ГОТОВНОСТЬ ПЕДАГОГОВ К ИНФОРМАТИЗАЦИИ
ICT SKILLS AND COMPETENCIES AMONG TEACHERS

The formation of foreign language competence of future teachers when working with flash cards

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Abstract. *Problem statement*. The modernization of higher education is a good ground for the use of electronic resources in ensuring accessibility, continuity and quality of teaching foreign languages. The use of interactive tools (simulators, flash cards, virtual whiteboards) meets the requirements to educational training programs for students of pedagogical directions and the challenges of modern society. A flash card is a card with a word, a concept, an image on one side and a translation on the other. The study aimed at substantiating the effectiveness of the use of flash cards for the formation of foreign language competence of future teachers. *Methodology*. Theoretical and methodological analysis and generalization were used to determine trends in the development of language education, the inclusion of informatization tools in foreign language activities and professional communication. The online platform Quizlet was chosen to work with ready-made flash cards and to create new thematic sets in digital format. The questions for the control work grouped into two blocks "Digital educational technologies" (50 points) and "Foreign language in professional communication" (50 points) were compiled. The study involved 54 students from Vyatka State University (the direction of 44.03.05 "Pedagogical education", with two training profiles, bachelor's degree level). Pearson's chi-squared criterion was applied at the stage of statistical processing of the results. *Results*. The system of working with flash cards in the foreign language professional communication of future teachers is described: the study of the Quizlet functionality, working with ready-made sets of cards, automating and improving lexical units, developing their own thematic sets. In the course of independent work and network collaboration the students of the experimental group used Flashcards, Speller, Scatter, Quizlet Live modes. Statistically significant differences in the qualitative changes that occurred in the level of formation of foreign lan-

guage competence were determined. *Conclusion.* The use of flash cards in the preparation of students of pedagogical specialties has a significant didactic potential for the development of their foreign language competence: the effect of immersion, competitiveness and obtaining positive emotions; resources for independent language learning in extracurricular time; overcoming the language barrier in the virtual gaming environment of information interaction. However, there are some drawbacks: monotony of forms for tests, lack of opportunity to practice pronunciation, partial support of operating modes in the mobile version.

Формирование иноязычной компетенции будущих педагогов при работе с флэш-картами

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Аннотация. *Постановка проблемы.* Модернизация высшего образования открывает новые перспективы для использования электронных ресурсов в обеспечении доступности, непрерывности и качества иноязычного обучения. Применение интерактивных средств (тренажеров, флэш-карт, виртуальных досок) удовлетворяет требованиям к образовательным программам подготовки студентов педагогических направлений и вызовам современного общества. Флэш-карта – это карточка со словом, понятием, изображением на одной стороне и переводом на другой. Цель исследования – обоснование эффективности применения флэш-карт для формирования иноязычной компетенции будущих педагогов. *Методология.* Теоретико-методологический анализ и обобщение применялись при определении тенденций развития языкового образования, включения средств информатизации в иноязычную деятельность и профессиональную коммуникацию. Для работы с готовыми флэш-картами и создания новых тематических сетов в цифровом формате выбрана онлайн-платформа Quizlet. Составлены вопросы для контрольной работы, сгруппированные по блокам «Цифровые образовательные технологии» (50 баллов), «Иностранный язык в профессиональном общении» (50 баллов). В исследовании приняли участие 54 студента Вятского государственного университета, обучающиеся по направлению 44.03.05 «Педагогическое образование» (с двумя профилями подготовки, уровень подготовки – бакалавриат). На этапе статистической обработки результатов применялся критерий хи-квадрата Пирсона. *Результаты.* Описана система работы с флэш-картами в иноязычной профессиональной коммуникации будущих педагогов: изучение функционала Quizlet; работа с гото-

