Formation of professional cognitive and communicative competency of future primary school foreign language teachers through information-communicative technologies

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Abstract
This article considers the issue of the development of the professional cognitive and communicative competency (PCCC) of future primary school foreign language (FL) teachers in primary school based on information-communicative technologies (ICT). The content of the article is aimed at revealing the main principles, approaches, technologies and sub-competencies to develop the PCCC of the future primary school FL teachers. The importance of the development of PCCC of teachers through ICT is determined by the fact that the teacher should respond to any changes in the social sphere and be able to adapt to these changes. So, that is why future primary FL teachers must be able to use the new ICT in the classroom. We will consider the numerous advantages of ICT teaching FLs in preschool and primary school. To stimulate FL learning, we will also provide a series of digital interactive activities that can be used in early childhood FL education. The article is intended for FL teachers, students, and graduates, working on research in the FL teaching sphere.
Key words: professional-cognitive-communicative competency, information-communicative technology, a model of the teacher, foreign language education, primary school, young learners

Introduction

Many dissertations and scientific articles consider the use of Information and Communication Technologies in foreign language education following modern requirements. The objectives of modern education are not only to educate students but also to teach them to acquire and develop skills and abilities in the performance of practical tasks, to help them feel confident in new situations. Mobility, self-reliance, and readiness to change in a changing period are important qualities of modern graduates (Pavlova, 2016: 76-83).

K.E. Bezukladnikov and others (Bezukladnikov, 2008: 71-86) said that the training of primary school foreign language teachers should correspond to the modern trends in the modernization of education. The main professional competencies of primary school teachers should be formed. They can teach a foreign language at school after special training, and they are specialists who can organize online interactive activities, games, chats, presentations, multimedia language materials etc. That is why the use of ICT in the FL teaching process has become relevant nowadays.

Nowadays, we can get information from various resources, use them and create it ourselves. The widespread use of ICT opens up new opportunities for future primary school teachers to teach foreign languages.

Creating an artificial language environment for primary school students using multimedia technologies is an important task for every teacher. Experience has shown that there are many advantages to the rational use of multimedia programs in English lessons in primary school:

• stimulates learning;

• allows the teacher to use an individual approach and take into account the psychological characteristics of each student;
• corresponds to the age and level of training of students;
• develops systematic and creative thinking, helps to analyze, compare and generalize facts;
• provides access to all participants to get information on the Internet in the process of teaching English;
• promotes the self-development of students and supports the use of information directly related to their interests;
• facilitates the presentation of material at a more informative level;
• increases the efficiency, effectiveness and quality of education;
• increases language competence due to the presence of different texts;
• ensures real communication with the speaker;
• expands opportunities to study linguistic aspects;
• improves the quality of visualization, which increases cognitive activity and interest in the lesson (Ivanchenko, 2011: 341).

In this regard, a primary school foreign language teacher needs to develop theoretical knowledge and practical skills to use ICT in the educational process. ICT competence of a foreign language teacher – is "the ability of the teacher to use Internet resources, Web.2.0 social services and other technologies in order to develop language skills and speaking skills in teaching a foreign language" (Sysoev, Evstigneev, 2011: 16-20).

In recent years, the use of new information technologies in education is often raised. It is not only new technical means but also new forms and methods of teaching, a new approach to the learning process. The introduction of ICT in the pedagogical process increases the teacher's confidence in the team, as teaching is conducted at a modern, high level. At the same time, the teacher's self-esteem increases as he/she develops his/her professional competencies.

Now teachers need to be able to get information, use it and create it themselves. The widespread use of ICT opens up new opportunities for teachers to teach their subject, as well as significantly simplifies its work, increases the effectiveness of teaching, and improves the quality of teaching.

Analyzing the scientific, pedagogical and methodological literature on the development of PCCC of future FL teachers in primary school showed that this phenomenon is not well developed:

- there are no works that systematically identify the concept of PCCC of future FL primary school teachers;
- some works separately consider each of its components; the didactics and content of the formation of PCCC have not been developed in the preparation of future primary school teachers in higher education.

To solve this problem, we introduced the model for the development of a PCCC of a student based on ICT. To verify the efficacy of this model, we conducted an experiment to answer the following research questions:

- What do the students know about ICT?
- How does the use of ICT vary between the control group and the experimental group?
- What characterizes the uses of ICT in teaching FL of (i) the control group students and (ii) the experimental group students?

Studying this issue determines the relevance of our topic.

Our study aims to develop, systematize the theoretical basis, and methodologically clarify a model for the development of a PCCC of a bachelor, that is, an FL teacher in a primary school based on ICT.

The objectives of the article:

- To identify the useful ICT tools in teaching foreign languages in primary school

- To develop and implement a set of tasks and exercises aimed at the formation of PCCC using the ICT of future primary school foreign language teachers;
- To distinguish the level of professionally-cognitive-communicative competency of future primary school FL teachers based on ICT;
- To identify the criteria of assessment to evaluate students' or future primary school FL teachers' ability to use ICT in teaching FLs in primary school;
- To observe the results of an experimental study;
- To interpret the experimental results and formulate conclusions about the development of PCCC using the ICT of future primary school foreign language teachers.

In this study, we hypothesize that the formation of PCCC of future primary school foreign language teachers is related to using interesting ICT tools to test this hypothesis.

