Project Method in Preparation of Future Preschool Teachers

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Abstract

This article covers the issue of formation of information competence of future preschool teachers. Efficiency of using information technologies in educational process depends on the level of information competence of a teacher. A modern teacher has to use information technologies reasonably, that contribute to enriching of development of cognitive processes of a child and, at the same time, saving his health. This paper suggest project method for formation of information competence of future preschool teachers. Students from the training course on 44.03.05 "Pedagogical Education" specialty "Preschool Education. Primary Education" of Elabuga Institute of the Kazan (Volga Region) Federal University participated in this experiment. The results of the studies performed showed high efficiency of application of the project method in formation of information competence of future teachers.

Key words: Smart-technologies, project method, information competence, multimedia didactic game.

Introduction

Today, information technologies are actively penetrating into all spheres of our lives (Smirnov, 2013). Education is one of the areas, where influence of information technologies is the greatest (Ibatullin & Anisimova, 2017). Nowadays, kindergartens and schools are rapidly implementing information technologies. And, whereas using information technologies in the educational process of schools is more or less reasonable, using information technologies in pre-school educational institutions raises many questions (Korableva et al., 2017b). Scientists are still discussing positive and negative aspects of using information technologies in teaching of preschool children. Scientific studies on the use of developing and teaching computer games, arranged and performed by the experts of the Computer and Childhood Association in cooperation with scientists from many institutes, since 1986, and studies performed in France, have shown that the following results are achieved due to the use of information technologies (Abramov & Zima, 1989):

• Children understand concepts of shape, color and size more easily;

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- They cognize concepts of number and multiplicity deeper;
- They acquire ability to orient themselves in the plane and in space faster;
- They train their awareness and memory;
- Children learn to read and write earlier;
- They replenish their vocabulary actively;
- They develop fine motor skills, and finest coordination of eye movements is formed;
- A sense of purpose and concentration is brought up;
- Imagination and creative abilities are developed;
- Elements of visual-figurative and theoretical thinking are developed.

However, doctors express concern about the health of children, citing many arguments "against" early education of preschool children in computer science: the effect of electromagnetic radiation of the monitor, sitting for a long time and as a result – occurrence of fatigue, nervous and emotional tension, emotional stress, eyesight and body posture get worse (Gurjev, 2018). According to the researchers, every sixth child today is diagnosed with a "developmental disorder" (Hamilton, 2006), every sixth is obese (Casey et al., 2004), and 14.3% of children have psychiatric disorders (Waddell et al., 2007). Diagnoses like attention deficit syndrome and hyperactivity, autism, coordination disorders, sensory disorders, anxiety, depression, sleep disorders, may be related with excessive enthusiasm for new technologies that are growing at an alarming rate (Hancox et al., 2005). From this it follows directly that "virtual world" is more dangerous for a child's physical and psychological health, rather than useful (Tarman et al., 2015; Yiğit and Tarman, 2016; Akhmetshin et al., 2017; Aydarova et al., 2017; Korableva and Kalimullina, 2014).

Thus, question "Information technology for preschool children: harm or benefit?" is still open. Of course, one may not mindlessly go on about the rapidly developing progress, neglecting health of the future generation, but we should not forget that information technologies are our future. Thus, we need a "golden mean" (Bochkareva et al., 2017; Osadchy and Akhmetshin, 2015).

Therefore, a modern teacher should be able to use information technologies so that on the one hand, they contribute to intellectual development of children, and on the other, do not harm their health. The system that uses informational technologies in pre-school didactics should be based on the principle of unity of developing cultural communication of adults with children and developing object environment of a child's activity (Magsumov, 2016; Korableva et al., 2017a). The concept

of this approach should be implemented in toys, environment-forming game objects for preschool children and sports equipment (Gorniz et al., 1998).