выми наборами карт при изучении, автоматизации и совершенствовании лексических единиц; разработка собственных тематических сетов. Студенты экспериментальной группы использовали режимы Flashcards, Speller, Scatter, Quizlet Live в ходе самостоятельной работы и сетевой коллаборации. Определены статистически достоверные различия в качественных изменениях, произошедших в уровне сформированности иноязычной компетенции. *Заключение.* Применение флэш-карт в подготовке студентов педагогических специальностей обладает значительным дидактическим потенциалом для развития их иноязычной компетенции: эффект погружения, соревновательности и получения позитивных эмоций; ресурсы для самостоятельного изучения языка во внеаудиторное время; преодоление языкового барьера в игровой виртуальной среде информационного взаимодействия. К недостаткам можно отнести однообразие форм для тестов, отсутствие возможности практиковать произношение, частичную поддержку режимов работы в мобильной версии.

Problem statement. UNESCO experts note the increasing role of language in preserving cultural diversity and supporting the dialogue of nations and identify the need for international collaboration in achieving quality education for all. Scientists are developing integration mechanisms of cooperation, which include the development and implementation of joint educational programs based on digital platforms. The implementation of such initiatives involves high-quality foreign language training, the use of informatization tools to solve strategic pedagogical tasks, and the experience of net teamwork [1]. Multilingualism can also help to mobilize political will to use the benefits of science and technology for sustainable development. In order to realize this potential, a strategic initiative for the transformation of the professional training system has been developed. It includes: creating flexible learning paths throughout life; improving the quality of STEM education, the 21st century skills; support for educational institutions and professional development of teachers.

The activities in these areas are supported by the staff of the UNESCO Department of Global Education on the basis of the "Institute of Education Development Strategy ROS (Russian Open Society)" of the Ministry of Education of Russia. The staff of the department support networking and exchange of best practices by means of electronic educational courses and develop the potential of intercultural dialogue within the framework of scientific activities.

V.V. Grinshkun, O.Yu. Zaslavskaya note that in most cases it is the professionalism of teachers that compensates for the insufficient quality of electronic resources for educational purposes [2]. Moreover, scientists argue that the pan-

demic has determined the need to take a fresh look at the organization and management of the educational process, to comprehend the importance of information and telecommunications technologies, to reflect on the effectiveness and relevance of their application.

M. Nasti, S. Shafiee, M. Sepehri explore the didactic potential of using computer technologies for teaching foreign languages [3]. The authors analyze the experience of Iranian schools. According to their conclusions, ICT tools in teaching a foreign language occupy a decisive position. In foreign language classes, it is necessary to speak not about the language, but in the language. This is impossible without the "inclusion" of native speakers in the learning process, which is achieved with the help of computer technologies. Their implementation allows both to increase the effectiveness of educational activities and to make them more diverse. M. Nasri, S. Shafiee, M. Sepehri note that the use of ICT in the educational process not only enables modern schoolchildren to keep up with the times, but also makes the learning process more interesting, promotes the development of cognitive motivation.

V.G. Ryabchikova, N.A. Sergeeva, A.A. Zaitsev, I.V. Ostrovsky, I.A. Tyutyunnik on experimental data prove the need to develop and implement innovative approaches for the formation of foreign language communicative competence of future teachers, the use of digital services for professional foreign language communication [4]. The researchers note that when learning a foreign language, one of the main tasks for a teacher is to replenish the vocabulary of students. However, the authors of foreign language textbooks, as a rule, providing a sufficiently large amount of information for assimilation, rarely offer ready-made educational solutions that can effectively help in memorizing new lexical and grammatical units. According to scientists, one of the ways out of this situation can be the use in practice of some mnemonic techniques, that is, special techniques and methods facilitating the memorization of the necessary information and increasing the amount of memory by forming associations. At the same time, scientists identify the problems of using new digital technologies in foreign language teaching: the need to take into account the specifics of pedagogical activity and labor functions of a teacher, material and time costs for the modernization of the methodological system.

The analysis of the scientific works listed above makes it possible to identify the problem associated with the need for additional study of the use of flash cards in teaching a foreign language to students of pedagogical specialties. **The study aimed** at substantiating the effectiveness of using flashcards for the formation of foreign language communicative competence of future teachers.

