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## ICT IN PRESCHOOL EDUCATION SYSTEM DURING THE CORONOVIRUS PANDEMIC

#### Abstract

The article reveals the possibilities and new requirements for the use of information and communication technologies in the professional activities of preschool teachers that have arisen in the context of distance learning during the pandemic. The article also contains the results of an analysis of the practice of preschool education in Kazakhstan during a pandemic, surveys of the problems of the functioning of kindergartens in a remote format. In general, the vast majority of preschool teachers consider the remote format as a temporary measure for the implementation of the educational program and the possibility of using it for children in quarantine. Nevertheless, teachers of preschool educational institutions are ready to continue to master new information technologies and digital tools to ensure the effectiveness of the educational process.

**Keywords**: educational process, information and communication technologies, preschool education, distance learning, digital tools, educational solutions, modernization of education.

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# КОРОНОВИРУС ПАНДЕМИЯ КЕЗІНДЕГІ МЕКТЕПКЕ ДЕЙІНГІ БІЛІМ БЕРУ ЖҮЙЕСІНІҢ АҚПАРАТТЫҚ-КОММУНИКАЦИЯЛЫҚ ТЕХНОЛОГИЯЛАР

### Аңдатпа

Мақалада пандемия кезінде қашықтықтан оқыту жағдайында туындаған мектепке дейінгі ұйымдар педагогтарының кәсіби қызметінде ақпараттық-коммуникациялық технологияларды қолданудың мүмкіндіктері мен жаңа талаптары ашылған. Мақалада сондай-ақ пандемия кезіндегі Қазақстандағы мектепке дейінгі білім беру тәжірибесін талдау, қашықтықтан форматтағы балабақшалардың жұмыс істеу мәселелерін зерттеу нәтижелері берілген. Жалпы, мектепке дейінгі тәрбие берушілердің басым көпшілігі қашықтық форматын білім беру бағдарламасын жүзеге асырудың уақытша шарасы және оны карантиндегі балалар үшін пайдалану мүмкіндігі ретінде қарастырады. Соған қарамастан мектепке дейінгі білім беру ұйымдарының педагогтары оқу үдерісінің тиімділігін қамтамасыз ету үшін жаңа ақпараттық технологиялар мен цифрлық құралдарды одан әрі меңгеруге дайын.

**Түйін сөздер:** білім беру процесі, ақпараттық-коммуникациялық технологиялар, мектепке дейінгі тәрбие, қашықтықтан оқыту, цифрлық құралдар, білім беру шешімдері, білім беруді жаңғырту.

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## ИКТ В СИСТЕМЕ ДОШКОЛЬНОГО ОБРАЗОВАНИЯ ВО ВРЕМЯ ПАНДЕМИИ КОРОНОВИРУСА

#### Аннотация

В статье раскрываются возможности и новые требования к использованию информационно-коммуникационных технологий в профессиональной деятельности педагогов дошкольных организаций, возникшие в контексте дистанционного обучения в период пандемии. В статье также представлены результаты анализа практики дошкольного образования в Казахстане в период пандемии, исследования проблем функционирования детских садов в дистанционном формате. В целом, подавляющее большинство педагогов дошкольных учреждений рассматривают дистанционный формат как временную меру реализации образовательной программы и возможность ее использования для детей, находящихся на карантине. Тем не менее педагоги дошкольных образовательных учреждений готовы и дальше осваивать новые информационные технологии и цифровые инструменты для обеспечения эффективности учебного процесса.

**Ключевые слова**: образовательный процесс, информационно-коммуникационные технологии, дошкольное образование, дистанционное обучение, цифровые инструменты, образовательные решения, модернизация образования.

**Introduction.** Today, the development of modern society sets new requirements for the education system, for the education and training of preschoolers, for the introduction of new approaches that will expand the possibilities of traditional methods of teaching and education. The use of information and communication technologies in the educational process is one of the priority areas for modernization of education, which allows improving the quality of education.

Modern preschool teachers should have knowledge in the field of ICT and have the skills to apply it in their professional activities. Information and communication technologies make it possible to: organize the process of education. Individualize this process while maintaining its integrity. create effective management systems for information and methodological support of education.

ICT is a generalized concept that describes various devices, mechanisms, methods, algorithms for information processing. ICT is associated with two types of technologies: information and communication [1].