Many pre-school educational institutions do not use computers directly in classes, they have interactive whiteboards. Interactive whiteboards are functional and easy to use. They allow you demonstrating educational material, visualizing text and graphic information (Borisenko & Volodina, 2015; Dong & Jong, 2013; Tikhomirov, 2011). Special software tools, e.g. Smart Notebook, WizTeach, RM EasiTeach Next Generation are provided to work with the interactive whiteboard. With their help, one can develop various multimedia didactic materials for classes. Therefore, a preschool teacher should be able to work with programs to develop interactive materials, so that the materials that he/she uses are useful for mental development of a child and do not harm his/her health. That is why his/her information competence should be high. Information competence of a pre-school teacher is a part of professional competence, including ability of a preschool teacher to find required information, make analysis, select, process information material, apply data obtained in his/her professional activities in a pre-school educational institution.

The purpose of this work is to contribute to development of information competence of preschool teachers forming a holistic view of the role of information technologies in contemporary educational environment and pedagogical activity on the basis of mastering their capabilities in solving pedagogical tasks and understanding the risks associated with their application.

In our opinion, using information technologies has a desired pedagogical effect only when a teacher supervising teaching has an appropriate level of readiness to use information technologies in teaching and development of preschool children. Even now it becomes obvious that the extent of a teacher's willingness to use information technologies in his/her professional activities is one of the most important components of the professional competence.

The issues of using information technologies in educational process and necessity to train pedagogical staff are covered in papers of Yu.K. Babanskiy, V.P. Bespalko, V.S. Gershunskiy, S.A. Zhdanov, S.D. Karakozov, V.G. Kinelev, O.A. Kozlov, G.A. Kruchinina, A.A. Kuznetsov, M.P. Lapchik, E.I. Mashbitsa, V.M. Monakhov, E.S. Polat, I.V. Robert, N.F.Talyzina, A.Yu. Uvarov, etc. (Varchenko & Larina, 2007; Galimullina et al., 2017). Training of future preschool teachers on using information technologies in teaching and upbringing is a very relevant and essential task for pedagogic education.

Method

We suggest project method using Smart technologies as a method of study. The project method is a way to achieve didactic goal through detailed development of an issue (technology), which should end in a very real, tangible practical result, designed in one way or another (E.S. Polat); is a combination of techniques, actions in their specific sequence to solve the task - solve the problem, personally significant for students and designed in the form of a certain final product.

The project method is designed to provide students with an opportunity to acquire knowledge themselves in the process of solving practical tasks or problems requiring integration of knowledge from different subject areas (Magsumov, 2013a; Magsumov, 2015). If we talk about the project method as a pedagogical technology, then this technology involves a set of research, search, problem methods, creative in their nature (Tarman, 2016; Tünkler et al., 2016). The teacher is a developer, coordinator, expert or consultant in a project.

In this study, students are invited to develop projects - multimedia didactic games on the interactive whiteboard. The subjects of projects are selected by the students - preschool future teachers directly. Students should make the entire thematic class plan, its summary, think over at which stage it would possible to use a multimedia game, duration of this game, its content, ergonomics, and a complex of visual gymnastics. After that, students start developing an application - a multimedia game. Thus, a project comprises a thematic plan, class summary, description of the game content and application file. At the stage of project defense, every student will have to make an open class demonstrating his/her application to classmates who will act as experts for his/her project.

Every expert evaluates the proposed application by the following criteria:

1) Color arrangement (1-5 points);
2) Animation effects (proper load with animation is estimated) (1-5 points);
3) Location of information on the page (1-5 points);
4) The font size (1-5 points);
5) Conformity with the subject of the class (1-5 points);
6) Conformity with the age category (1-5 points);
7) Duration in time (1-5 points);
8) Fascination (1-5 points).

