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# **M**ODERN ENGINEERING AND INNOVATIVE TECHNOLOGIES

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## About the journal

The International Scientific Periodical Journal "Modern Technology and Innovative Technologies" has been published since 2017 and has gained considerable recognition among domestic and foreign researchers and scholars.

Periodicity of publication: Quarterly

The journal activity is driven by the following objectives:

- Broadcasting young researchers and scholars outcomes to wide scientific audience
- Fostering knowledge exchange in scientific community
- Promotion of the unification in scientific approach
- Creation of basis for innovation and new scientific approaches as well as discoveries in unknown domains

The journal purposefully acquaints the reader with the original research of authors in various fields of science, the best examples of scientific journalism.

Publications of the journal are intended for a wide readership - all those who love science. The materials published in the journal reflect current problems and affect the interests of the entire public.

Each article in the journal includes general information in English. The journal is registered in INDEXCOPERNICUS.

### Sections of the Journal:

Library of Congress Classification Outline	Sections
Subclass TJ / TJ1-1570	Mechanical engineering and machinery
Subclass TK / TK1-9971	Electrical engineering.
Subclass TA / TA165	Engineering instruments, meters, etc. Industrial instrumentation
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Subclass TK / TK1-9971	Electrical engineering. Electronics. Nuclear engineering
Subclass TN / TN1-997	Mining engineering. Metallurgy
Subclass TS / TS1950-1982, TS2120-2159	Animal products., Cereals and grain. Milling industry
Subclass TS / TS1300-1865	Textile industries
Subclass TK / TK7800-8360	Electronics
Subclass T / T55.4-60.8	Industrial engineering. Management engineering
Subclass T / T351-385	Mechanical drawing. Engineering graphics
Subclass TA / TA1001-1280, Subclass TL / TL1-484, Subclass TE / TE1-450, Subclass TF / TF1-1620	Transportation engineering, Motor vehicles. Cycles, Highway engineering. Roads and pavements, Railroad engineering and operation
Subclass TH / TH1-9745	Building construction
Subclass T / T55-55.3	Industrial safety. Industrial accident prevention
Additional sections	<i>Innovative economics and management, Innovations in pedagogy, Innovative approaches in jurisprudence, Innovative philosophical views</i>

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Articles should correspond to the thematic profile of the journal, meet international standards of scientific publications and be formalized in accordance with established rules. They should also be a presentation of the results of the original author's scientific research, be inscribed in the context of domestic and foreign research on this topic, reflect the author's ability to freely navigate in the existing bibliographic context on the problems involved and adequately apply the generally accepted methodology of setting and solving scientific problems.

All texts should be written in literary language, edited and conform to the scientific style of speech. Incorrect selection and unreliability of the facts, quotations, statistical and sociological data, names of own, geographical names and other information cited by the authors can cause the rejection of the submitted material (including at the registration stage).

All tables and figures in the article should be numbered, have headings and links in the text. If the data is borrowed from another source, a bibliographic reference should be given to it in the form of a note.

The title of the article, the full names of authors, educational institutions (except the main text language) should be presented in English.

Articles should be accompanied by an annotation and key words in the language of the main text and must be in English. The abstract should be made in the form of a short text that reveals the purpose and objectives of the work, its structure and main findings. The abstract is an independent analytical text and should give an adequate idea of the research conducted without the need to refer to the article. Abstract in English (Abstract) should be written in a competent academic language.

The presence of UDC, BBK

Acceptance of the material for consideration is not a guarantee of its publication. Registered articles are reviewed by the editorial staff and, when formally and in substance, the requirements of the journal are sent to peer review, including through an open discussion using the web resource [www.sworld.education](http://www.sworld.education)

Only previously unpublished materials can be posted in the journal.

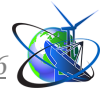
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The editors of the journal are aware of the fact that in the academic community there are quite widespread cases of violation of the ethics of the publication of scientific research. As the most notable and egregious, one can single out plagiarism, the posting of previously published materials, the misappropriation of the results of foreign scientific research, and falsification of data. We oppose such practices.

The editors are convinced that violations of copyrights and moral norms are not only ethically unacceptable, but also serve as a barrier to the development of scientific knowledge. Therefore, we believe that the fight against these phenomena should become the goal and the result of joint efforts of our authors, editors, reviewers, readers and the entire academic community. We encourage all stakeholders to cooperate and participate in the exchange of information in order to combat the violation of the ethics of publication of scientific research.

