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Professional Development of Teachers of Preschool Education Institutions and Distance Learning: Advantages, Difficulties and Prospects

**Abstract.** In times of fast-changing information, in order to keep teachers' knowledge and skills up to date and to comply with one of the tenets of sustainable development – lifelong learning – specialists in the sector should develop professionally. This will not only meet professional needs for new information, knowledge and skills, help teachers to perform their professional duties effectively in a rapidly changing environment, but will also help them to be competitive in the labour market. The purpose of this study was to investigate the advantages of applying distance learning for the professional development of preschool teachers, to identify the challenges that specialists of this industry face in the process of distance learning, and to determine the prospects for the development and improvement of this form of education. In the course of the study the authors used a set of general scientific theoretical and empirical research methods, such as analysis, statistical data processing, synthesis, surveying and generalisation. The key advantages of distance learning are highlighted, including individuality, flexibility, asynchrony, openness and self-organisation. It has been revealed that the remote format of education today is characterised by a number of problematic aspects in the implementation process, in particular the insufficient level of technical equipment, the lack of an adequate competence component in the professional training of teachers and the disruption of communication between the subjects of the educational process. It has been found that the majority of postgraduate institutes have courses designed for the professional development of preschool teachers and use both full-time and distance learning. The likelihood of technological, organisational and pedagogical difficulties for the trainees of the upgrade training courses has been determined. The study revealed that most teachers are generally satisfied with this form of training, but not all are ready to implement it in their work. The practical value of the study consists in summarising the characteristic features of distance education on the basis of theoretical analysis and questionnaires.

**Keywords:** distance education, post-graduate education, preschool teachers, technological difficulties, organisational difficulties, pedagogical difficulties

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INTRODUCTION

Sometimes teachers find it difficult to independently navigate and master a large volume of new information, assimilate new technologies and acquire new competencies for their professional development, which is why postgraduate training is provided [1; 2]: professional development courses as well as seminars, workshops, trainings, master classes, etc. [3]. The impetus for the increase in the pace of educational change was the pandemic that began in 2019. And from the beginning of 2020, the entire world, and the education sector in particular, have had to urgently search for and introduce alternatives to the full-time form of work. In education, one of them has been distance learning, which according to analysts’ forecasts will be segmented in the following proportions by 2030 [4]: 55% for secondary education, 25% for higher education, 8% for pre-school education, 6% for corporate education, 8% for lifelong learning.
The specific features of online education as a form of teacher training have been extensively researched in European countries. Scholars have examined distance learning as a tool for professional development of preschool teachers [5], and in addition, distance learning as a form of teaching at preschool institutions has been the subject of the research [6; 7]. Scholars have highlighted a number of advantages as well as difficulties [5; 8] and have classified them. For example, researchers [8; 9] divide the difficulties of distance learning into three groups: technological, organisational (e.g. low student self-organisation) and pedagogical, or technological, social (lack of direct ICT-less communication between teacher and student) and pedagogical [10].

However, despite the numerous studies carried out on the issue of introducing distance learning for educators’ lifelong learning, there are a number of issues concerning the advantages, difficulties and prospects of using this form of education in the professional development of preschool teachers in Ukraine. The purpose of this study was to investigate the advantages of applying distance learning for the professional development of preschool teachers, to identify the challenges that specialists of this industry face in the process of distance learning, and to determine the prospects for the development and improvement of this form of education.

In order to achieve the objective, the following tasks had to be solved: to investigate the readiness of educational institutions providing professional development services for teachers to introduce distance learning and to find out the advantages, difficulties and prospects of using the distance learning form for the professional development of teachers of pre-school education institutions. This requires an assessment of the likelihood of technological difficulties among teachers during distance training, as well as the development of a questionnaire and a survey of preschool teachers who have studied remotely during professional development.

MATERIALS AND METHODS

The study was conducted in several stages. The first stage, through an analysis of the scientific literature, identified the main advantages, difficulties and prospects of distance learning as highlighted by academics around the world. The second stage involved content analysis of the websites of the institutions providing professional development services to teachers in order to identify those institutions that contribute to the professional development of preschool teachers. The content of the professional development courses was also examined in order to determine the direction of the training, the form of training and the relevance of the content to the current professional needs of teachers in preschool education institutions.