Information technology is a set of techniques, methods and means for storing, processing, transferring, and displaying information [2].

Communication technologies are methods, ways and means of human interaction with the external environment [3;185].

Information and communication technologies in preschool education are a complex of educational and methodological materials, technical and instrumental means in the educational process, forms, and methods

of their application to improve the activities of the institution's specialists (administration, teachers, speech therapists and other specialists), as well as for education, development diagnosis and correction of children [4].

In the modern world, the development of communication and information technologies is proceeding at a very rapid pace. Teaching and education of modern children and parents is closely intertwined with computer technology and the Internet. Distance learning have become especially widely used, which significantly saves time and allows teachers to distribute the workload and training schedule. Another advantage of such training is accessibility, information content, ease of use, constant and quick communication with the student. Preschool education should meet the modern needs of society, therefore, according to the new educational standards, an information and educational environment should be formed in educational institutions, which, among other things, within the framework of distance education should ensure the interaction of all participants in the educational process: students and their parents (legal representatives), teachers, educational authorities, the public [5].

Education systems around the world have taken steps to reduce the negative impact of the coronavirus (COVID-19) pandemic on education. The UNESCO website presents an interactive mapping "Global monitoring of school closings in connection with the COVID-19 pandemic", which shows the development of the situation of closing educational institutions in various countries, starting from February 8 to May 20, 2020. As of May 27, 2020, the number of distance learners around the world in a pandemic was 1, 190, 287, 189 people (68% of the total) [6].

The top priority for the ministries of education of all countries has become alternative educational solutions, which mainly concerned distance learning measures for schoolchildren and students [7]. The organization of distance education of preschool children shifted to the sidelines. Meanwhile, in the international study of the Nobel laureate in economics Dr. Heckman, it is proved that investments in the early development of children are the most effective of all investments in education. According to the scientist, early age (0-6 years) is the most effective period for human development, and "lost time of a preschooler" has more serious consequences, both for the development of the child and for the economy, in general, than the lack of knowledge of school children [8].

The systems of preschool education in different countries have their own specifics due to the age characteristics, differences in the private and public nature of organizing the activities of preschool organizations. In this regard, based on the current epidemiological situation, states made various decisions during the pandemic. Nevertheless, in each of them, parents of preschoolers were offered special educational digital resources that allow preschoolers to develop even in such unusual conditions. However, unlike the systems of general and higher education, where conditions were created to provide all students with equal access to distance learning, especially in deprived areas and dysfunctional families, in preschool education, the measures taken mainly affected the organization of groups with a small number of children.

Kazakhstan has experienced the same difficulties and problems in education due to the coronavirus pandemic as other countries. It should be noted that the heads of the regions were given the right to independently make decisions about which organizations can continue to work during the period of self-isolation, considering the socio-economic, demographic characteristics of the region and the current sanitary and epidemiological situation. In several localities of the Republic of Kazakhstan, all kindergartens were completely closed, and they switched to distance learning. In some regions, due to the high demand for babysitting and childcare services, the number of duty groups has been increased.

In general, most preschool organizations found themselves in a situation of uncertainty and the process of distance learning took place mainly spontaneously, little controllable by the administration and intuitively by the teaching staff. However, all preschool organizations have tried to make the educational process continuous to provide quality education.

**Materials and methods.** This pedagogical research was based on a survey to reveal certain aspects of the problem under study since during the lockdown period this method is considered the most acceptable. This method helped to obtain information about the facts, opinions, assessments, and preferences of the respondents. A survey was conducted to study the readiness of preschool organizations to organize distance learning and the readiness of preschool teachers to use information and communication technologies.

The main method was the study of scientific and theoretical materials. The method of analysis was used to formulate proposals for improving the work of preschool teachers to use ICT in their professional activities in the new conditions of the coronavirus pandemic.

Further research in this direction should be carried out both among preschool teachers and in general to highlight their views on the use of ICT in the professional activities of preschool teachers in the context of digitalization of education. 85 people took part in an anonymous online survey – preschool teachers, methodologists, heads of preschool organizations. The most active participants in the survey were representatives of the East Kazakhstan region (53 people), Almaty and Almaty region (32 people). This survey can be considered as a resultant since the respondents already have experience of work in the prevailing epidemiological conditions.

