto takoe pchela-kucha, 2022]. This form came from Japan and spread all over the world. It is well suited for open classes, during which each student presents a short report consisting of 20 slides. This format develops oratorical abilities, to keep the focus on the main idea, to learn from other people's mistakes, to use graphic visualization competently.

The World Cafe is a method of informal learning [Ermakov D., 2020]. This is a method of short discussion for solving complex problems, covering different points of view and interpretations. The "World Cafe" allows you to expand the range of issues and problems, identify priorities and adjust goals.

## **Results**

The rapid development of information technologies, algorithms in the field of artificial intelligence and robotics, leads to the emergence of new professions in all areas of the economy and changes in labor market segments. For this, futurologists and leading universities of the world have formed a register of future professions as a reference point and the opportunity to create their own trajectory of professional development [Varlamova D., 2020]. Current professions are largely related to digital technologies and technological progress. The work [Mileshina O., 2019] defines a list of basic skills obtained by analyzing vacancies, as well as key trends shaping the economic structure of the future.

The online education market reacts faster to changes in society and replenishes the content with new relevant courses. One of the main trends in education is artificial intelligence, namely, from the point of view of the introduction of personalization of learning, augmented and virtual realities (Augmented reality, AR and Virtual reality, VR).

## **Discussion**

Thanks to digitalization, online courses are widely introduced into educational practice and become

part of the everyday life of both teachers and students. It can be noted that online educational platforms show efficiency and are a good support for universities, and developing in the future have prospects of becoming self-sufficient systems that change the paradigm of education in secondary and higher educational institutions. Universities are not so flexible from an innovative point of view, but this flexibility can be added by introducing additional online courses in the chosen direction into the learning trajectory.

The use of modern teaching methodologies in universities improves the assimilation of material, strengthens the consolidation of practical skills and guarantees the development of knowledge in a timely manner. Teachers with innovative methods create a competitive advantage over online courses, even in the format of video courses.

## Conclusion

The ongoing transformations in the world and, accordingly, in education cause active changes in the processes and methodologies of teaching. In order to train in-demand specialists, it is necessary to introduce different formats and adjust the learning trajectory that reflect the trends of the time. Teachers should use social networks, the format of which is close to the younger generation. When drawing up a learning trajectory, you can recommend additional online courses for deeper assimilation of the material.

Keep in mind that there are many educational platforms that host a lot of high-quality content and training courses: Coursera, Ed-Tech, Uдеми and others, during which certificates and diplomas are issued. They are designed to tighten up some knowledge in a certain area or fill in gaps. In addition, during the training period, some courses offer internships, because employers value technological skills. These platforms have an advantage: narrow focus and short-term training, as well as with their certificates, you can find a job. This direction is called career-oriented education, as a result of which there is an opportunity to find a job in the company, at the request of which this training is organized.

And this means that the paradigm of education is gradually changing. Specific knowledge and skills become more important, the development of which is better through the personalization of training, augmented and virtual realities. In addition, some general education disciplines of university programs for technical specialties may move away to personal individual needs as additional self-development. Thus, the importance of education and individual development increases.

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### **Оқыту траекториясы - еңбек нарығында сұранысқа ие мамандарды табысты даярлаудың кепілі**