Arithmetic mean in all criteria, i.e. the score varies from 1 to 5 points, is taken as a final estimate of the application. The presented set of criteria may be extended. But, in our opinion, this set is sufficient to evaluate the project application. What is defense of the projects provided for. The fact

is that implementation of a new technical tool into educational activities normally occurs with violations of safety measures for children's health. For example, some teachers neglect obvious, even at the level of common sense, requirements. They use yellow text on a white background or black on a gray, small font size, at the same time apply a large number of colors, what is unacceptable of course. Preschoolers are not able to detain attention on a large number of objects, so the video should not be overloaded. Take care to using animation effects. Do not forget that interactive whiteboard screen, like a TV or computer monitor, is a source of electromagnetic radiation. The results of measuring the levels of electromagnetic fields directly at the board do not exceed maximum permissible ones. But these regulations have been developed for the adults. Based on this and increased eye strain, it is recommended to use interactive board in classes with children above 5 years old. Therefore, mind duration of the application. Ophthalmologists have proved that eye strain with the use of electronic teaching aids is much higher than when the one perceiving similar information from a paper medium. Therefore, remember of prevention of development of children's visual disorders. For that purpose, it is recommended to use complexes of visual gymnastics. They are based on exercises to develop eye fixation, tracing and oculomotor functions. The main task is to include inactive eye muscles in the dynamic work and relax the overloaded ones. Such exercises normally last for 3 minutes. Proper and systematic performance of simple exercises will minimize influence of the interactive whiteboard on the developing eyeball of children. After scoring, experts who analyze the project, given their strong and weak points.

Thus, as early as at the teaching stage, future preschool teachers learn to work on PC, they learn to use information technologies to solve pedagogical problems and assess their strong and weak points, as well as possible risks for children.

Findings

The experiment based on the project method was performed at Elabuga Institute of the Kazan (Volga Region) Federal University, when students of the specialty 44.03.05 "Pedagogical Education" and profile "Pre-school education. Elementary education" were studying discipline "Multimedia Technologies in Education".

It should be noted that the experiment was performed in two stages. The first stage is training. Nevertheless, the students began to develop their own projects even then. The following project topics were chosen: "Colors", "Vegetables and Fruits", "Seasons", "Wild Animals Getting Ready for the Winter", "Space Travel", "Decompose in the Order" (into values), "Dishware", "Planet

Earth", etc. During the semester, students studied possibilities of Smart technologies, thought over the structure and scope of the class, design and course of application-games, objects used, possible feedback of children to work with. Implementation of the projects was followed by their defense with demonstration of an open session and demonstration of the application. One cannot say that the projects were made on a low level. But the teacher and other students had a number of remarks almost to every application:

•   color arrangement of almost 60% applications was inharmonious, too bright, which could lead to fatigue of the children's eyes;

•   75% of applications were overloaded with animation effects;

•   In 40% of applications information location on the page did not correspond to the average growth of children;

•   In 30% of applications the text was unreadable;

In 55% of cases interactive whiteboard session lasted for more than 7 minutes, what exceeds tolerable time for using interactive whiteboard for preschool children. Final stage is the second stage. The students had to prepare the project themselves and defend it during the test. It should be noted that quality of the final projects was significantly higher than at the first stage. The students have already chosen other topics of the projects and prepared them for classes and applications. One should note importance of this stage. He represented correction of mistakes. Here, students took defects of their own and other projects into account and treated development of new projects more consciously. Fig. 1 shows a comparative analysis of student project evaluations at the training and final stages. Students' numbers are marked horizontally, and score values – are marked vertically.
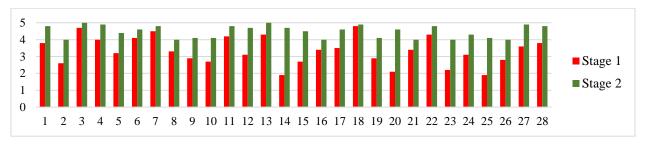

Figure 1. Comparative Analysis of Student Project Evaluations at the 1st and 2nd Stages

As one can see, results of the second stage are much higher than results of the first stage, and besides, scores at the second stage are not lower than "4", i.e. the level of the students' preparation

is very high. On this basis, we may conclude that students have opportunity of using information technologies in solving pedagogical tasks and are aware of the risks related with their use.