Methodology. In identifying the features of the organization of foreign language teaching of students of pedagogical specialties, theoretical analysis and generalization of scientific and methodological literature of Russian and foreign scientists on the research problem was carried out.

Flash cards in the presented work are cards in digital format. On one side of such a means of informatization is an image, a word in a foreign language is on the other side.

The main method of memorization implemented using flash cards is the method of interval repetition. Interval repetition is a technique of retention in memory, which

consists in repeating the educational material at certain, constantly increasing intervals.

The analytical method is also used when choosing digital technologies for creating and using flash cards in the foreign language activities of future teachers: Memrise, StudyStack, Quizlet, Lexilize Flashcards, AnkiDroid, etc.

Comparison criteria: ease of creation and use, ways to distribute the created sets of cards (link, QR), the possibility of teamwork, time to master the basic functionality; technical support in the conditions of sanctions policy, etc. According to the results of the analysis, the choice was made in favor of the Quizlet online platform. Quizlet supports learning vocabulary using flash cards and listening to pronunciation in parallel.

The study involved 54 students from the first to second year of Vyatka State University (Pedagogical Institute, Faculty of Pedagogy and Psychology). All respondents were students in the direction of 44.03.05 "Pedagogical education" (with two training profiles, bachelor's degree level). The average age of respondents is 19 years (68% – girls and 32% – young people).

The study of the service for creating flash cards (interface, didactic and functional capabilities) was implemented as part of the course "Digital Technologies in Education". The use of electronic cards for didactic purposes in all types of foreign language activities was carried out within the framework of the course – "Foreign language".

The use of flash cards in professional pedagogical communication was continued in the framework of educational and introductory practice.

Determination of the effectiveness of the proposed variant of foreign language teaching of future teachers was carried out based on the materials of the control work. Its questions were grouped into two blocks: "Digital educational technologies" and "Foreign language in professional communication". The tasks for the control were compiled in accordance with the current federal standard in the field of training, working programs of disciplines.

To determine the level of formation of foreign language competence, the following levels were introduced: basic, advanced creative. The methodology of determination and interpretation for each level is presented further in the results of this study.

At the stage of statistical data processing, the Pearson's method is used (criterion – $\chi2$).

Results and discussion. In the implementation of their work functions (according to the provisions of the professional standard) the teacher must:

– possess ICT competencies necessary and sufficient for planning, implementation and evaluation of educational work;

– apply special language programs (including Russian as a foreign language), programs for improving language culture and developing multicultural communication skills;

– organize the joint use of foreign language sources of information, translation tools, pronunciation with students.

One of the essential tasks in the study of foreign languages in higher education is a gradual increase in vocabulary. Vocabulary, along with grammar and pro-

nunciation, plays a significant role in the implementation of the above-mentioned labor functions of the teacher. All three are indicators of speech culture. Vocabulary is an indicator of the level of education of a specialist in modern society in any language [5].

A.V. Sakharova, E.L. Smirnova, O.G. Ostapenko, M.V. Grushina, S.G. Larina define the foreign language competence of a future specialist as a set of content and activity-related competencies structured on a functional basis [6]. In other words, the foreign language competence of bachelors is an integrative ability of a person, consisting in a set of knowledge about information and communication technologies and a willingness to use them to solve educational and professional tasks by language means; in the ability to analyze and systematize administrative, regulatory and legal documents in a foreign language in their professional activities, as well as to carry out oral and written communication in the process of implementing joint projects in accordance with the national and cultural characteristics of a foreign linguistic society; in the ability to analyze the results of their work and determine a set of measures for further improvement of professional language skills.

S.V. Shustova, M.A. Khrustaleva, E.A. Beloborodova, M.D. Mondekhar Fuster propose the model of the process of intensification of foreign language teaching. The model is based on the systematic use of fundamental didactic principles, the use of the interval repetition method, the experience of positive stress in the course of foreign language activity [7].

