Развитие вербальной креативности студентов с использованием флэш-карт на занятиях по иностранному языку

Проблема и цель. Развитие языкового разнообразия, распространение творческих идей при иноязычном общении – ключевые направления международной деятельности, поддерживаемые на уровне Организации Объединённых Наций. Важным условием эффективности любого диалога является вербальная креативность. Подготовка личности к профессиональному творческому мышлению, к преодолению словесных стереотипов происходит в рамках высшего образования. Авторы предлагают в преподавании иностранного языка для развития вербальной креативности студентов использовать интерактивные ресурсы флэш-карт.


Результаты. Студенты изучают сервисы по созданию флэш-карт, применяют их для обработки нового материала, запоминания и представления понятий, словообразования в разнообразных контекстах. Выявлены статистически достоверные различия в качественных изменениях, произошедших в системе по уровням развития вербальной креативности, χ² набл.2 > χ² крит 0.05 (9,997 > 9,488)

В заключении описываются особенности представленного варианта применения флэш-карт в обучении иностранному языку: сочетание с другими средствами (мобильными приложениями, тренажёрами, инфографикой) и традиционными формами передачи информации; межпредметные связи. Формулируются правила, выполнение которых обеспечивает эффективность использования флэш-карт для развития вербальной креативности.

Ключевые слова: творчество, языковое многообразие, лингводидактика, креативность речи, интерактивный сервис, Lexilize

Ссылка для цитирования:
Development of students’ verbal creativity using flash cards in foreign language classes

The problem and the aim. Development of linguistic diversity, creative ideas in foreign language communication are key areas of international activity supported at the level of the United Nations. An important condition for effectiveness of any dialogue is verbal creativity. Preparation of the individual for professional creative thinking, for overcoming verbal stereotypes takes place within the framework of higher education. The authors suggest using interactive resources of flash cards in teaching a foreign language to develop students’ verbal creativity.

Research methods. Teaching a foreign language using flash cards is based on the Leitner method. Flash cards as thematic cards depicting objects (concepts) are also used for development of speech (vocabulary, morphology, word formation, syntax, pronunciation), and psychological processes leading to new results (fluency, originality, flexibility). The testing developed by the authors is carried out, it includes the parts “Vocabulary”, “Morphology”, “Word formation”, “Syntax”, “Pronunciation”, “Torrance figure test”. An experimental study was conducted at Vyatka State University during the study of the disciplines “Electronic resources in the professional activity”, “Foreign language”. 60 first-year students studying Psychology (bachelor degree level) are involved. The Lexilize resource is used to create flash cards. Statistical processing of the results was performed using Pearson’s $\chi^2$ (chi-square) test.

Results. Students study services for creating flash cards, use them to process new material, memorize and present concepts, word formation in a variety of contexts. Statistically significant differences in the qualitative changes that occurred in the system according to the levels of development of verbal creativity were revealed, $\chi^2_{\text{obs.}} > \chi^2_{\text{crit.0.05}}$ ($9.997 > 9.488$).

In conclusion the features of the presented version of using flash cards when teaching a foreign language are described: combination with other means (mobile applications, simulators, infographics) and traditional forms of information transfer; interdisciplinary connections. Rules are formulated, implementation of which ensures effectiveness of using flash cards for development of verbal creativity.

Keywords: creativity, linguistic diversity, linguodidactics, speech creativity, interactive service, Lexilize

For Reference:
Introduction

The UN General Assembly has proclaimed the period from 2022 to 2032 as the International Decade of the World's Indigenous Languages. Firstly, this event is aimed at mobilizing resources for their preservation, revival and promotion [1]. Secondly, the proclamation of the "decade of the world languages" is one of the important results of UNESCO's activities in the direction of intensifying international cooperation and stimulating the dialogue of nations. Thirdly, recommendations that regulate how states should promote development of the information environment for a deep analysis of modern problems and trends in the development of world languages, for the introduction of scientific developments in the educational process were developed.

As part of implementation of these recommendations international events are held to develop new approaches to development of foreign language communication, for example, the training on formation of creative and innovative thinking skills. The training was organized by the UNESCO Cluster Office in Almaty for the employees of the Youth Resource Centers [2]. As part of the training the concepts of creative thinking in the digital world were considered, effective techniques for generating ideas and non-standard problem solving using information technologies were studied. In practice it was demonstrated that tasks focused on the creation of verbal patterns are positively perceived by students. Relevant activities support a creative atmosphere and make it easier to perceive facts of scientific information.

The same practical conclusions are confirmed in the theoretical research work of E. Sur, M. Ateş [3]. Their experimental data prove that the study of linguistic disciplines helps to increase the level of development of students' creative abilities, enrich the inner world and increase self-esteem. As a result the creative personality of the future specialist is formed, who is willing and able to learn (improve skills) throughout life.

At the same time in 2021 the Programme for International Student Assessment (PISA) for the first time introduces the assessment of creative thinking as one of the leading components [4]. Within the framework of the study a special group is made up of “tasks for verbal self-expression”.

Formation of verbal creativity as “the ability to overcome verbal stereotypes at the final stage of mental synthesis and the breadth of the field of associations" is, according to E. V. Dudorova, S. V. Shumkova, one of the urgent tasks of the higher education system in Russia [5]. Training of a highly qualified specialist in demand on the international labor market implies a focus on the education of a graduate who not only possesses a system of special knowledge in academic disciplines, but is also able to create and transform the surrounding reality [6].