At the third stage using official reports, documents and statistical data, in particular, the Report of the Department of Education in Kyiv for 2020 [11], data from the Main Department of Statistics in Kyiv [12], data from international statistics on the use of Internet resources [13], data from a study of Internet penetration in Ukraine, conducted by Research Holding Factum Group Ukraine at the initiative of the Ukrainian Internet Association [14], and data from Ukrgstat [15], mathematical methods were used to determine the probability of technological difficulties that may hinder highly effective distance learning of teachers in preschool institutions of Ukraine. In particular, the likelihood of technological difficulties, such as lack of Internet connection, absence of personal computer, laptop, tablet or mobile phone among the participants of the professional development courses for teachers of preschool education institutions in Kyiv was identified.

The fourth stage included the creation of a questionnaire and a survey among preschool teachers who had undergone distance professional development courses. The aim was to assess their satisfaction with this form of learning and its impact on their professional development, as well as to identify the main advantages and disadvantages of using online education. This made it possible to identify areas of work that need to be carried out to improve the quality of distance learning for preschool teachers and the prospects for applying this form of professional development. The sample included 10 post-graduate teacher training institutions as well as 48 teachers from preschool education institutions in city of Kyiv, Chernihiv, Kyiv, and Zhytomyr regions, who are residents of the cities and belong to different age groups with different pedagogical experience.

RESULTS AND DISCUSSION

In the study, the following advantages of distance learning for further training and professional development of teachers are highlighted:

– individual, flexible training schedules; full control of time and intensity of training;
– the trainee-teacher determines his or her own learning priorities based on his or her own professional development needs;
– the course instructor and trainee do not need to interact at the same time (asynchrony);
– distance learning is not limited to geography;
– the possibility of further training without having to take a break from work;
– self-organisation;
– openness of communication among all participants in the learning process;
– large coverage (the possibility for a large number of trainees to study at the same time, as there is no restriction on classroom workspace).

Despite its many advantages, this form of professional development has its difficulties. In this study the following classification will be used:

1) technological (the necessity to have hardware: computer or tablet, webcam, microphone, etc.; the need for a good quality internet connection);
2) pedagogical (having good technical skills in working with digital technologies by both course instructors and trainees, sufficient provision of training materials with Internet resources, reduced motivation of trainees, low interaction level of trainees);
3) social (lack of direct, classroom-based communication between participants in the learning process, lack of a properly organised learning workspace for trainees).

A content analysis of the websites of post-graduate teacher training institutions providing further education services and included in the research sample showed that the provision of educational services to teachers takes place in the form of courses, internships, educational programmes and further education courses. The institutions of post-graduate teacher education under study mainly use a blended form of education. However, during periods of quarantine restrictions, distance learning is predominantly used. Furthermore, the content analysis of the curricula of professional development courses for preschool teachers revealed that about 12% contain topics that can contribute to the acquisition of competencies by the course participants necessary for the independent implementation of distance learning in their professional activities.

In 2019, Ukraine was ranked eighth in Europe in terms of Internet usage. By mid-2021, Ukraine had 40,912,381 Internet users and a penetration of 93.4% [13]. 65% of Ukrainians in 2019 had Internet at home, 71% were regular Internet users (in comparison, this figure was only 28% in 2010 and 66% in 2016). However, there is still a big difference in Internet penetration in different types of settlements as of 2019: the highest level of penetration is in big cities with a population of over 100,000 – 74%, in cities with a population of less than 100,000 this figure is 70%, and the lowest is for villages – only 58% [14]. The population of Kyiv, according to the Main Department of Statistics in Kyiv [12], was 2,917,362. According to the document “Information on the implementation of the Programme in January-June 2020” by the Department of Education and Science of Kyiv, in the first half of the year there were 6,730 trainees of teacher professional development courses [11].