T. Karsenti, O.M. Kozarenko, V.A. Skakunova identify current trends or trends in teaching foreign languages based on digital technologies [8]. Among the undoubtedly positive aspects of their use, they note:

– using a variety of material available for study;

– the possibility of forming an individual educational trajectory;

– a variety of Internet resources combined with various libraries and databases;

– formation of activity and independence of students, and at all levels of the educational process;

– conducting independent testing and evaluation of the results of assimilation of the studied material.

V. Caldas, E. Bekes, C. Illescas determine the socio-cultural approach to language education, on the basis of which students would form knowledge about the realities and traditions of the country and would be included in the dialogue of cultures to be the conceptual basis for determining the purpose of expanding vocabulary, content and learning strategies [9]. An important role in expanding the vocabulary is played by participation in research work, in Internet projects; various lexical exercises of a training nature, visibility when introducing foreign language material, working out situational-speech contact.

I.S. Zlobina, N.V. Rezepova, N.A. Sergeeva, N.V. Utkina, O.S. Rubleva suggest using interactive game services to improve the quality of foreign language training of teachers by means of digital technologies [10]. The authors note that the key factor in choosing such teaching tools is their didactic potential in terms of increasing motivation and interest in the subject being studied. As well as additional opportunities for students to learn the language independently. An important

conclusion of their work is the following: interactive game services can be used both in class and for extracurricular work. They contribute to the good assimilation of vocabulary and grammar, because they use bright and colorful video and audio materials.

In addition, the use of interactive digital technologies contributes to changing the control procedure. D. Höl, E. Akman note that computerization of the dynamic assessment process reduces the time of its implementation, the distance between the teacher and the student tested, allows increasing the number of participants indefinitely [11].

New gaming technologies provide students with numerous resources for practicing and learning foreign words actively and independently. For example, network games are widely used, where learning takes place through text exchange, conversations, video chats and other means of online communication [12].

S. Lai, B. Jiang, Y. Sin, T. Lin consider how flash card-based learning can contribute to the individualization of foreign language teaching [13]. They identified such factors as: the level of initial knowledge, emotional mood, regularity. Y. Lei, B. Reynolds indicate that sometimes it is convenient for students to make their own sets of flash cards for themselves [14]. They can also be used at home to practice on their own. And even, for example, to play with parents, brothers, sisters or friends.

Thus, flash cards allow you to learn new words in an interactive form in a game, and apply them in practice [15]. Moreover, the assessment of the acquired knowledge also takes place in the format of a game, which reduces possible anxiety and stress.

The main purpose of the experiment is to test the didactic potential of flash cards for the formation of foreign language competence of students of pedagogical specialties.

At the preparatory stage, the authors of the study (according to the previously mentioned criteria) analyzed modern interactive technologies for teaching a foreign language. The choice stopped on the platform Quizlet.com. It is based on digital flash cards. With the help of them, the teacher demonstrates various lexical units, expressions, phrases and/or sentences, and their Russian equivalents.

The work functions of the teacher in the digital educational space of the school were also analyzed. It was highlighted that for successful integration into professional activity, young specialists need a large amount of practical training, the opportunity to hone professional skills in educational organizations, joint work with mentors.

A control paper was compiled with the questions grouped into two blocks: "Digital educational technologies" (25 questions) and "Foreign language in professional communication" (25 questions).

An example of a question from the first block: select the functions of the information system (information processing, user examination of programs, information collection, standardization of information processes, information storage, search and delivery of information to users).

Example of a question from the second block: replace Russian words and expressions in brackets with English equivalents (intelligence, quality, mixed learning, unsatisfactory, gamification, etc.).

For the correct completion of the task, the student received 2 points. Thus, according to the results of the assessment, a total score was set. The level of foreign language competence was determined: basic (from 0 to 45 points), advanced (from 46 to 84) and creative (from 85 to 100 points).