A foreign language is included in the basic cycle of the humanities studied at many levels of education, including at the stage of higher education. N. Yemez, K. Dikilitaş substantiate this means that the teacher of a foreign language faces the task of developing students' communicative skills (listening, speaking, reading and writing), language skills (phonetic, lexical, grammatical), and sociocultural awareness [7]. These findings allow them to suggest that turning to productive models of teaching a foreign language can contribute to improvement of communication skills and language skills; stimulate formation of non-standard-minded highly qualified specialists of the future; to support training of graduates who are able to creatively refract the acquired knowledge in practice.
Thus, there is an objective need for additional study of development of students' verbal creativity in foreign language classes.

The research hypothesis is that using flash cards in foreign language classes will provide additional conditions for the development of students' verbal creativity.

The purpose of the study is to identify and confirm effectiveness of using flash cards when teaching English as a means of developing students' verbal creativity.

Materials and methods

The following methods were used in the work: theoretical analysis and generalization of literature when reviewing scientific theories on creativity; highlighting the main criteria, conditions and modern means for development of verbal creativity.

Learning a foreign language using flash cards is based on the Leitner method. The essence of the method is the repetition of foreign words at different intervals, depending on the result of reproducing the word from memory. Rational time management makes flash cards a powerful tool for remembering information.

The study used flash cards for various purposes: for board games (Shooter, Tic Tac), for quests (Role Play cards, Black cab), for mobile phones (Quizlet, Anki and Lexilize Flashcards), for modification on a computer (Free Printable Flash Card Maker). For example, Role Play cards are a set of 60 cards for developing speaking skills in English lessons. Each card suggests a situation in which actors are two students/two groups of students. The method contributes to establishment of direct links between a particular word and its image; helps to make the lesson more emotional, entertaining.

The following criteria are used as the main criteria for assessing formation of verbal creativity: fluency, flexibility, originality.

Working with flash cards is designed taking into account the principles of the system-activity approach to learning: when compiling a set of words the understanding of relationships, principles and algorithms of word formation takes place; attention and memory are activated; imagination develops; skills of systematic control and self-control are formed.

To obtain up-to-date information on effectiveness of using flash cards when teaching English as a means of developing students' verbal creativity, empirical methods are used:

- monitoring the communication of all participants of the interaction (for example, explaining a simple word in one minute);
- analysis of answers in a situation of professional communication (negotiations, employment, conclusion of a contract);
- discussion of the results of working with flash cards (how two cards are connected to each other or how the image on the card relates to the word);
- the number of words/phrases used by the student when working with a flash card in the process of studying the material;
- time to memorize new words;
- the scope and compliance of the used functionality of services for creating flash cards for development of verbal creativity, etc.

Testing was used to assess the input conditions, it included the following parts "Vocabulary", "Morphology", "Word formation", "Syntax", "Pronunciation", "Torrance figure test".
In the part "Vocabulary" the tasks "Classification of concepts", "Finding synonyms", "Giving definitions" are involved.

When studying the lexical and grammatical structure of speech in terms of "Morphology" the technique "Checking formation of conscious attitude to grammatical constructions" was used. For the "Word formation" part the task "Checking the ability to critically evaluate speech, the ability to find errors in the use of word formation methods" was chosen, and for the "Syntax" part the task "Checking the ability to construct sentences" was chosen. The study of the sound side of speech is supported by the method of "Examination of sound pronunciation".

The Torrance figure test (short version) uses three tasks. Answers to all tasks are given in the form of drawings and captions to them.

Auxiliary methods of computer data processing are also used: design in the form of tables, diagrams, graphs, presentations and "*.pdf" files.

The experimental study was conducted on the basis of Vyatka State University while studying the disciplines "Electronic resources in professional activity" and "Foreign language". 60 first-year students of the training program 37.03.01 Psychology (bachelor degree level) were involved. The average age of the respondents was 19 (78% of girls and 12% of young people).

The levels "bad", "below the norm", "norm", "above the norm", "excellent" were introduced to determine the level of formation of verbal creativity. The methodology for determining the levels is described below (program and results of the study). Statistical processing of the results was performed using Pearson’s $\chi^2$ (chi-square) test.

### Literature review

The Universal Declaration on Cultural Diversity, adopted by UNESCO, is aimed not only at protecting endangered languages, but also defines a range of activities that countries/states should implement [8]:

- preservation of the linguistic heritage of mankind, promotion of the dissemination of creative ideas;
- encouragement of linguistic diversity, education of respect for the native language, popularization of the study of several languages from childhood;
- development of linguistic diversity in cyberspace and promotion of universal equal access through global networks to any information that is in the public domain.

R. Barac et al. argue that work in accordance with these areas should be started at the level of preschool education and continued at all stages of education, including at university teaching [9]. N. Yemez, K. Dikilitaş conclude that the learning model in the modern multicultural world should involve formation of a creative personality capable of independent creative search for solving professional problems [7].

During the analysis of the literature it was revealed that creativity as a property of a person is complex. It is a process and result of a person's development of individuality and, according to E. Bernabeu-Brotons, C. De-La-Peña can be considered as a universal ability of a person allowing to successfully navigate in changing conditions of life, productively and creatively transform it [10].