To present the theoretical foundations of a model that develops the professionally-cognitive-communicative competency of future FL teachers in primary school based on information-communicative technologies, it is necessary to identify and analyze it by modeling. In order to model, first of all, we must identify the definition of cognition. Cognition is "the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses" (Cambridge Cognition, 2015). Cognitive Learning Theorists were: Jean Piaget (1994) (children are active students and thinkers), L. S. Vygotsky (1991) (children read and learn through social interaction), J. Bruner (1977) - (scaffolding), N. Chomsky (Guchetl S.K. Scaffolding as an interactive method of professionally oriented teaching of an FL, 2018), and B. Bloom (1956) - (Bloom's Taxonomy).

The cognitive-activity approach allows you to get away from the reproductive way of learning and move on to an activity paradigm in which the key competency is the presence of the basics of theoretical thinking in the student, capable of finding an adequate solution in non-standard conditions and acting in uncertain situations; to model substantive content aimed at finding generalized methods of action by constructing a system of scientific concepts. The main pedagogical task is to create conditions that initiate students' action: updating the value content of education, mastering knowledge as a learning value - implementing modern interactive and information-communicative education technologies (Gilmeeva, 2018: 38; Driel, Verloop, Vos, 2004).

The competency-based approach is a unified system of defining goals, selecting content, evaluating results, organizing, and technical support of the educational process based on the allocation of competencies (Loughran, Mulhall, Berry, 2004). The educational results are recognized as significant outside the educational system (Zimnaya, 2004: 5; Magnusson, Krajcik, Borko, 1999). For our study, the idea of A.V. Khutorskoy (2007: 17) is interesting, which notes that competency is ―a set of interconnected personality traits (knowledge, skills, methods of activity), defined by a certain range of objects and processes necessary for high-quality, productive activities concerning them. Competence possession is the possession of a person by the relevant competency, which also presupposes his attitude to it and the subject of activity.

Describing the components of communicative competence, R. P. Milrud (2014) distinguishes linguistic (linguistic knowledge); discursive (mastery of behaviors in problematic communicative situations); activity (use of the language in real or close to actual conditions of productive activity). FL education continues the idea of personality development, putting forward as the ultimate goal - the formation of the ― intermediator of intercultural communication, ready and able to communicate in different life situations, forming students' intercultural and communicative competency. The socio-technological development of FL education as a multifactorial and complex process provides the opportunity to build an open FL education system to form an intermediator of intercultural communication through the effective

organization of cognitive speech and cognitive activity, the formation of a socio-cultural background in the context of informatization, through the organization of the process of language disclosure as a translator of cultures through information and communication technologies (Chaklikova, 2009: 9).

Based on the above definitions, considering existing approaches to professional education, we have developed a model for forming professional-cognitive-communicative competency of future FL teachers in primary schools based on ICT, which includes four blocks: target, substantive, procedural, and practical (Figure 1). The target block determines the subject of the formation of professional-cognitive-communicative competency of future teachers of FLs in primary school based on information-communicative technologies, which is the process of training future teachers. The methodology for the formation of professional-cognitive-communicative competency of future FL teachers in primary schools based on information- pedagogical principles, technologies, methods and approaches determine communicative technologies:

Cognitive-activity approach	When analyzing the above conceptual approaches to the training process for future teachers, the cognitive-activity approach means that the prospective FL teacher in the primary grades effectively organizes the educational process taking into account the knowledge, skills, mental abilities, activity, and personal qualities, as well as age characteristics of students. Here, the student receives knowledge not only in finished form but also independently, understanding the content and types of his scholarly activity and applying the knowledge gained in practice, which contributes to the successful formation of his abilities and general knowledge of a FL.
Competence-based approach	Only by possessing professional competencies does a teacher of FL education in the primary school achieve the goal following social changes and social requirements. A future FL teacher in the primary grades, mastering the content of knowledge, adequately organizes the process of teaching an FL, knows how to work professionally, self-study, improve and effectively use the acquired abilities, knowledge, and skills.
Interactive didactic approach	An interactive didactic approach is an organization of FL education (goals, content, methods, techniques, and means) in the context of an information environment, which provides the use of digital technologies for more effective FL acquisition by students in primary school. The interactive didactic approach is implemented through multimedia language programs. The didactic properties of language multimedia programs include multimedia, interactivity, feedback, universality, multilevel educational language materials, and autonomy. Each of the didactic features has a methodological function that allows you to form all the components of students' FL communicative competency based on multimedia language programs (Kokhenderfer, 2013).
Personality-functional approach	A personality-functional approach in preparing a future FL teacher for primary grades is associated with the preparation of a linguistic personality or an intermediator of intercultural

	communication, owning the linguistic and socio-cultural characteristics of an FL environment, adapting linguistic material for teaching needs so that students communicate, participate in role-playing games, express their ideas, that is, developed the skills of speech activity. S.S. Kunanbaeva notes that professional competency is a multi-aspect characteristic of a specialist, including a set of cognitive, integrated-technological, motivational-volitional and reflective-communicative components that reflect the level of his ability to effective professional activity and the degree of readiness for professional development in the context of globalization and internationalization (Kunanbaeva, 2014: 208).