The probability of technological difficulties in distance learning hindering teachers’ professional development is defined as the probability of two independent events occurring together. The probability of a resident of Kyiv not having internet access is 0.37 (relative units) or 37%. The probability that a resident of Kyiv is a teacher who has taken a professional development course and at the same time has had no access to the Internet is 0.00074 (relative units) [13]. Using the statistics given above, the probability of teachers using a mobile phone or smartphone during professional development was determined in a similar way, and it is 0.0013 (relative units), the probability of using a home laptop is 0.0008 (relative units), a desktop home computer – 0.00076 (relative units), a tablet – 0.00028 (relative units), calculated by the author of this study using the product theorem for probabilities [13].

In order to find out the readiness and attitudes of preschool teachers towards the distance learning form, an anonymous questionnaire survey was carried out. The quantitative socio-demographic characteristics of the respondents are shown in Table 1, while the qualitative results are shown in Figure 1.

### Table 1. Socio-demographic characteristics of teachers of preschool education institutions who have taken distance professional development courses

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Work experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
<td>25-34 years</td>
</tr>
<tr>
<td>6%</td>
<td>94%</td>
<td>22%</td>
</tr>
</tbody>
</table>

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**Figure 1.** The attitudes of preschool teachers towards distance learning

- Availability of computer
- Sufficient digital literacy
- Positive attitude towards ICT
- Positive attitude towards distance learning
- I want to carry out on-the-job professional development
- I support asynchronous communication during distance learning
- Motivation during distance learning decreases
- Acquired the knowledge necessary to implement of distance learning in their professional activities
As the research showed (Fig. 1), less than 6% of the teachers surveyed did not have their own computer or mobile device, so they had to use computers in the workplace to take professional development courses remotely. Approximately 8% of the respondents admitted that they lacked digital competence because they do not often use ICT in their daily work, and they have experienced online learning for the first time, with the software being different from what they have used before. They had to enlist the help of colleagues to get to grips with the new programmes. Lack of technical provision and sufficient digital literacy resulted in a negative attitude towards distance learning for 10% of those surveyed. Another 18% of those surveyed did not prefer any form of training, either distance or traditional. The remaining 72% were satisfied with the distance learning mode of professional development and would like to use this method in the future, regardless of the epidemiological situation in the world. 74% of teachers were satisfied with the possibility of carrying out on-the-job professional development. 82% of respondents consider the flexibility of teaching hours and the possibility to work asynchronously to be advantageous, but 58% complain about a decrease in motivation if there is no communication, in particular that could be provided through web conferencing or webinars.

Only a third of those surveyed had acquired sufficient knowledge of digital work organisation to be able to introduce distance learning into their professional work. On the basis of this study, the prospects for the application of distance learning can be outlined: despite the numerous difficulties encountered in its use, it is suitable for conducting training for the professional development of teachers, in particular for those working in preschool education institutions. Perhaps, over time, distance learning will fully or partially replace the full-time form of education.

Scholars have been interested in the effectiveness of distance learning since its emergence. Therefore, many researchers are investigating the benefits and challenges of its application. Thus, among the advantages of distance learning for teachers are the following [8]: maintaining the teacher’s work process during professional development; solving the problem of overcoming the distance between the place of work, residence and training of a teacher, which thus helps to save money on travel and accommodation costs during the period of attending the professional development course; the possibility of sharing experience between colleagues from different regions and even countries. The distance form of professional development for teachers contributes to improving their ICT competence and digital literacy. Another advantage of distance learning is the ability to meet the educational needs of a large number of people wishing to receive it. This is relevant in countries where the population is growing rapidly [16].

Some scholars argue that the visualisation of learning material through the use of multimedia, which is widely used during distance learning, improves the comprehension of knowledge, but this effect depends on the age of the course participants: teachers aged 36 to 45 perceive multimedia material better than, for example, the younger group of specialists, aged 26 to 35 [5]. Other researchers [8] believe that the difficulties encountered during distance learning include differences in the comprehension of information in electronic format by teachers of different ages, in particular the older generations find it more difficult than the younger ones. The lack of direct contact between professional development trainers and teacher trainees also has a negative impact on the outcome of distance learning. Another obstacle is the difficulty of controlling the process of learning and acquiring knowledge. Moreover, preparing a distance learning course is a costly process that requires time, finances and highly qualified specialists. In particular, teachers who not only have in-depth knowledge of pedagogy, but are also competent and able to work with modern ICT, know how to use visualisation tools effectively, are familiar with HTML, able to use text editors, and have knowledge of the basics of web design. Furthermore, course participants should be active users of ICT and be able to work in the specific software in which the training courses are developed.