To confirm this statement we note that one of the key areas of work of a teacher-psychologist in the modern educational environment involves orientation of a specialist
to develop abilities of an individual in the minimum time, to find the most accurate and effective speech means for effective communication with a person of any age, intellectual level, material and social status [11]. According to N.V. Verkhorubova, the richness of speech, vocabulary is manifestation of speech creativity [12]. This ability of a person, according to E. Yu. Zavershneva, is considered as the ability to easily and freely argue, influence people and lead them [13]. T. A. Barysheva proves that development of speech creativity is an important condition for formation of creative, innovative thinking [11].

In modern conditions the presence of creative thinking determines not only professional competences of specialists in the field of psychology, but also contributes to solving such a problem as overcoming barriers of personal development, being one of the determining factors of successful professional activity [6].

Personal creativity, as shown by A. Litvinov, S. Bukovsky, is an internal resource of a person, which determines readiness for changes; propensity to find non-standard solutions to emerging problems; the ability to approach implementation of various tasks in an original way; to successfully self-realize in society, and in the professional environment in particular [14].

In the work of E. Sur, M. Ateş it is proved that the concept of linguistic creativity is an important concept of theoretical linguistics and determines a whole direction in the study of linguistic material [3].

H. Wang studies features of development and improvement of creative thinking when studying a foreign language, namely the speech process [15]. The author considers creative thinking through the unity of its development both in qualitatively-substantial and procedural directions. The methodology for development of creative thinking when teaching a foreign language should be based on the following principles: activity, individuality, consistency, phasing, cyclicity, psychological comfort, cooperation. J. L. Ortega-Martin et al. developed the concept of “creativization” and presented it as a methodological and theoretical category in the process of learning a foreign language [16]. The concept of "creativization" covers conceptual ideas and basic principles of the approach to creative thinking when studying a foreign language. This approach is formulated in the form of several methodological principles and theoretical aspects.

S. Bukantaitė, Z. Sederevičiūtė-Pačiauskienė believe that an important condition for modern education is the creation of a comfortable psychological climate in the classroom [17]. The educational environment should help students feel confident; contribute to the activation of their desire for creative self-expression. It is necessary to understand that the emotional background is closely related to personal feelings, therefore, the atmosphere prevailing in a foreign language classroom can both positively and negatively affect manifestation of students' initiative [15].

B. Forgács concludes that modern communication is characterized by the presence of a variety of linguistic phenomena, including polymodal units of online communication [18]. These units consist of several components: verbal and non-verbal. Cases of using metaphors are particularly interesting in the author's opinion. In Internet communication a metaphor often takes a verbal-graphic form, turning into multimodal memes. In such cases there is a language game, code switching. In the course of the research the scientist tries to establish factors that determine the degree of success of metaphors (i.e., the absence or low level of cognitive dissonance in its perception). In addition, the author tries to determine the role of the multimodal malaphore in modifying the picture of the world of a linguistic personality.
M. Van Dijk et al. prove that creativity in the use of language involves experience of creating, perceiving and criticizing speech works [19]. They view language as a human activity. In the course of this activity people not only communicate, but also replenish the stock of obsessive associations and spontaneous speech reactions to randomly presented stimuli. Typical everyday using is opposed to "creativity" of the rare and unusual. The authors note that the less probable and plausible a word is in a given context, the more creative the sentence with it is. The creatives consciously included in the speech are presented in a special way: with a playful intonation and a peculiar look thrown at the listeners to make sure how the creative is appreciated.

F. von Reumont, A. Budke use comics to develop creativity [20]. They put forward and substantiated the assumption that along with traditional tasks in the field of graphic design (font, iconography, corporate identity, etc.) it is advisable to more widely use the potential of comics in shaping the design culture of students. The art of comics, according to the authors, is not only used in graphic design and advertising. Comics are actively developing both as a method of teaching and learning. A comic is a universal form of presenting information: capacious, figurative. The scientists highlight the prospects for the use of comics in education. On the basis of comics lessons in dynamic or plot drawing, mathematical modeling can be introduced at school.

Y. Ying, D. Marchelline, G. Wijaya in their study describe development of a new digital didactic tool - flash cards [21]. They consider a variety of examples: how stickers with foreign translations were used (glued to objects at home); the possibility of presentations or posters in the "*.pdf" format; means for mobile devices. Y. Ying, D. Marchelline, G. Wijaya prove on experimental data that today teachers can and should offer their students such an effective digital tool for memorization and development of creative thinking as a flash card.

C. Malik et al. note that in the modern world of computer technology there are programs for memorization based on the Leitner method [22]. Programs can count the frequency and number of correct and incorrect answers. At the same time the digital resource uses the indicators "forgetting", "repetition"; keeps detailed statistics; “shifts” cards from one cell to another. Indeed, today's adolescents have different, in comparison with previous generations of children, possibilities of perception (in particular, its speed), a different threshold level of development of combinatorial and technical abilities. These features of students must be taken into account when designing the educational environment based on digital technologies, when realizing the didactic potential of interactive tools [23]. It is useful to use the experience of extracurricular activities (for example, electives, educational centers, film studios) to create educational films or flash cards.

S. Lai et al. describe how learning with the help of flash cards can be implemented taking into account the individual approach, and how it can be used class [24]. They note that this method greatly reduces the time for language learning. However, it should be remembered that a lot also depends on the person's efforts. The level of initial knowledge, the emotional mood during the training period and, most importantly, the regularity of classes matter.