Based on the previous, we can give the following definition of the professional competency of an FL teacher in primary school - this is the ability to apply existing knowledge in the field of FL education, the implementation of a system of linguistic, cognitive, communicative, intercultural, knowledge and skills that allow future teachers of an FL to interact effectively in specific socially determined communicative situations. The professionally-cognitive-communicative competency presented by us consists of the following sub-competencies:

Linguo-didactic sub-competency	The formation of linguo-didactic sub-competency is associated with the skills of successfully implementing professional abilities in the field of teaching an FL in primary school. That is, the graduate has the skills to set important goals and solve problems, be creative and get results using innovative and information and communication technologies. The requirements for the formation of linguo-didactic sub-competency include the need: - To establish the interactive participation of all students in the educational process of the pedagogical faculty; - Use foreign educational technologies, didactic methods, and techniques; - Familiarize yourself with the linguistic and didactic materials used in the curriculum of FLs in primary school.
Professional cognitive sub-competency	According to S.S.Kunanbaeva, cognitive sub-competency provides the formation of language as an integral part of cognition and the formation of thinking (Kunanbaeva, 2010: 110). EI Stepanova (2000) notes that cognitive competency is carried out in a sequence corresponding to the following three stages. The first stage (basic level) is the stage of information accumulation, at which it is stored, stored, and transferred from short-term memory to the long-term. Initial mental processing of the source information occurs. The second stage (average level) is information processing using logical operations and conceptual systems (signs, symbols, tables, etc.). The third stage (high level) of transformation and evaluation of information occurs at the level of creative thinking, including hypotheses, the search and selection of possible assumptions, and implementation in practice using various means of activity. In the system of professional cognitive thinking of a future

	primary school teacher, the ability to think creatively and work with information comes to the fore (Thompson, Ambrose, 2005).To form a professional-cognitive sub-competency, a future primary school FL teacher learns the concepts of the linguistic picture, searches for processes, analyzes information on the studied language material, and turns it into a creative product.
Professional communicative sub-competency	Professional and communicative sub-competency includes the following set of skills: 1) The ability to freely use linguistic knowledge in the process of communication when transmitting information; 2) The capabilities of choosing adequate language forms and means, verbal and non-verbal, transforming them depending on the situation of communication, avoiding the failure of the act of communication;
The intermediator of intercultural communication sub-competency	To become an intermediator of intercultural communication, a future FL teacher in primary school should know the language system and have the skills to implement oral and written forms of lexical units and their structure, meaning morphological and syntactic constructions, and appropriate use in context. He knows the psychological foundations of professional communication: he develops tools and methods of communication, the laws of interpersonal relations, and also applies communication technologies.

All principles of training and sub-competency are interconnected.

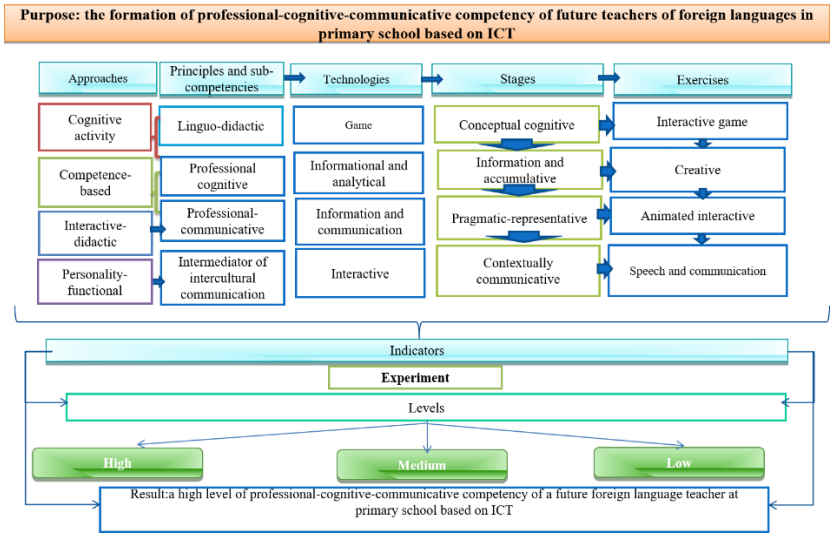

Figure 1: A methodological model for the formation of professional-cognitive-communicative competency of future teachers of FLs in primary schools based on ICT.

Since teachers teach a foreign language traditionally, FL teachers need to provide students with classroom activities that will allow them to develop cognitive-communicative competencies. ICTs can fully serve this purpose. They provide oral and written data from various sources and will help students create their own digital interactive exercises; in addition, they promote discussion among students through collaborative work.

In our research, we believe that the following interesting online interactive language ICT tools can be used:

1.LearningApps.org is a Web 2.0 application for interactive exercises in learning and teaching a foreign language through interactive modules (Nikolov, Jecheva, Kirova, Nikolova, 2017: 147).

LearningApps offers a variety of templates (over twenty) for creating learning modules and learning games (Pospelov, 2015: 9−14).

2. Online gaming platforms: Proprofs.com (https://www.proprofs.com/), Bamboozle and Deck. toys (https://deck.toys) are designed to organize distance learning using game technologies.

Also, we identified some digital programs that create multimedia:

Free and legal download and compilation of photos from the Internet: Pixabay (https://pixabay.com/ru/service/faq/), Free Images (https://free-images.com/), Creative Commons Search (https://search.creativecommons.org/about), Canva (https://www.canva.com/ru_ru/). Piktochart, Snipping tool.

2. Recording an audio: Audacity.

3. Creating videos and screencasts: Vimeo, Camtasia / SnagIt (TechSmith products), Captivate (for e-learning).

When working with multimedia tools, students adapt their learning process to their abilities and desires. They read material that interests them, which helps them to perceive it correctly (Nasibullin).

Next, in our research we'll use online presentations for online English language teaching in primary school: Sway, Prezi, Google Slides.

Digital storytelling effectively connects primary school students with digital literacy by developing reading and writing skills while teaching a foreign language. Digital storytelling tools: Storybird, Story Jumper (Hourcade, Bederson, Druin, Rose, Farber, Takayama, 2003).

Digital tools for online chats and forums:

Twitter. The Twitter service's didactic properties and methodological functions allow students to develop writing skills (Sysoev, 2014).