Digital literacy should start to be developed from childhood [17]. As a study conducted in Greece [18] has shown, in the initial stages of distance learning, students experienced significant difficulties due to the prohibition of mobile phone use in schools: a lack of necessary communication skills and a nurtured prejudice. It is also important for the introduction of distance learning that all participants in the learning process are well technically equipped (modern, powerful computers, high-speed Internet). In order to organise highly effective distance learning, a number of issues, particularly administrative ones, need to be addressed [8]. The ratio between the number of hours of full-time study and the number of hours of distance learning should be clearly defined. The difficulties of distance learning also include the difficulty of copyright protection for learning materials that are accessed by a large number of users, resulting in replication, copying, transmission and uncontrolled use [8].

During traditional lectures, the teacher can achieve the desired learning effect by using the lecture text and the PowerPoint programme. In distance learning, this is not enough. Teachers should therefore use other forms of delivering training material such as videos, internet files, various computer programmes and educational platforms, which include Edmodo, Zoom Clouds Meeting, WhatsApp, Line, etc. Researchers have identified the advantages and disadvantages of these applications [19]. But, as students note, the excessive number of different applications and usage by teachers leads to downloading these programmes, burdening the memory of the digital device, being exposed to the danger of a virus or poor-quality software. Considerable time and effort is required to process and master them.

The studies conducted [4] have shown that the great variety of digital learning platforms, due to the specifics of different educational institutions, negatively affects the learning outcomes. It is therefore advisable to limit one educational institution to 3-5 platforms that are compatible and
have a single access window. Also, the introduction of distance learning requires specific knowledge and skills to use the capabilities of cloud technology [20]. For example, using email, collecting and storing information, making documents available to multiple users, conducting social surveys, creating presentations, websites, special learning platforms such as Google Classroom. Teachers of preschool education institutions prefer the means of communication used in everyday life during distance learning [6]. These include: electronic educational resources, study guides, reference books, audio and video educational materials – 19.5%, Skype – 19% in cities, in villages – 30.2% of respondents prefer Skype, audio and video materials on educational topics – 29.3%, and electronic educational resources – 25.4%

Many researchers of the advantages and difficulties of distance learning consider the ineffectiveness of assessing acquired knowledge as one of the disadvantages of this form of learning [5; 21; 22]. However, according to other scholars [23], the quality of knowledge acquired during distance learning can be checked using a distance form through interviews, practical classes, term papers and other works, as well as computer-based intelligent testing systems [24]. Also among the disadvantages of distance education, in addition to those already mentioned, another one has been identified which belongs to the social ones and is due to the lack of sufficient space at home for seclusion during learning. This problem has become most acute during quarantine restrictions, when both children and parents have to stay at home, study and work remotely in the same room at the same time [10]. A survey conducted [6] among the teachers of preschool education institutions revealed that over 90% know about distance learning technologies, 66.7% of urban teachers know how to work with e-mail, as well as 81.2% of rural teachers. 20% of urban teachers and 42% of rural preschool teachers are even ready to introduce distance learning in their work. A significant obstacle in the process of introducing distance education, according to a survey [6], for 45% of rural and 60% of urban preschool teachers is the poor quality of the Internet. As the survey [5] has shown, despite all the challenges encountered during distance learning today, 86% of teachers who have already experienced this form of learning during advanced training intend to use it as a tool for professional development in the future.

In order to properly implement and use distance learning, teachers [23] need to have the ICT competencies listed below. However, it is advisable to expand the range of activities and processes that all participants in the distance learning process should master in the course of professional development for teachers, in particular for those teaching in preschool education institutions:

- to enable communication between the participants of the learning process in the digital space;
- to create and share materials through cloud technologies;
- to use the computer to create learning materials, to adapt existing materials and to process them;
- to have knowledge of and respect for intellectual property rights;
- to assess information for authenticity;
- to use ICT safely;
- to use ICT creatively when addressing educational tasks;
- to be able to monitor students’ online activity;
- to use digital tools when assessing academic performance [25].