Thus, in the course of analytical work with the literature, it is substantiated that:

- development of linguistic diversity, promotion of creative ideas, inclusion of digital resources in teaching foreign languages—initiatives supported at the level of UNESCO;
- presence of creative thinking determines many professional competences of future specialists;
- creativity of speech is the ability of the individual to creative thinking, manifested in the creation of a new original speech (verbal) product in any of its verbal forms (oral,
written, prose, poetic, monologue, dialogic, etc.);  
• teaching a foreign language has a powerful didactic potential for development of verbal creativity;  
• in the modern educational space new digital tools appear that create additional conditions for development of creativity in general, and verbal creativity in particular.  
Thus, there is an objective need for additional study of the use of flash cards in foreign language classes in order to develop the verbal creativity of students.

Research program

The main purpose of the experiment was to test effectiveness of using flash cards when learning a foreign language for development of students' verbal creativity. The study was carried out on the basis of Vyatka State University during the study of the disciplines "Electronic resources in professional activity" and "Foreign language". 60 first-year students of the training program 37.03.01 Psychology (bachelor degree level) were involved. The average age of the respondents was 19.

At the preparatory stage of the experiment the teacher analyzed the modern achievements of linguodidactics regarding the potential of digital services, interactive tools for teaching a foreign language. The main methodological idea was stated: “one should teach not only knowledge, but also skills that help to apply this knowledge and explore the world, create new things, solve problems, work in a team, understand oneself and others, and manage oneself” [10].

To achieve this goal there was a need for a special organization of the process of learning a foreign language. Its essence is expressed in the combination of creative pedagogical influence and complex of optimal pedagogical conditions, which should be based on the integration and interpenetration of modern achievements in pedagogy and psychology. It was also determined that development of creativity in language learning involves preparing the individual for creative thinking. It was decided to use flash cards as the psychological and pedagogical means to provide additional conditions for development of verbal creativity. On flash cards only pictures can be presented or they can be accompanied by data. Dates, formulas can also be presented on the card. Flash cards can be used both in the classroom, and online, and in individual training.

Various ready-made sets of flash cards are considered: "Teaching English is fun", "Babyenglish Best", "Fabula-russia", SIGHT WORDS flash cards and others. Various digital services for creating own flash cards were analyzed: online generator (https://kids-flashcards.com/ru/online-flashcards-maker), mobile application (https://lexilize.com/ru/), Quizlet, Anki, etc.

A feature of Quizlet is that the service can be used in several modes: consolidating material and combining cards ("modules") into courses. After studying the theoretical material the student can look for pairs of cards, do a test.

Anki is the easiest to prepare card sets. While memorizing words, the student can use the board, take notes and save, then everything can be downloaded to the mobile phone and it is possible to work offline.

Lexilize Flashcards offers a spectacular user interface, various games ("Guess", "Recall" and "Make a pair"). The student can come up with your own memory game. After the student learns a new set of words, the application offers to repeat the old material.
The following criteria were used as selection criteria: type of technology (cloud/online or offline), financial basis (free/commercial), functionality (types of interactive tasks, possibility to create own maps and print them), interface and design. The Lexilize Flashcards service (https://lexilize.com/ru/) was chosen based on the analytical work. Its advantages are: work without the Internet; automatic pronunciation of all studied words and phrases; memorizing only “own” words and phrases using a system of spaced repetitions; import words from Excel files; support for 118 languages; non-linguistic categories (medicine, mathematics, history), etc.

The testing was developed to assess the input conditions, it comprised 6 parts: “Professional Vocabulary”, “Morphology”, “Word Formation”, “Syntax”, “Pronunciation”, “Torrance Figure Test”.

In the part "Vocabulary" the following methods were used "Classification of concepts", "Selection of synonyms", "Selection of definitions".

The method "Classification of concepts" is aimed at revealing the level of generalization. 30 pictures with images in various categories (including the future profession) are used. Next, the number of correct choices of pictures is calculated both by category and in general. For each correct choice 1 point is given. The highest score is 30 points.

The method "Synonym selection" is aimed at revealing the level synonym selecting. The student is asked to choose a word that is close in meaning to the given word. 10 words from everyday life and professional sphere are presented. The student receives 1 point if the chosen word is a synonym; 0 point if the selected word does not match the semantic field of the given one. The highest score is 10 points.

The method "Selection of definitions" is aimed at revealing the level of selecting definitions. The student is asked to come up with as many definitions for the given word as possible. 5 words are presented (everyday life, profession). The student receives 2 points - if more than 3 words are given; 1 point - if less than 3 words were given; 0 point - if there is no answer or the answer does not correspond to the semantic field of the presented word. The highest score is 20 points.

Thus, in the part "Professional Vocabulary" maximum of points is 60.

In the course of using the method “Checking formation of the conscious attitude to grammatical constructions” students are invited to listen to the phrase. Next, they need to determine which forms are used incorrectly. Verbal material: the girl "are painting", and the boy is sculpting Russian "dolles"; I am eating "apples ripe red"; the boy came home and told his mother that he "goed in a cinema"; I will build "much" houses "of sands". Phrases from everyday life and the professional sphere are presented. The student gets 2 points for a correct answer. The highest score is 10 points. This score is the total for the "Morphology" part.