Distance learning is especially important in the case of isolated and quarantined online learning according to a schedule. Microsoft Teams, Zoom, Skype, Cisco Webex communication programs are indispensable tools for distance learning of foreign languages.

Digital tools for online formative assessment and feedback:

- Twitter polls
- Padlet
- Socrative - It can be used anywhere and anytime to facilitate reading and feedback (Kaya, Balta, 2016).

In this regard, under the formation of professional-cognitive-communicative competency of a future primary school FL teacher based on ICT, we will understand his/her ability to perform professional activities with the help of information and communication technologies and the formation of ICT literacy of students, readiness to quickly master and introduce new technologies into school practice in accordance with the trends in the development of the information society.

Methodology

To implement the developed model of formation of PCCC of future primary school FL teachers using the ICT, a set of tasks and exercises were created and implemented. The tasks were based on teaching FL to young learners with ICT tools. Using the ICT tools, students created their digital interactive activities: they created interactive didactic games using various templates from the LearningApps.org, Proprofs.com, Baamboozle, DeckToys; prepared activities appropriate for each learning style (visual/auditory/kinesthetic/tactile) for the 2nd-grade learners on the topic "Traditions and customs" using: Pixabay, Free Images, Creative Commons Search, Canva, Piktochart, and Snipping tool; created an online presentation (Sway, Canva, Google Slide) on the topic: “Health and body” (for the 2nd grade); created interactive online chats, forums, webinars, and conferences on the theme “Teaching English language in primary school”.

Participants

We experimented for three years to determine the development of PCCC using the ICT of future primary school foreign language teachers. Eighty attendees of pre-university courses at the Kazakh Ablai Khan University of International Relations and World Languages (40 students (2^{nd}-year) in the experimental group, 40 students (3^{rd}-year) in the control group) took part in the experiment.

Analysis

For the investigation reported in the present article, the final scheme (Figure 8: The post-experiment results) was used to identify two attainment subgroups whose use of ICT could be analyzed in detail and comparisons made. The groups comprised (i) the control group (n = 40) and (ii) the experimental group (m = 40).

To achieve the final goal and solve the formulated objectives, we used several scientific research methods: diagnostic (questionnaire), observational (observation), praximetric (analysis of activity products), and mathematical statistics.

The main research questions were:

- What do the students know about ICT?
- How does the use of ICT vary between the control group and the experimental group?
- What characterizes the uses of ICT in teaching FL of (i) the control group students and (ii) the experimental group students?

In answering the first research question, ‘What do the students know about ICT?’, we carried out pre-experimental work in both groups and used the questionnaire method (An example of a questionnaire is given in Table 1 (APPENDIX A).

The questionnaire survey was conducted to test the background knowledge about using ICT of 2nd and 3rd-year course students in the subject ‘Methodological and Technological Foundations of Early FL Education’. Eighty students at the FL Teacher Training Faculty completed the questionnaire. In this stage, students in the experimental (40 students) and control (40 students) groups answered seventeen closed questions on ICT-based professional-cognitive-communicative competency: I know, I can use in practice (on a 2-point scale); I know, but not to the extent required by practice (on a 1-point scale) and I don't know (on a 0-point scale) they evaluated themselves and the results are presented in table 1 and figure 2.

To a how the use of ICT varied between different groups, stacked bar charts have been compiled, and these are shown in Figures 3, 4, 5, 6.

Also, for the experimental group, participants were given a set of exercises (APPENDIX B). Both groups were compared to determine whether their development of PCCC based on ICT differed.

The exercise results were processed using methods of statistical calculation and

mathematical prediction.
In order to answer the third research question concerning the use of ICT in teaching FL of the control group and the experimental group students, further use was made of the earlier categorizations and tabulations that were undertaken to address the first research question. Differences between occurrences of ICT use in the 2nd and 3rd-year students were analyzed in relation to the attainment levels.
To calculate the average scores of each student while performing the exercises/tasks we created a histogram. The mathematical calculation is given in Table 2 (APPENDIX C).
In our study, we also determined the criteria for assessing the levels of PCCC of future primary school FL teachers based on ICT: 1) low; 2) average; 3) high (see Table 3) (APPENDIX D).

Results

The first question, "What do the students know about ICT?" results:

The questionnaire results showed that most of the students in both the control and experimental group had scored at a low level, and the students acquired basic ICT competency and do not have specialized ICT skills. Also, it was revealed that the students are not familiar with modern teaching ICT resources. However, after training and teaching the study's results indicated that students felt prepared and competent.

Table 1: The result of the self-assessment survey of students.

	Determination of the levels of formation of professional-cognitive-communicative competency of students based on ICT					
Levels	Low		Medium		High	
Groups	CG	EG	CG	EG	CG	EG
Points	25	29	15	10	0	1
Percentage	62,5%	72,5 %	37,5 %	25 %	0%	2,5 %

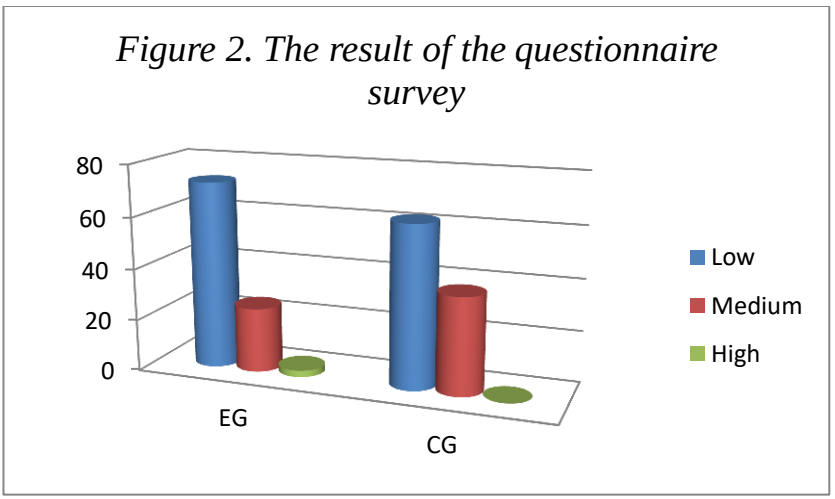

Figure 2: The result of the questionnaire survey.