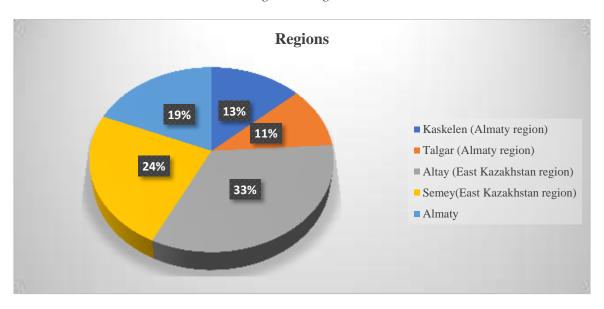


Figure 1. Regions

Since within the framework of this study it was impossible to draw conclusions for each of the regions due to the small number of respondents, the analysis of the survey results was carried out according to the average indicators of the entire sample. At the same time, it is necessary to note the high interest in the survey of preschool teachers from small towns and rural areas, if we consider the percentage ratio of the number of respondents to the total number of all survey participants. Most respondents 57% live in towns and rural areas and 43% are representatives of cities (Figure 1).

**Results and discussion.** In the process of analyzing the survey results, it was important to find out which groups of kindergartens were mostly covered by distance learning. In the survey, the opinions of preschool teachers who work with the "middle", "senior" and "preparatory" groups are approximately equally represented, while the opinions of teachers working with the "junior" groups are less represented.

For this study, the categories of the "senior" (68% of the respondents) and the "middle" group (32% of the respondents) are of particular interest. This is due to the fact that they relate to the period of preparation for school and are more prepared for the use of information technology.

During the pandemic, educational activities for children from 3–7 years old in preschool educational institutions were mainly carried out in two directions: during the stay of children in duty groups and when organizing education in a distance mode.

87% of preschool teachers who worked in duty groups during the pandemic believe that they could not ensure the implementation of the basic educational program in working with children for the following reasons: Due to the short stay of children in duty groups and their different ages. Lack of competence and professional skills of preschool teachers in the use of information and communication technologies.

The new reality has become difficult for the preschool education system. Teachers of the preschool education system traditionally use visual aids to organize the learning process, they are able to organize children's play and support children's initiative, creatively use any material to stimulate children's activity. However, most of them do not have enough knowledge and skills to use digital technologies, experience technical difficulties in the independent use of digital tools in the educational process and are often conservative in their use. Nevertheless, preschool teachers almost from the first days of the measures to prevent the spread of the coronavirus pandemic began to conduct classes remotely. They faced some difficulties. To identify them, the survey was carried out in five areas: no difficulties; problems with

methodological assistance (lack of methodological recommendations for conducting distance classes with preschoolers, lack of kits with ready-made tasks for a remote format, methods of playing games in a distance format, etc.); lack of competence of preschool teachers in the use of information and communication technologies;

objective difficulties (lack of time, problems with technical equipment, inability to work from home for family reasons); organizational difficulties associated with the peculiarities of telecommuting (teachers can`t see the results of completed tasks by children).

The analysis of research on the problems of using information and communication technologies in the professional activities of preschool teachers in the context of distance learning in a pandemic revealed a lack of kits with ready-made tasks for working with children in a distance format (Figure 2). Almost every fourth teacher (28%) believes that he lacks the competencies when working with information and communication technologies to prepare for classes. 22% of the percent of respondents agreed that they do not have sufficient opportunities for collaboration with children in live broadcast mode, there is no stable Internet connection, and there is no necessary equipment (laptop, computer, tablet). 13% of the respondents consider the most significant difficulty for them - inability to see the result and the process of completing the task. Teachers' comments confirm that parents often take on assignments instead of the child. 13% of teachers answered that they did not have any difficulties in preparing and conducting lessons in a distance mode.

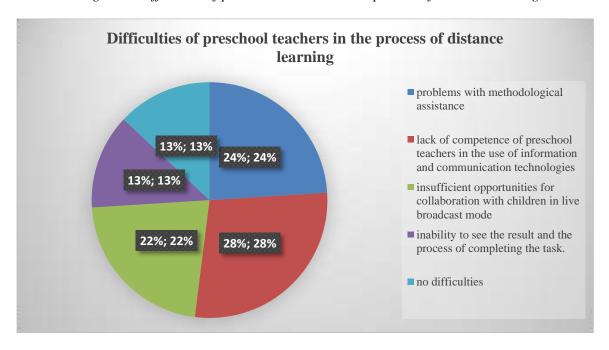


Figure 2. Difficulties of preschool teachers in the process of distance learning.