In the course of using the method “Checking the ability to critically evaluate speech, to find errors in the use of word formation methods”, students are invited to listen to incorrect word forms and express their opinion. 5 word forms from everyday life and the professional sphere are presented. The student gets 2 points for a correct answer. The highest score is 10 points. This score is the total for the part "Word Formation".

In the course of using the method “Checking the ability to construct sentences” the student is offered three words (everyday life, profession). Using these words he/she must make up a sentence: friends, walk, park; read, memoirs, psychiatrist. 4 sets of words from everyday life and the professional sphere are presented. The student receives 3 points for a correct answer. The highest score is 12 points. This score is the total for the part "Syntax".
The study of pronunciation is supported by the method "Examination of sound pronunciation". During it the student is presented 12 pictures with necessary sounds at the beginning, middle, and end of the word.

The principle of selecting pictures: the possibility to check the pronunciation of all sounds in all positions; content accessibility; image realism. The student is asked to independently name the depicted object. If he/she makes a mistake in pronunciation, it is advised to look at the teacher and listen to how the sound is pronounced, and then repeat. In the case of correct pronunciation, it can be concluded that the sound is present, but it is not automated, not fixed. Each indicator is evaluated separately. The highest score is 12 points. This score is the total for the part.

Three tasks are used in Torrance figure test (short version). Answers to all tasks are given in the form of drawings and captions to them. The time to complete the task is not limited, since the creative process involves free organization of the temporary component of creative activity. The artistic level of performance in the drawings is not taken into account. The interpretation of the results of the Torrance test was made according to the methodology. The analysis added up all the scores obtained in the evaluation of five factors ("fluency", "originality", "abstractness of the name", "resistance" and "elaboration"). The total score was divided by five.

Thus, as a result of the initial diagnosis each student scored from 30 to 174 points. To determine the level of formation of verbal creativity (according to the sum of all 6 parts) the levels “bad” (from 30 to 49 points (inclusive)), “below the norm” (from 50 to 89 points (inclusive)), "norm" (from 90 to 149 points (inclusive)), "above the norm" (from 150 to 173 points (inclusive)), "excellent" (more than 174 points) were introduced.

Thus, it was possible to get data on 60 students, from which the experimental and control groups were formed. There were 30 people in each of them. The sample was not random. The experimental group included 78% girls and 22% young people.

The second stage of the experiment was to study the changing structure of foreign language classes in accordance with the purpose of the study. The teacher studied the digital service for creating flash cards/using a ready-made set in the classroom in the course of the discipline "Electronic Resources in Professional Activities". Then, in foreign language classes, the parts were studied ("Modern manners", "Judging by appearance", "Changing life", "Race to the sun").

The third stage of the study. Then, when organizing practical work, research and creative activities, the students were asked to arrange the studied concepts, new words and set expressions in the form of a set of flash cards. The student could use Lexilize Flashcards (https://lexilize.com/ru/) as a computer program. But they were also free in their choice and could use another digital service.

Statistical processing of the results was performed using Pearson's $\chi^2$ (chi-square) test.

### Research results

In the course of the analysis and generalization of the scientific literature the author's positions regarding the key concepts of the study were determined:

- Creative thinking - the ability to productively participate in the process of developing, evaluating and improving ideas aimed at obtaining innovative and effective solutions, and/or new knowledge, and/or effective expression of the imagination.
- Verbal creativity is one of the components of the concept of creativity of the linguistic personality, which reveals the ability of a native speaker to creatively use ready-made linguistic forms and meanings and update their repertoire in conditions of conscious deviation from canonical forms of speech.
- Verbal creativity criteria: fluency, flexibility, originality.
- Success of completing tasks for development of speech creativity should depend more on organization of thought processes (speed, fluency, originality) than on the depth of knowledge of a particular subject.

Flash cards in this study are understood as electronic/physical thematic cards depicting objects or concepts.

Effectiveness of using flash cards for development of verbal creativity was tested during training of specialists whose future professional activity involves solving problems in the field of education, healthcare, culture, sports, management, and social assistance to the population. The integrating quality of a graduate is the personal potential of a teacher-psychologist, the structure of which consists of fundamental and practical knowledge, skills and abilities that determine professional competence; professionally directed knowledge, skills; creative activity; intellectual abilities; communication skills. At each stage of vocational training it was important to provide not only formation of certain knowledge and skills, but also formation and development of the system-forming foundations, properties, and qualities of the professional personality, including development of verbal creativity.

The verbal component of creativity is measured both in terms of speech development (vocabulary, morphology, word formation, syntax, pronunciation, etc.), and in terms of psychological processes leading to new results (Torrance figure test).

The students were asked to answer the questions of 6 methods (described in the research program). The measurement results before the experiment are presented in Table 1.

According to the logic of the research program, when studying the discipline "Electronic resources in professional activities", students studied services for working with flash cards. Examples of tasks they performed in the software environment are:

1. Compile sets of words by topic/category in the form of a text document and in the format of an electronic sheet.
2. Install the flash card application.
3. Explore the interface and functionality: select your native language and language to learn, select the type of subscription (free/premium), study ready-made categories of words and add new ones, edit words.
4. Design flash cards to study new material (for example, to study the biography of a scientist-psychologist, a list of new professions).
5. Complete game tasks for consolidation and systematization: the games “Guess!”, “Remember”, “Find a pair”.
6. Apply sets of cards in a specific communication situation (psychological consultation, conflict resolution, etc.).