Figure 2 shows the highest scores in the two groups. However, the quality of creating interactive game exercises in the experimental group is 10-15% higher than in the control group. Based on this, it can be concluded that the students of the experimental group are ready to use interactive game programs in their future professions.

The second question, "How does the use of ICT vary between the control group and the experimental group?" results:

Table 2: Evaluation of the results of the ability to use and develop interactive tasks.

	control group			**experimental group**		
Levels	***low***	***medium***	***high***	***low***	***medium***	***high***
exercises	Interactive game exercises					
Point	*0-9*	*8-16*	*17-25*	*6-15*	*16-20*	*21-25*
Number of students	10	3	27	2	8	30
Percentage	25%	7,5%	67,5%	5%	20%	75%

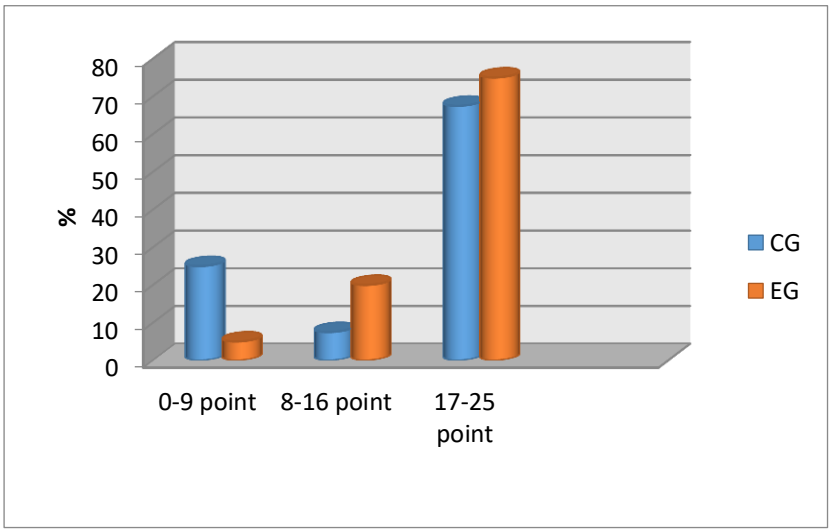

Figure 3: The results of the ability to use and develop interactive tasks.

In Figure 3, most students in the experimental group scored 77.5% higher than in the control group, it is significantly higher than in the control group. Based on this, it can be concluded that the experimental group students are more ready to create online presentations in the FL teaching process of primary school than the control group students.

Table 3: Evaluation of the results of the ability to create online presentations.

	control group			experimental group		
Levels	***low***	***medium***	***high***	***low***	***medium***	***high***
exercises	Creative exercises					
Point	*0-9*	*8-16*	*17-25*	*6-15*	*16-20*	*21-25*
Number of students	10	5	25	2	7	31
Percentage	25%	12,5%	62,5%	5%	17,5%	77,5%

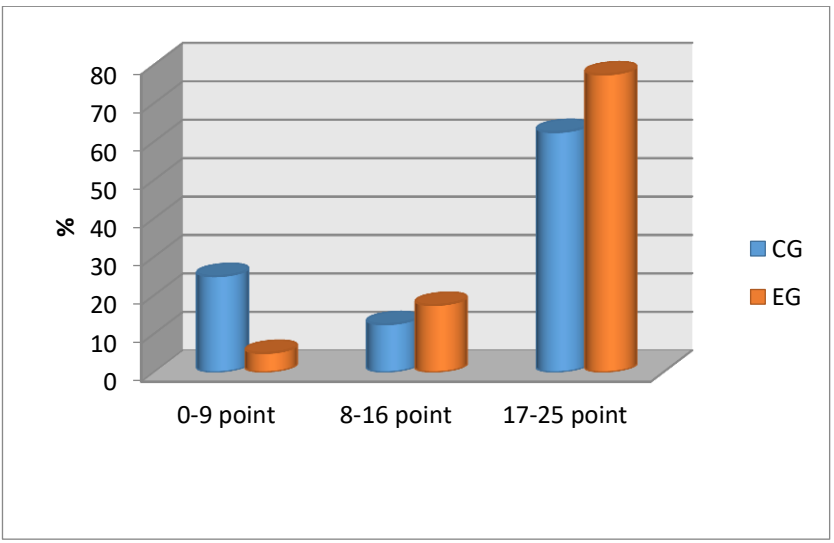

Figure 4: The results of the ability to create online presentations.

In Figure 4, most students in the experimental group scored 82.5% out of 16-20 points on this task, which is significantly higher than in the control group.