Consider the final work of one of the students. It was a didactic Tatar language game called "Doll Dress" ("Kurchaklarny Kiender").

The didactic game is designed for 5-6 year children to remember color names in the Tatar language (red, yellow, green and blue) and use verbs "put on", "take off" in the Tatar language. The didactic game is very interesting, it is aimed at the fact that small children like to play dolls and change their dresses. This game will certainly attract attention of children.

Dolls – a boy and a girl are on the left side of the slide (Figure 2). A "wardrobe" closed with a "curtain" is on the right side. When you open it, you can see beautiful colorful dresses for the girl and shirts with trousers for the boy contained in the wardrobe. The game takes the basics with the famous game "Paper Dolls", where children try to act as designers of clothes.

Children can go up to the board and drag this or that item of clothing for the girl or the boy, thereby dressing them, and at the same time to pronounce colors of the clothes they put on (dress or trousers, or shirts): red, green, yellow or blue. Or the teacher himself can dress the dolls and ask the children: "What color is the girl's dress?", or "What color are the boy's pants?" etc.

Figure 2. Slide of a didactic game

The task for the children is quite simple. It is made in bright and vibrant colors and can be interesting for children, what is very important. When you open this game, it catches children's eye at once; they are trying to guess what is behind the curtain? And then they put clothes, shirts

or trousers on their dolls with pleasure. This game takes into account age category of children, their hobbies and interests. The didactic game is not very difficult from the technical point of view, however, it corresponds to the high level of preparedness of the student who made it (specialty 44.03.05 "Pedagogical Education", discipline "Multimedia Technologies in Education").

Discussion

The use of information technologies in pre-school institutions is the subject of multiple disputes and discussions. On the one hand, information technologies contribute to enrichment of intellectual, moral, aesthetic development of a child, and on the other hand, their misuse may be dangerous for his physical and psychological health. In this regard, a preschool teacher should use information technologies wisely, respecting hygienic requirements and taking into account specific features of development of every child. Thus, much attention should be paid to information training of future teachers.

The work (Kalinina & Dmitriev, 2014) offers to form information competence of future teachers using as separate special courses, information blocks on this subject, as well as preparation and defending various creative works, abstracts, course and final qualification works of the students on the following topics:

1) Innovative trends in teaching preschool children with the help of information technologies (Korableva and Kalimullina, 2016).
2) ICT competence of a preschool teacher.
3) Influence of computer games on intellectual and cognitive development of preschool children, their preparation for school.
4) Formation of creative activity in the process of computer-game activity of preschool children.

The work (Sazonova & Alekseenko, 2017) suggests formation of information competence of preschool teachers on the basis of a system for improving qualifications of the teachers, who have been working already. This system is based on acquiring fundamentals of working with information technologies, demonstrating the best pedagogical experience in information environment (Magmusov, 2013b; Mauch and Tarman, 2016). However, it is unlikely that the proposed advanced training courses will be sufficient to form information competence of an already established teacher, therefore we think that it is better hold such work at the stage of his/her formation.

Conclusion

This paper offers the project method in teaching of future preschool teachers. In our opinion, such work is required at this stage of study of the future teacher, who in the future could be a solid foundation for his/her pedagogical activity.

The results of the studies performed showed high efficiency of application of the project method in formation of information competence of students of the specialty 44.03.05 "Pedagogical Education" and profile "Pre-school education. Elementary education" of Elabuga Institute of the Kazan (Volga Region) Federal University. As early as at the teaching stage, future preschool teachers learn not just to work on PC, they learn to use information technologies to solve pedagogical problems and assess their strong and weak points, as well as possible risks for children. The extent of a future teacher's willingness to use information technologies in his/her professional activities is one of the most important components of the professional competence.

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