Specific practical results that marked the end of practice in the flash card service:
1. Theoretical knowledge about interactive tools in professional activities.
2. Formation of skills to use ready-made flash cards and create own. Understanding the practical value of the products of this service for solving future professional problems.
3. Own sets of flash cards reflecting specifics of the subject.

Figure 1 shows one of the results of students' work in the Lexilize Flashcards service (https://lexilize.com/ru/).
Further, the students of the experimental group used flash cards when learning a foreign language. Examples of exercises based on flash cards for development of creativity in speech.

Exercise 1 (fluency). Number of participants: 2 per team. Number of flash cards: 9 for one team. With the help of this exercise it is good to practice words related to one part of speech and topic - names of animals, fruits and vegetables, household items, etc. For each pair, the student can use own version of flash cards, and then change the options.

All nine flash cards are laid out face up. Students are given the opportunity to memorize as many words as possible within 2-3 minutes. Next, the flash cards are turned over. And the students should take turns to name all the words that were on the flash cards. The winner is the one who named more words and did not repeat after the second player.

In order to work out the words not only orally, the players can be asked to write as many words from memory as they remember.

Exercise 2 (flexibility). Number of participants: 2. Number of phrases: 5 phrases for each player (or more, depending on the duration of the game, the level of students). Number of flash cards with phrases: 10 (5 for each participant). Flash cards use phrases that have a dash instead of the last word. Flash cards are shuffled and distributed to participants, 5 cards are given to each student. The first participant voices the phrase. The task of the second is to name the missing word. For example, the first player says: "How old are ____"? The second one should continue and say: "..... you?". If the second player finds it difficult and cannot continue the phrase (choose a flash card), then the move goes to the first player.

Exercise 3 (originality). The teacher draws a star and a flash card is laid out at each end. The task of the participant is to explain the essence of the subject, the phenomenon with the help of their flash cards. For example, “Psychologist” is a specialist who studies the human

Figure 1 The result of working with the digital service for creating flash cards
psyche and provides with psychological assistance in various life situations, with various psychological disorders. "Psychologist" is a specialist who received a higher humanitarian education. "Psychologist" is Sigmund Freud.

Such a game contributes to the ability to explain words in English at the upper levels of learning.

Exercise 4 (combined). Pyramid Discussion is a type of discussion, as it takes place in several stages. Students have more opportunities to practice foreign language skills.

Example "What to take with you to a desert island". The teacher prepares a set of flash cards for students, from which they must choose only 3. These flash cards are symbols of those items that they will definitely take with them to an imaginary island. Participants can also argue why they made this choice. Firstly, students make their own decisions. Then they work in pairs, it is necessary to unanimously decide which flash cards (items) should be taken with them. Then they work in mini-groups of 4 people, then - 8 people, etc. (depending on class size). As a result, the team must make a decision unanimously.

Students from the control group studied software tools for creating flash cards within the discipline "Electronic resources in professional activities". However, there was no specially organized activity to include flash cards for development of fluency, flexibility and originality of speech in foreign language classes. The students of the control group studied the material on the exercises and assignments presented in the work programs. An example of the exercise: words are presented to students on a paper sheet/in electronic form. Students from the control group are to explain what each word is associated with. For example: a profession is a business (labor activity) in which a person is engaged; a profession is a business in which a person receives a livelihood; profession - specialty; profession - to defend the Motherland.

At the fixing stage of the experiment the testing was again carried out according to the methods of 6 parts. Post-experiment data are also presented in Table 1.

Table 1. Results of measurements by the level of development of verbal creativity

<table>
<thead>
<tr>
<th>Level</th>
<th>Groups</th>
<th>Experimental (30 students)</th>
<th>Control (30 students)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before the experiment</td>
<td>After the experiment</td>
<td>Before the experiment</td>
</tr>
<tr>
<td>&quot;Bad&quot;</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Below the norm&quot;</td>
<td>6</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>&quot;Norm&quot;</td>
<td>14</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>&quot;Above the norm&quot;</td>
<td>5</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>&quot;Excellent&quot;</td>
<td>2</td>
<td>11</td>
<td>2</td>
</tr>
</tbody>
</table>

In this case, the hypotheses are formulated as follows.

H0: the level of verbal creativity in the experimental group is statistically equal to the level of students in the control group; H1: the level in the experimental group is higher than the level of the control group.

In the online resource http://medstatistic.ru/calculators/calchit.html the values of the criterion before ($\chi^2_{obs.1}$) and after ($\chi^2_{obs.2}$) the experiment were calculated. For $\alpha = 0.05$ according to the distribution tables, the $\chi^2_{crit}$ is 9.488. Thus, we get: $\chi^2_{obs.1} < \chi^2_{crit}$ (0.114 < 9.488), and $\chi^2_{obs.2} > \chi^2_{crit}$ (9.997 > 9.488). Therefore, the shift towards increasing the level of verbal creativity of the students of the experimental group can be considered non-random.
Performing the quantitative analysis of the obtained data, we can conclude that after the completion of the experiment, 37% of the students in the experimental group had “excellent” level of verbal creativity (11 students out of 30). Initially this percentage was 7% (2 respondents out of 30). The number of students with "below the norm" and "bad" levels has significantly decreased from 30% to 10%. For the control group the following was recorded: the indicator for the level "excellent" qualitatively changed from 7% to 10%, and for the level of "bad" – from 10% to 7%.