Table 4: Evaluation of the results of the ability to apply animated ICT tools.

	control group			experimental group		
Levels	***low***	***medium***	***high***	***low***	***medium***	***high***
exercises	Animated interactive exercises					
Point	*0-9*	*8-16*	*17-25*	*6-15*	*16-20*	*21-25*
Number of students	7	7	26	3	4	33
Percentage	17,5%	17,5%	65%	7,5%	10%	82,5%

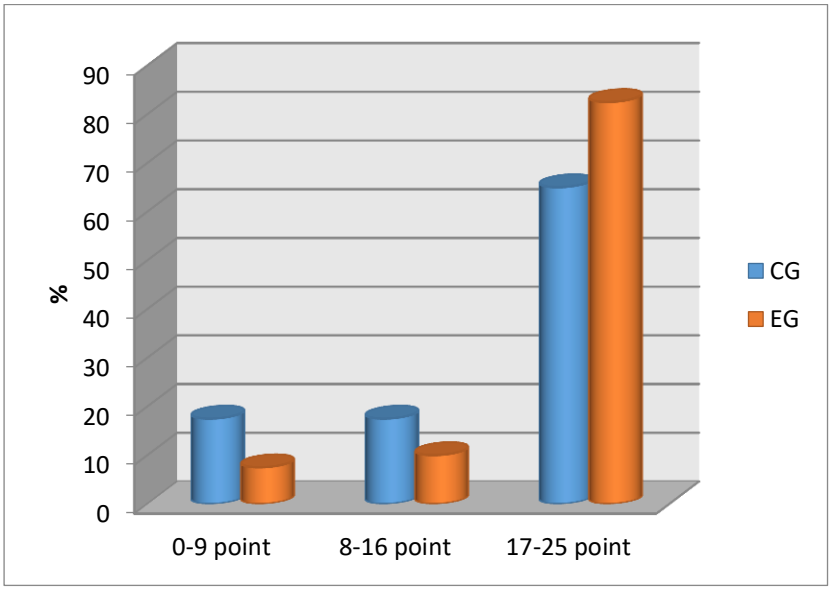

Figure 6: The results of the ability to apply animated ICT tools.

Figure 6 shows that the students of the experimental group scored significantly higher on these tasks. 85% of this group of students scored 16-20 points and demonstrated a high level of readiness to organize interactive online chats, forums, webinars, and conferences in a foreign language in teaching FLs at primary school. This data shows the same set of scores in both groups at the medium level.

Table 5: Evaluation of the results of the ability to organize interactive online chats, forums, webinars, and conferences in a foreign language.

	control group			**experimental group**		
Levels	***low***	***medium***	***high***	***low***	***medium***	***high***
exercises	Speech and communication exercises					
Point	*0-9*	*8-16*	*17-25*	*6-15*	*16-20*	*21-25*
Number of students	11	5	24	1	5	34
Percentage	27,5%	12,5%	57,5%	2,5%	12,5%	85%

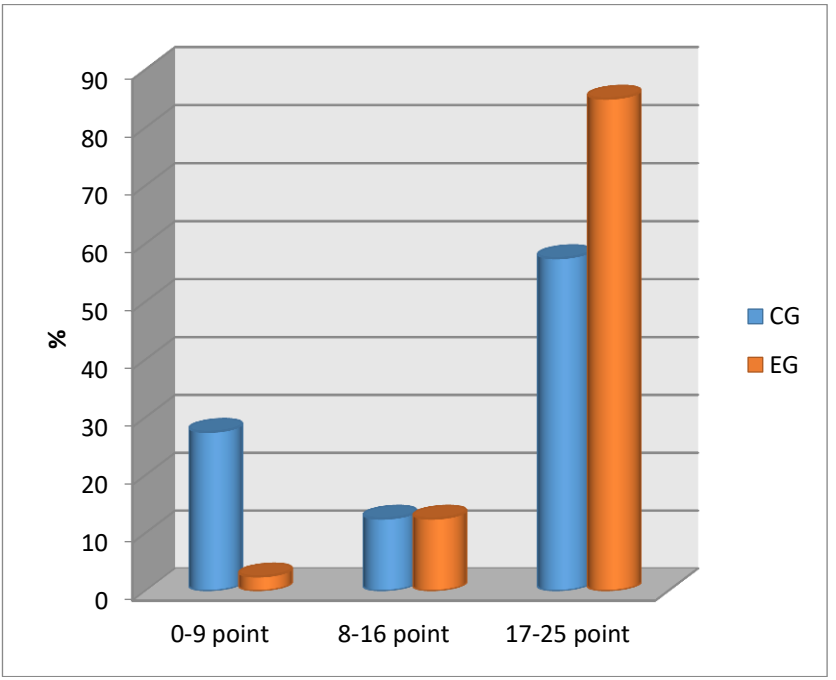

Figure 7: The results of the ability to organize interactive online chats, forums, webinars, and conferences in a foreign language.

In the formative stage, the study results show that the formation of PCCC of future FL teachers based on ICT tools in the experimental and control groups differed.
Thus, Students of the experimental group improved all the tested parameters, while the control group did not demonstrate significant growth in the same parameters.