In order to solve technological, pedagogical, social and other problems arising in distance learning, the authors [10; 26] also recommend: 1) developing a network infrastructure through which all participants in the educational process can interact quickly and smoothly; 2) providing quality and at the same time affordable digital devices; 3) diversifying ways of disseminating educational material according to the distance learning form, in particular TV courses, television, radio, etc; 4) improving the digital skills of participants in the learning process; 5) adapting learning material for distance learning and creating convenient platforms for e-learning; 6) using interactive digital learning resources, in particular videos, animations, quizzes, games, etc; 7) creating an adequate system of communication between participants in the learning process and a quality system for assessing acquired knowledge; 8) using distance learning only when it is necessary to reduce contact between the participants in the learning process; 9) making virtual and augmented reality as well as artificial intelligence available and widely used, not only to increase interest in learning and intrinsic motivation, but also to develop more skills, which is difficult to achieve through other means during distance learning; 10) it is important to consider the individual characteristics of the users of educational services when designing and implementing the distance learning form, not overlooking people with special educational needs.

In order to fulfil all these 10 points for identifying, examining and remediying deficiencies in distance education, the cooperation of all actors is required, namely: policy makers, administrators, teachers, students and their parents. When creating training material to be used for teacher professional development, certain criteria should be taken into account [3], in particular: whether the material will contribute to the acquisition of new knowledge, skills and competencies by the trainees; whether the material will help the teachers taking the training courses to provide quality education to the students of the institutions; whether it enhances and deepens teachers’ knowledge; whether it promotes competence, responsibility and professionalism; whether it increases motivation to work, etc [15].

CONCLUSIONS

In this study, analysing the content of the websites of post-secondary education institutions, it was discovered that most of the educational institutions studied have courses designed to improve the qualifications of teachers of preschool education institutions, and they use both full-time and distance learning forms in their training. By analysing information from academic sources, the advantages of distance learning have been identified as the opportunity to develop professionally...
without discontinuing work, the flexibility of the training schedule, the independence from the location of the educational institution, and the asynchrony of the interaction between the teacher and the course participant. Groups of problems identified include technological (lack of internet connection, lack of computer, laptop, tablet), social, pedagogical. By mathematical methods, it was established that there is a low probability that teachers in preschool education institutions of Kyiv may experience most of the above-mentioned technological difficulties when taking professional development courses. A questionnaire survey conducted among the teachers of preschool education institutions who have experienced professional development through distance learning has revealed that over 90% of those surveyed have the necessary technical means of communication, have sufficient digital literacy, and have a positive attitude towards ICT. However, only 72% have a positive attitude towards distance learning due to low motivation for studying, caused by a lack of face-to-face interaction with course instructors. About 70% of the teachers surveyed are not ready to use distance learning in their own work.

For distance learning to be effective, a collaborative effort between policy makers (encouraging digital software producers to create products that can facilitate learning material and lay it out in an interesting form), administration and teachers of postgraduate education institutions is required (creating relevant content for training programmes and courses, adapting them for digital use, and including disciplines that enhance digital literacy of course participants). Provided these conditions are met, distance learning will be able to compete with full-time education.

REFERENCES


Професійний розвиток педагогів закладів дошкільної освіти і дистанційне навчання: переваги, труднощі та перспективи

Анотація. У час швидкої зміни інформації, з метою підтримки знань і вмінь педагогів в актуальному стані, а також дотримання одного з положень сталого розвитку – освіти протягом всього життя, фахівці галузі мають професійно розвиватися. Це дає змогу не тільки задовольняти професійні потреби в новій інформації, знаннях і навичках, а й допоможе їм бути конкурентоспроможними на ринку праці.

Ключові слова: дистанційна освіта, педагоги закладів дошкільної освіти, технологічні труднощі, організаційні труднощі, педагогічні труднощі.