Of the functionality of services for creating interactive cards and the sets of flash cards, which have a positive didactic effect on development of verbal creativity, the participants of the experiment noted: the use of global social network accounts (Facebook, VK or Instagram); the ability to repeat words, import from spreadsheets; creating own categories of words; work on the computer and in the mobile application. Also in the discussion the following areas for improving the service were highlighted:

- to change the location of the button for voicing words on cards with a word in the studied language;
- configure the application so that one side of the card is shown first, and then the other. That is, first the user translates from Russian into English, and then from English into Russian.

The following didactic possibilities of flash cards were identified in relation to learning in the conditions of development of the modern digital educational environment: active participation in the process of learning a foreign language; didactic games with the inclusion of digital services; development of creative thinking, speech, intelligence; systematization and generalization of the material; new forms of control; opportunity to learn independently.

The latter advantage is of particular importance in the context of training highly qualified specialists of the future. Indeed, the participants in the experimental group received additional conditions for training concentration of attention and memory, fostering self-motivation, developing critical thinking, and gaining experience of planning independent work. Based on observations made after experimental training, a decrease in the number of errors in writing English words, a rapid mastery of abstract concepts, an improvement in memory and attention among students was noted.

The research materials comply with the principles of the UN and UNESCO regarding the need to develop linguistic diversity, promote creative ideas, and include digital resources in education [1]. In addition, the practical results of the study can be applied in the framework of international events to introduce new approaches to development of foreign language communication (for example, in trainings, conferences for the exchange of experience) [2].

The formulated conclusions supplement the conclusions of C. Lai et al. regarding the potential of flash cards for the individual approach, for group work [24]. In addition, the obtained results expand the ideas of M. Van Dijk et al. regarding the range of didactic means for development of creativity of speech [19].
The most important principle of modern education is optimization of learning through the use of innovative psychological and pedagogical technologies and tools. Flash cards are one of such medium. Flash cards are thematic cards depicting objects or concepts. This is a simple, universal, but insufficiently studied resource in terms of its influence on creative thinking, creativity of the individual.

In modern conditions the presence of creative thinking determines not only professional competences of highly qualified specialists, but also contributes to solving such a problem as overcoming barriers to professional development. Creativity is one of determining factors of successful professional activity.

In the present study creativity is considered in relation to speech as the ability to speak in an original, non-standard, not stereotyped, interesting way. As a consequence, the verbal component of creativity is measured both in terms of speech development (vocabulary, morphology, word formation, syntax, pronunciation) and in terms of psychological processes leading to new results (fluency, originality, flexibility).

Distinctive features of the study:
1. Flash cards and a learning instrument (in the course "Electronic Resources in Professional Activities"), and a teaching techniques (in foreign language classes), and a new tool for self-expression. For example, with the help of flash cards developed in the Lexilize Flashcards service (https://lexilize.com/ru/), the 4th year students prepared a thematic story on career guidance for applicants.

In other cases flash cards were actively used in other academic disciplines: modeling psychological situations, communication problems, biographical descriptions. The flash card method was used in art therapy classes as a support for self-knowledge in a comfortable atmosphere.

2. The use of flash cards is not a separate experiment, but part of the purposeful systematic work of teachers to include new digital tools in the educational environment of the university. Flash cards are used simultaneously with mobile applications, interactive simulators, infographics, etc.

Effectiveness of flash cards is determined precisely by the fact that they help to establish direct links between a particular word and its image. In addition, the tool creates conditions for cognitive activity, helps to make the lesson more emotional and entertaining.

The materials of the study allow us to reasonably assert that the use of flash cards in teaching a foreign language makes it possible to provide additional conditions for development of the person’s creative abilities. These abilities are manifested in thinking, feelings, speech and other activities. In relation to studying a foreign language these are creativity in speaking and creativity in listening and creativity in reading and creativity in writing.

When summarizing the results of the pedagogical experiment, the rules were formulated, implementation of which ensures effectiveness of using flash cards for development of students’ verbal creativity:
1. It is not recommended to create flashcards just for the sake of remembering facts. Flash cards can and should be useful and interesting at the same time. What turns into a game is remembered much better.
2. It is not recommended to simply read what is written on the flash card. It is advised to
use game techniques; connect facial expressions/gestures; give an analogy; use other visual means (animation, sketches); justify with practical examples.

3. Use ready-made sets of flash cards only at the initial stage of training. Much more effective in terms of developing speech creativity is to create and enrich your flash card system. When designing your own system, we advise to think about the answers to the following questions: How regularly do you plan to use flash cards? Is your set universal or professional? How should cards be grouped into categories? What is the update period for the content of the flash cards? Is it needed to use pictures and audio files?

4. Work with flash cards should support personal and professional development. Improving sets of flash cards - you improve yourself, acquire the ability to learn throughout life.

5. Use mnemonics. Dynamic images in infographics have a positive effect on formation of the skill of linguistic guessing, which activates the chain of mental operations. Mnemonics can be effectively used when learning new words; converting words into images (coding); formation of links between reference images and memorized images.

6. Be sure to say the answers (inscriptions on flash cards) aloud. This method makes the brain understand: “Information is very important!”. In addition, this approach makes memorization more vivid, as it connects the auditory channel.