The third question, "What characterizes the uses of ICT in teaching FL of (i) the control group students and (ii) the experimental group students?" results:

The results of all exercises performed by students are presented in the method of calculation and verification of the hypothesis as follows (Baranova, 2017: 158):
n-levels of control group: n1-low, n2-medium, n3-high and C-exercises: C1 - interactive game exercises, C2 -creative exercises, C3-animated interactive exercises, C4 - speech and communication exercises. To calculate we use the following formula:

$$n_{1-3}= \frac{C_1+C_2+C_3+C_4}{4}$$

$$n_1=\frac{25+25+17,5+27,5}{4}=23,7\%$$

$$n_2=\frac{7,5+12,5+17,5+12,5}{4}=12,5$$

$$n_3=\frac{67,5+62,5+65+57,5}{4}=63,1\%$$

m-levels of experimental group: m1-low, m2-medium, m3-high and C-exercises: C1 - interactive game exercises, C2 - creative exercises, C3- animated interactive exercises, C4 - speech and communication exercises. To calculate we use the following formula:

$$m_{1-3}=\frac{C_1+C_2+C_3+C_4}{4}$$

$$m_1=\frac{5+5+7,5+2,5}{4}=5\%$$

$$m_2=\frac{20+17,5+10+12,5}{4}=15\%$$

$$m_3=\frac{75+77,5+82,5+85}{4}=80\%$$

At the end of the experiment, we conducted the post-experimental diagnosis of the ability to use ICT tools in the experimental and control groups.
Comparative data of the final experimental research of EG and CG students are graphically presented in the form of diagrams (Figure 5).

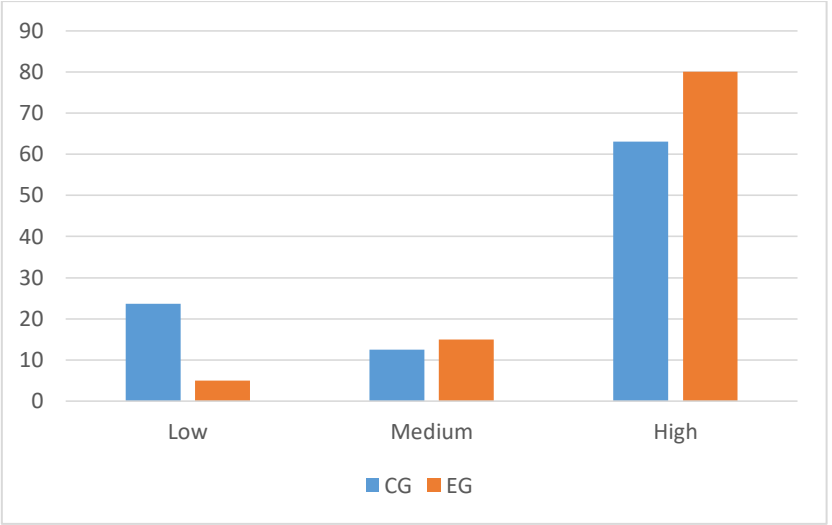

Figure 8: The post-experiment results.

Figure 8 summarises the results of the student's use of ICT in teaching FL at primary school and reveals differences in the use of ICT tools in the two groups. Moreover, the final experimental data in Figure 5 clearly shows that the experimental group's level of using information and communication technologies during the experiment was significantly higher to 15 % than the control group.
Some performed tasks by experimental group students were particularly evident, most notably the development of interactive tasks using LearningApps.org, Proprofs.com, Baamboozle, and DeckToys. In contrast, the traditional interactive games, activities, dialogues, and other tasks were used most in the control group.
It will be evident from Figure 5 that in the pre-experimental stage, the control group had background knowledge about ICT. However, in training lessons, none of the

students didn't know how to apply. They performed the tasks only by doing flashcards, worksheets, and presentations on the computer. All of the tasks based on developing ICT abilities were trained and performed only by the experimental group.

Discussion

In relation to the first research question, 'What do the students know about ICT?', it was evident that the experimental group students had a lower level of knowledge of using ICT than the control group.

In relation to the other research question, 'How does the use of ICT vary between the control group and the experimental group?', the teaching materials on the computer were the most frequently used by all groups — but ICT tools were used only by the experimental group.

Moreover, the students in the experimental group, by using ICT tools designed more appropriately for the teaching materials to young learners. They also produced role-playing videos using creative digital tools than the control group. The control group played the roles in oral form.

Overall, as was stated earlier in the results, the experimental group students' use of ICT was higher than the control group. Because the control group students were not trained in the use of ICT, instead, they only used traditional types of tools during the experiment.

In addition, during the training, the experimental group students didn't have enough time to assess themselves.

We believe that future investigations might focus on students' self-assessments in ICT.

The control experiment results show the efficiency of the experimentally checked and developed methodology of formation of PCCC of future FL primary school teachers.

Also, after the experiment, experimental groups or future primary school FL teachers can:

- choose appropriate language and speech activities based on ICT tools for the successful to develop of elementary cognitive-communication skills;
- expand the general language world-view of younger learners;
- develop the cognitive and emotional spheres of learning,
- increase the motivation of young learners to learn an FL with the help of ICT;

Conclusion

In this study, the following results were obtained:

1) According to the model, a set of tasks and exercises aimed at the formation of PCCC of future primary school foreign language teachers are developed;
2) The effectiveness of the implementation of a set of tasks and exercises on developing students' PCCC was tested in a pilot study.
3) The experimental results of the development of PCCC of future primary school foreign language teachers are interpreted and discussed.

The results of the experimental study allow us to conclude that our future primary school FL teachers are:

- able to use and develop interactive tasks;
- able to create online presentations;
- able to apply animated ICT tools;
- able to organize interactive online chats, forums, webinars, and conferences in a foreign language.

Using the ICT tools, the experimental group students or future primary school FL teachers can create a variety of types of interactive, creative, animated and speech activities (games, presentations, podcasts, etc.) in teaching FLs to young learners.

In conclusion, integrating ICT into the foreign language education curriculum is recommended. Although, it is important to conduct further studies examining the contribution of self-assessing of ICT skills in order to improve the use of ICT tools in teaching FL to young learners.