According to the research results, many preschool teachers consider the lack of time as one of the main problems. This means that they do not have enough time for in-depth study and practical development of computer, interactive, multimedia technologies, programs for creating video presentations, online resources, electronic library systems and other sources necessary for preparing and conducting distance learning.

The survey data confirm that every fourth respondent is experiencing difficulties due to the lack of competence in using ICT tools, as well as in organizing and conducting the educational process in a distance format.

This section discusses results of an analysis of the practice of preschool education in Kazakhstan during a pandemic, reviews of the problems of the functioning of kindergartens in a remote format.

Concern is caused by the fact that during the study it was revealed that the heads of preschool organizations (26%) and methodologists (24%) have serious difficulties in organizing distance learning, and in providing methodological assistance to teachers. Meanwhile, this particular group of respondents is responsible for the implementation of the educational process and its quality. Consequently, for the heads of

the preschool education organizations, it is necessary, as a matter of priority and urgency, to organize a set of measures to improve the qualifications of preschool teachers in this area.

The results of a survey of preschool teachers working remotely during a pandemic show that 65% were unable to fully organize systematic educational activities with children in their groups and ensure the implementation of the main educational program. The main causes of this problem are:

- The lack of professional training for teachers in conducting educational activities with children in a distance format.
  - Low level of technical equipment of preschool institutions, teachers and families of children.
  - Problems with methodological assistance.
- Lack of competence and professional skills of preschool teachers in the use of information and communication technologies.
- The reluctance of the majority of parents to support the activities of preschool institutions to teach their children remotely.

**Conclusion.** The analysis of the survey data confirms that preschool teachers are quite active and responsible in performing their professional duties in the changed working conditions. At the same time, they lack experience in the implementation of this format of preschool education and timely full methodological support.

The conducted research suggests that deep analysis is required:

- risks of distance learning for the implementation of educational programs of preschool education;
- factors affecting the effectiveness of online classes with preschool children;
- the possibilities of using various methods, techniques and technologies of distance learning for use in the work of kindergartens.

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## КРИТЕРИАЛДЫ БАҒАЛАУ НЕГІЗІНДЕ БАСТАУЫШ СЫНЫП ОҚУШЫЛАРЫНЫҢ ӨЗІН ӨЗІ БАҒАЛАУЫН ҚАЛЫПТАСТЫРУ

#### Аңдатпа

Елімізде жаһандық мәселелерге жауап бере алатындай деңгейде мектептердің басшылыққа алатын білім беру бағдарламасындағы ұлттық стандарттарға, оқулықтар, оқыту технологиялары мен әдістеріне, бағалауға қатысты білім беру саласындағы өзекті мәселелер бастауыш сынып оқушыларының білім сапасын арттыруды көздейді.

Мақалада, бастауыш сынып оқушыларының критериалды бағалау жүйесі арқылы өзін-өзі бағалауы мен оқу-танымдық құзыреттілігін қалыптастыру мәселесі қарастырылған. Критериалды бағалау жүйесі арқылы бастауыш сынып оқушыларының білімге қызығушылығын оятып, белсенділігін арттырудағы мақсаттары мен міндеттері жүйелі нақтыланған.

*Мақсаты*. Бастауыш сынып оқушыларының өзін-өзі бағалауы мен үлгерімі арасындағы байланысты анықтау.

Зерттеу әдістемесі мен әдістері. Зерттеу жүйелік, жеке, құндылық-әдіснамалық және белсенділік тәсілдеріне негізделген. Мақалада бастауыш сынып оқушыларының өзін-өзі бағалау түрлері мен ұмтылыс деңгейі зерттеледі. Зерттеуге 107 оқушы қатысты. Анықтау кезеңінде бастауыш сынып оқушыларының өзін-өзі бағалау деңгейінің диагностикасы жүргізілді. Оқыту кезеңінде когнитивтік, бағалау және бағалау компоненттерін жақсарту үшін бірқатар педагогикалық жағдайлар іске асырылды.

**Түйін сөздер:** критериалды бағалау, жиынтық және қалыптастырушы бағалау, өзін-өзі бағалау, дербес бағалау.

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