   This rule is especially important when learning a foreign language. When you learn English, for example, there are actually four different languages: English reading, English speaking and pronunciation, English listening, English writing.

7. Flash cards should not be considered as a universal and magical didactic tool.

   Flash cards are an effective tool for influencing, stimulating, activating. But it is not the only one and has restrictions when using. The best option is to combine this method with others, traditional or innovative: tests, textbooks, studying grammar and rules with a teacher in the classroom, classes with a tutor, communication with native speakers, training videos.

8. One question - one answer. This rule should be followed at the very beginning, when you are just starting to work with a new set of flash cards.

   In some time, when you realize that you studied the basic level, you can complicate the cards. Or you can not mention what you have long studied. For example, when you never make a mistake in any card during the week.

9. Productivity sometimes means procrastination. When you are learning English, you may want to put all the words you come across while watching a movie or reading a book on flashcards. But this is not entirely correct. There are many English words that you need to learn at first. Some of them form stable phrases, which also need to be remembered. But there are complex and ancient words that you can meet in books, most likely, you will not need at the beginning of the study (or even never at all).

10. Learn, then memorize. Just memorizing words automatically is not the most effective approach. To begin with, you should be interested this word. You can find out exactly what it means, or the history of its formation.

   For example, if you study the periodic table using flash cards, you can first study each element separately. Then experiment with simple formulas (water, coal), known and understandable. A new (creative) product may result from a random pronunciation/spelling error or from a combination of flash cards.

   Thus, inclusion of flash cards in teaching a foreign language contributes to development of students’ verbal creativity. Moreover, it seems possible and necessary to use the flash card method, mobile applications, mnemonic techniques not only when learning a foreign language, but also any other subject.
REFERENCES

1. UNESCO: Building peace in the minds of men and women. Towards the International Decade of Indigenous Languages. Available at: https://ru.unesco.org/diid2022-2032

2. UNESCO. Almaty. Available at: http://www.unesco.kz/

3. Sur, E., Ataș, M. Examination of the relationship between creative thinking skills and comprehension skills of middle school students. Participatory Educational Research, 2022, vol. 9, no. 2, p. 313-324. DOI: 10.17275/per.22.42.9.2

4. Programme for International Student Assessment. Available at: https://www.oecd.org/pisa/


18. Forgács, B. The pragmatic functions of metaphorical language, 2022. DOI: 10.1007/978-3-030-66175-5_4


Информация об авторах

Рябчикова Вера Георгиевна
(Россия, г. Москва)
Преподаватель кафедры иностранных и русского языков
Российский государственный аграрный университет — МСХА им. К. А. Тимирязева
E-mail: smirnovaverochka@mail.ru
ORCID ID: 0000-0001-7235-0761

Сергеева Наталья Анатольевна
(Россия, г. Москва)
Старший преподаватель кафедры иностранных и русского языков
Российский государственный аграрный университет — МСХА им. К. А. Тимирязева
E-mail: kukulenok72@mail.ru
ORCID ID: 0000-0001-7116-3526

Зайцев Алексей Анатольевич
(Россия, г. Москва)
Доцент, кандидат филологических наук, доцент кафедры иностранных языков
Российский государственный аграрный университет — МСХА им. К. А. Тимирязева
E-mail: а.zaizev@mail.ru
ORCID ID: 0000-0001-6823-2340

Островский Игорь Викторович
(Россия, г. Киров)
Кандидат филологических наук, доцент кафедры иностранных языков неязыковых направлений
Вятский государственный университет
E-mail: igoro63@gmail.com
ORCID ID: 0000-0001-9439-356X

Тютюнник Ирина Аркадьевна
(Россия, г. Киров)
Доцент, кандидат филологических наук, доцент кафедры иностранных языков неязыковых направлений
Вятский государственный университет
E-mail: IRINA.t77@mail.ru
ORCID ID: 0000-0002-3076-1383

Information about the authors

Vera G. Ryabchikova
(Russia, Moscow)
Teacher of Foreign and Russian Languages Department
Russian State Agrarian University – Moscow Timiryazev Agricultural Academy
E-mail: smirnovaverochka@mail.ru
ORCID ID: 0000-0001-7235-0761

Natalya A. Sergeeva
(Russia, Moscow)
Senior Teacher of Foreign and Russian Languages Department
Russian State Agrarian University – Moscow Timiryazev Agricultural Academy
E-mail: kukulenok72@mail.ru
ORCID ID: 0000-0001-7116-3526

Alexey A. Zaitsev
(Russia, Moscow)
Associate Professor, Cand. Sci. (Philology), Associate Professor of Foreign and Russian Languages Department
Russian State Agrarian University – Moscow Timiryazev Agricultural Academy
E-mail: a.zaizev@mail.ru
ORCID ID: 0000-0001-6823-2340

Igor V. Ostrovsky
(Russia, Kirov)
Cand. Sci. (Philology), Associate Professor of the Department of Foreign Languages of Non-linguistic Directions
Vyatka State University
E-mail: igoro63@gmail.com
ORCID ID: 0000-0001-9439-356X

Irina A. Tyutyunnik
(Russia, Kirov)
Associate Professor, Cand. Sci. (Philology), Associate Professor of the Department of Foreign Languages for Non-linguistic Directions
Vyatka State University
E-mail: IRINA.t77@mail.ru
ORCID ID: 0000-0002-3076-1383