At the basic level, students use informatization tools in everyday life quite successfully, but make significant mistakes when using them in foreign language communication. They do not fully realize the importance of their profession, the need for language training. Students do not have the necessary amount of professional and foreign language knowledge and skills for intercultural communication in the field of education.

Students with an increased level of competence use modern means of informatization in foreign language communication with small errors. They are distinguished by a shallow knowledge of the labor functions of the teacher, the presence of a small amount of communicative, linguistic and cultural knowledge. Having the motivation to learn a foreign language, taking into account the future profession, students have the skills of independent work, but are not capable of creative activity.

Students with a creative level of foreign language competence possess high-level computerization tools. They are fully aware of the place and role of the teacher in society. Such specialists are able to analyze, design and implement interpersonal, group foreign language communications in accordance with national and cultural characteristics. Various forms of training and self-control are used. They have a pronounced ability and readiness for personal and professional self-improvement.

According to the results of the control work, control (27 students) and experimental (27 students) groups were formed from all respondents.

At the second stage of the study, the future teachers of the experimental group were trained in accordance with the curriculum, calendar curriculum, work programs of disciplines according to the following algorithm:

Stage 1. As part of the "Digital Technologies in Education" classes, future teachers studied the Quizlet platform (interface, functionality and didactic capabilities). Let's take a closer look at the last point.

Quizlet has not only modules with lexical units. There are also generated tests, spelling training, team work on solving a common problem in the form of interactive games. Quizlet offers six different modes of learning and games. This allows you to interact with the study cards in different ways, gaining a diverse experience.

Flashcards mode is the main mode. It allows you to view each of the training cards and switch between the term, concept and definition. You can shuffle them and view them in any order, turn on the sound. In the training mode, it is possible to track which answers were wrong and which were correct. The Speller mode is suitable for terms in which spelling matters. In this mode, audio is used to provide a term spoken aloud. In the test mode, a randomly generated test is provided based on a selected set of flash cards, the topic of which is determined before they start using the Quizlet program.

In Scatter mode, it is a chronological game with terms on cards, where they are dragged and compared with definitions. The "Space Race" mode, in which the

participant enters the answer as the terms and definitions move across the screen. Teachers have access to an additional game mode called Quizlet Live, which is created specifically for classes. This game mode helps to develop students' cooperation, communication and vocabulary skills.

Stage 2. Working with Quizlet to develop foreign language competence. It also assumed several stages:

2.1. "Input and semantics of lexical units". At this stage, the platform is being implemented in foreign language classes.

The teacher creates modules on the topics of the course. At the beginning of classes, students are invited to follow the link sent in advance by the teacher and study lexical units on a specific topic. After studying the lexical units, students are given a small test for 5 minutes to check the assimilation of the material on the Quizlet platform.

2.2. "Automation of lexical units". Includes the development of exercises for training lexical units. The teacher gives students exercises on grammar, vocabulary, listening and reading. Students perform them using Quizlet.

2.3. "Improving lexical skills". A stage for applying already acquired knowledge in practice. Students are invited to make sentences with the studied words themselves.

2.4. "Project activity". For example, a teacher asked students a task – to learn a new vocabulary from a text that will be worked on in the next lesson, using the Quizlet service. Such a task can be given before watching a video in a foreign language. Thus, time was saved in the classroom due to the preliminary implementation of the exercises of the introductory stage in an independent mode.

And, conversely, in the classroom, future teachers, under the guidance of a teacher, work with a new text, perform all the exercises of the pre-text, text, post-text stages, parse all unfamiliar words. Then the teacher gives a task to one of the students/group: create a set with a new vocabulary in Quizlet for the whole group. The teacher sets the deadline for completing the task in 1–2 days and controls the result. When the teacher is sure that everything is done correctly, all other students should learn a new vocabulary using the created set. Such a task can be regular. All students can create new training modules in turn.

Stage 3. The use of flash cards in the framework of educational and introductory practice.