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#### *Аннотация*

Динамикалық өзгермелі әлем экономика мен білім беру алдында үлкен сын-қатерлер туғызады, ал ақпараттық технологиялар саласында жаңа мамандықтарды енгізу белгілі бір уақыт пен оқытушылардың дайындығын талап етеді. Жаңа жағдайларда қоғам мен экономика күн сайын пайда болып, өзгеріп отыратын ақпараттық және цифрлық технологияларды еркін меңгеруге жоғары талаптар қояды. Роботтандыру және автоматтандыру адам еңбегін алмастырады және көптеген адамдар қайта даярлауға және мамандықтарын өзгертуге мәжбүр болады. Осыған байланысты адамның қабілеттерін жан-жақты дамыту үшін, сондай-ақ көптеген адамдардың жеке және ұжымдық санасын мақсатты түрде қалыптастыру үшін оқытудың жаңа әдістерін дамыту қажет. Қазіргі заманның басты тренді-белгіленген оқыту траекториясымен үнемі өзін-өзі дамыту және өзін-өзі жетілдіру. Әлемнің жетекші университеттері алдағы 20-30 жылда сұранысқа ие болатын экономиканың барлық салалары бойынша жаңа мамандықтарды болжайды. Оқу процесінде заманауи оқытушы жаңа технологияларға сеніп қана қоймай, пәнді меңгеру дәрежесін ескеру үшін студентпен кері байланыс ұйымдастыруы керек. Сондықтан оқыту траекториясын қалыптастыру және оқытуға мастермайнд, хакатон, сараптамалық ойындар, печә-куча, әлемдік кафе және т.б. сияқты жаңа форматтарды енгізу үлкен маңызға ие. Осы әдістердің әрқайсысының ерекшеліктерін түсіну оларды оқу процесіне енгізуге мүмкіндік береді, осылайша пәндік саланы тану мен игеру спектрін кеңейтеді. Мұның бәрі кешенде білім алушыларда кәсіби маңызды қасиеттерді қалыптастыруға және оларды таңдаған мамандықтағы білімдерінің қолданбалы мақсатын нақты түсінуге бағыттауға және сол арқылы кәсіби қызметке

барынша дайын болуға тиіс. Мамандықты таңдау және оқытудың белгілі бір траекториясын ұстану нақты білім мен практикалық дағдыларды алуға мүмкіндік береді. Бұл мақалада ең өзекті және сұранысқа ие білімді қалыптастыратын оқыту траекториясын қалыптастырудың маңыздылығы атап өтіледі.

*Түйін сөздер:* білім беруді трансформациялау, оқыту әдістері, кәсіптер тізілімі, инновациялар, жылжыту траекториясы, білім беру платформалары.

### **Траектория обучения – залог успешной подготовки востребованных специалистов на рынке труда**

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#### *Аннотация*

Динамично меняющийся мир ставит перед экономикой и образованием большие вызовы, в то время как внедрение новых специальностей в сфере информационных технологий требует определенного времени и подготовки самих преподавателей. В новых условиях общество и экономика предъявляет высокие требования к свободному владению информационными и цифровыми технологиями, которые продолжают появляться и меняться с каждым днем. Роботизация и автоматизация заменяет человеческий труд и многим придется переучиваться и менять профессию. В связи с этим необходимо развивать и новые методы обучения, для комплексного развития способностей человека, а также целенаправленного формирования индивидуального и коллективного сознания многих людей. Главным трендом современности становится постоянное саморазвитие и самосовершенствование с намеченной траекторией обучения. Ведущие университеты мира прогнозируют новые профессии по всем отраслям экономики, которые станут востребованы в ближайшие 20-30 лет. Современный преподаватель в процессе обучения должен не только рассчитывать на новые технологии, но и необходимо организовывать обратную связь со студентом, чтобы учитывать степень освоения дисциплины. Поэтому формирование траектории обучения и внедрение в обучение таких новых форматов как мастермайнд, хакатон, экспертные игры, печка-куча, мировое кафе и т.д. имеют огромное значение. Понимание особенностей каждой из этих методик дает возможность встраивать их в учебный процесс, тем самым расширяя спектр познания и усвоения предметной области. Все это в комплексе должно сформировать в обучающихся профессионально-значимые качества и сориентировать их на ясное понимание прикладного назначения своих знаний в выбранной профессии и тем самым быть максимально готовыми к профессиональной деятельности. Выбор профессии и следование определенной траектории обучения позволит получить конкретные знания и практические навыки. В данной статье отмечается важность формирования траектории обучения, закладывающей самые актуальные и востребованные знания.

*Ключевые слова:* трансформация образования, методы обучения, реестр профессий, инновации, траектория продвижения, образовательные платформы.

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### **АҒЫЛШЫН ТІЛІ САБАҚТАРЫНДА ЖӘНЕ САБАҚТАН ТЫС УАҚЫТТА САНДЫҚ БІЛІМ БЕРУ ЖӘНЕ АҚПАРАТТЫҚ РЕСУРСТАРЫН ШЕТ ТІЛІН ҮЙРЕНУГЕ ДЕГЕН ЫНТАНЫ АРТТЫРУ ҚҰРАЛЫ РЕТІНДЕ ПАЙДАЛАНУ**

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