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APPENDIX A

Table 1: Self-assessment questionnaire of professional-cognitive-communicative competence of the future primary foreign language teacher based on ICT.

№	Criteria	Self-rating scale		
		I know, I can use it in practice (2 points)	I know, but not to the extent that practice requires (1 point)	I do not know (0 points)
1.	Are you familiar with the updated educational content?			
2.	Are you familiar with the methods used in the lesson?			
3.	Do you know the new modern information and communication technologies in primary school?			
4.	Do you know how foreign language primary school students perceive new information?			
5.	What is Kahoot? Do you know how to use it?			
6.	Do you know how to organize interactive online games for teaching a foreign language (vocabulary, phonetics, grammar)?			
7.	Can you name four speaking skills?			
8.	Can you name receptive and reproductive types of communication?			
9.	What interactive technologies do you know to communicate freely?			
10	Do you know the verbal and non-verbal types of communication?			
11	Do you know foreign visual materials in primary school?			
12	What digital tools do you know for teaching a foreign language?			
13	Do you know how to use programs for working with audio-video and graphic accompaniment?			
14	Do you know how to use e-learning programs?			
15	Do you know online communication tools?			
16	Do you know digital storytelling?			
17	Do you know how to use multimedia?			

In the processing of the results, the sum of points of the survey is carried out with a simple mathematical calculation.
17-22 - low
23-28 - medium
29-34 – higher

APPENDIX B

A set of exercises:

Interactive game exercises

Exercise 1. Describe the function of online interactive didactic games in 150-200 words, and explain the importance of using them in teaching a FL at primary school.

Exercise 2. Create an interactive didactic game using various templates from the LearningApps.org, Proprofs.com, Baamboozle, DeckToys, selecting one topic from the program of 2nd grade English.

Exercise 3. In groups of three students create and demonstrate an interactive didactic game using a variety of templates from the LearningApps.org, Proprofs.com, Baamboozle, DeckToys for the 3rd-grade learners on the theme "Animals".

Creative exercises

Exercise 4. a) Watch and listen to the three stories which you want to read in class. To make the language understandable to all students, you need to convey and present the story using all four learning styles (auditory, visual, tactile and kinesthetic). Recall the type of visual aids that make each story understandable to students with different reading styles. Write them in the table below and fill them out.

Ten Seeds

Brown Bear, Brown Bear, What Do You See Read Aloud

https://www.youtube.com/watch?v=Fbeo2jurFFMhttps://www.youtube.com/watch?v=WST-B8zQleM

Quack and Count

https://www.youtube.com/watch?v=qyFWbhR7MOA

Story	Visual learners	Auditory learners	Tactile learners	Kinesthetic learners
Ten seeds				
Brown Bear, Brown Bear, What Do You See?				
Quack and Count				

Exercise 5. Using digital programs create a lesson plan for teaching English songs for students who receive information through visual, auditory, kinesthetic and tactile learning styles. Lesson title: Traditions and customs (for the 2nd grade)
Exercise 6. Prepare 3 activities appropriate for each learning style (visual/auditory/kinesthetic/tactile) for the 2nd-grade learners on the topic "Traditions and customs". Digital programs that create multimedia: Pixabay, Free Images, Creative Commons Search, Canva, Piktochart, Snipping tool.
Exercise 7. Demonstrate the lesson plan through a screencast.

Animated interactive exercises

Exercise 8. Create an online presentation on the topic: “Health and body” (for the 2nd grade) that demonstrates learning activities and the value of learning opportunities for students. Then show your online presentation to the audience.
Exercise 9. Choose famous English fairy tales: Goldilocks and the Three Bears, The Wolf and the Seven Little Kids, The Three Little Pigs, Little Red Riding Hood, Cinderella
Using the digital video program role-play your chosen fairy tales, and show them.

Speech and communication exercises

Exercise 10. Create interactive online chats, forums, webinars, and conferences on the theme “Teaching English language in primary school”.
Exercise 11. Using digital tools (interactive online chats, webinars, conferences, debates and forums) create communicative tasks on the topic “The natural environment” (for the 2nd grade). Then screencast and tell about their effectiveness.
Exercise 12. Using the Twitter polls take a survey of students in your group on the topic “Travel” (for the 2nd grade).
Exercise 13. Create an online test on the topic “Travel” (for the 2nd grade).
Exercise 14. Prepare an exercise on the topic “Travel” (for the 2nd grade) and create a table of summative assessment criteria. Insert the table into the Padlet online digital tool.

APPENDIX C

Table 2: Evaluation of the exercises and tasks results.

All students	Number of students						Level of quality		Average score
	"high"		"medium"		"low"				
	Number of students	%	Number of students	%	Number of students	%	Number of students	%	
40							40		

APPENDIX D

Table 3: Critical Assessment Descriptors.

Level	Characteristics
Low *0-9 points*	characterized by a weak of applying of ICT tools, a low level of using ICT tools in teaching foreign languages to young learners
Medium *8-16 points*	Able to use some ICT tools in teaching foreign languages to young learners
High *17-25 points*	Able to effectively use ICT tools in teaching foreign languages to young learners

We choose the following criterias for determining students' PCCC based on the ICT:

The future primary FL teacher's PCCC based on the ICT:	Exercises	Point
the ability to use and develop interactive tasks for teaching FL in primary school;	Interactive game exercises	25
the ability to create online presentations;	Creative exercises	25
the ability to apply animated ICT tools;	Animated interactive exercises	25
the ability to organize interactive online chats, forums, webinars, and conferences in a foreign language.	Speech and communication exercises	25
Total		100

The maximum number of points at each level is 25. The total number of points is 100.