For example, the participants of the experimental group shared the following work options:

1. Students are shown an image. They call the word. This exercise is the simplest. For example, a teacher.

2. The flash card is flipped word up. Students see a word and call it (for example, a difficult-to-pronounce word from pedagogy). If there are difficulties, then you can ask them which letter the word begins with. They give it. Then the question is asked about which other previously studied words begin with this letter. Students list and check themselves. Next, their attitudes to this type of work are compared.

The students of the control group also studied the course materials, but they were not involved in specially organized activities for the development of flash cards. For example, in the section "Professional sphere of communication" they studied the following topics:

1. Work, professions. The times of the Perfect group. My future profession.

2. Well-known companies. Brand. Non-personal verb forms.

3. Technical progress. We live faster, but do we live better? Comparative degree of adjectives.

4. Entrepreneurship. Subordinate clauses

5. Employment. A job application. The Gerund.

6. The use of modern gadgets as a means of communication. Personal and business message.

7. Science, scientific research. The Participles.

8. Computers and the Internet. An email.

An example of a practical task: compare the didactic possibilities of a traditional and electronic hyperlink textbook on a foreign language. Make out the results of the analysis in a foreign language in the form of a table.

At the fixing stage of the experiment, the control work was carried out again. Its principles of design and evaluation were identical to the principles described above. The results are presented in Table.

The results of using flash cards for the development of foreign language competence of future teachers

Level of formation of foreign language competence	Groups			
	Experimental (27 students)		Control (27 students)	
	Before the experiment	After the experiment	Before the experiment	After the experiment
Basic	15	6	14	13
Advanced	9	9	10	11
Creative	3	12	3	3

Thus, $x2\text{obs}.1 < x2\text{crit}$ ($0.087 < 5.991$), and $x2\text{obs}.2 > x2\text{crit}$ ($8.179 > 5.991$). Consequently, the shift towards increasing the level of formation of foreign language competence in the experimental group can be considered non-accidental.

The presented version of foreign language training meets the principles of continuing education, supported and disseminated by UNESCO. The conclusions of the study will complement the results of M. Nasri, S. Shafiee, M. Sepehri regarding the didactic potential of computer technologies in teaching a foreign language [3]. The materials of the article are a logical continuation of the conclusions of V.G. Ryabchikova, N.A. Sergeeva, A.A. Zaitsev, I.V. Ostrovsky, I.A. Tyutyunnik on the use of flash cards in the foreign language training of highly qualified specialists [4].

Conclusion. Optimization of language learning by means of informatization is an important principle of modern education. The study substantiates that information and communication technologies need to be integrated into the traditional process of learning a foreign language in the conditions of digitalization and globalization.

During the experiment, it was confirmed that flash cards created in an electronic service environment can be not only a resource for entertainment, but also a powerful didactic tool.

During the discussion, the participants of the experiment noted the following advantages of flash cards in digital format:

– tracking the progress of student activity;

– accessibility. If students have links to the course materials on the website, they can study independently at home. In addition, use a full-featured mobile app;

– use to create traditional didactic handouts.

Future teachers attributed to the disadvantages of the online platform:

– monotony of forms for tests;

– lack of opportunity to practice pronunciation;

– partial support of operating modes in the mobile version.

In general: flash cards are additional tools for learning a foreign language.

Thus, it is possible to formulate the following didactic possibilities of flash cards for the formation of foreign language competence of students of pedagogical specialties:

1. Having an interactive component and communicativeness, they allow students to achieve a high level of motivation due to the effect of immersion, competitiveness and receiving positive emotions.

2. Provide resources for self-study of the language during extracurricular time.

3. Listening to foreign language speech and communicating with each other in a group when working with flash cards help to overcome the language barrier. In parallel, skills are being developed for all types of foreign language activities.

4. Obtaining professional communication skills in a virtual gaming environment of foreign language interaction.

The results of the study can be a guide in the development of training programs, methodological recommendations, professional development programs, online courses of various directions.

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