For its part, the editors are ready to make every effort to identify and suppress such unacceptable practices. We promise to take appropriate measures, as well as pay close attention to any information provided to us, which will indicate unethical behavior of one or another author.

Detection of ethical violations entails refusal to publish. If it is revealed that the article contains outright slander, violates the law or copyright rules, the editorial board considers itself obliged to remove it from the web resource and from the citation bases. Such extreme measures can be applied only with maximum openness and publicity.



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## ORGANIZATION OF INDEPENDENT WORK OF FOREIGN STUDENTS AT THE PRE-UNIVERSITY STAGE OF LANGUAGE TRAINING ON THE BASIS OF MODERN INNOVATIVE TECHNOLOGIES

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**Abstract.** *The article summarizes the experience of introducing modern innovative technologies in the educational process during the organization of independent work of students of the Preparation Center for Foreign Citizens of Zaporizhzhia State Medical University. The technologies of teaching Ukrainian as a foreign language which are focused on the formation of independent creative activity and communication skills in foreign students are described.*

**Key words:** *independent learning activity, self-development, self-education, modern innovative technologies, independent work, creative activity.*

**The objective of the article** is to summarize the experience of using modern innovative educational technologies in the educational process during the organization of independent work of foreign students in the conditions of mixed learning at the pre-university stage of language training. To describe effective methods and forms of organization of independent work which provide a sufficient level of implementation of independent learning activities of foreigners and increase motivation to learn a foreign language.

### **Main text.**

For many teachers-methodologists, the transition of higher medical educational institutions of Ukraine from full-time to mixed education has brought into focus the problem of finding and implementing new methodological approaches to teaching and learning a foreign language, as well as to organizing independent work on learning Ukrainian by foreign students in the context of distance learning. Finding a solution to the above-mentioned problem is impossible without the widespread use of innovative educational technologies that are the most effective for both online and offline learning format.

The example of leading European universities shows that high-quality education can be provided even with a significantly smaller number of full-time face-to-face classes than in Ukrainian higher education institutions. In general, the competitiveness of European state universities practicing only distance learning format is based on a number of advantages:

- significant amounts of funding both at the state level and at the level of the European Union (grant application opportunities);
- availability of various courses for training, for receiving a bachelor's and a master's degree, and in most cases, a candidate of science degree (PhD);
- availability of choice: during their studies, students have the right to terminate their studies and receive certificates of completion of courses. This gives the



opportunity to be re-enrolled in a particular university in the future without the need to retake the studied courses both at the distance learning university and at the classical educational institution;

- students have a period of time during which they are able to choose the term of study and the date of the exam on their own (generally from 10 to 14 months);
- presence of an extensive system of regional centers throughout the country and abroad;
- the mentioned universities provide opportunities to study for students with special needs;
- training in companies can be carried out by prior arrangement;
- some universities do not have their own virtual platforms but send materials to students by e-mail [5]

The quality of language education can be maintained on the condition of methodically competent use of online technologies based on methodically reasonable and practically verified didactic principles providing an optimal combination of direct and indirect forms of interaction between foreign students and teachers in the format of mixed or distance learning.

An integral part of the educational process at higher education institutions is the independent work of students, which includes independent educational activities during classroom and extracurricular activities. The organization of this type of student activity within the language training of foreigners of the pre-university stage has certain difficulties and peculiarities in case of a mixed form of education.

The most difficult part in the organization of independent work of foreign students is the process of their adaptation to the system of education in higher education establishments in Ukraine, as most students of the pre-university stage have poor knowledge of forms, means and methods of independent cognitive activity. Most foreigners face psychophysical difficulties (psycho-emotional stress, climatic conditions); socio-cultural difficulties associated with the culture of the new country and overcoming the language barrier, which leads to low organization level of independent work at the initial stage of learning.

Despite the above-mentioned difficulties, the effectiveness of learning increases, educational activity and independence of foreign students develops under the guidance of the teacher through a system of activities aimed at forming skills of independent work with educational material and laying the foundations of self-organization and self-education at different stages of students' learning and cognitive activities.

The main task for teachers-methodologists specializing in teaching Ukrainian as a foreign language is to find effective methods of organizing independent activities and optimal forms of their implementation, which is aimed primarily at improving the quality of mastering the language by foreigners, activating their analytical thinking, developing creative abilities of foreign students and stimulating the desire to improve their language skills on their own [1].

The analysis of scientific literature indicates that there is considerable attention given to the question of the organization of independent educational activity of



foreign students involving the use of modern educational innovative technologies at various stages of language preparation. Let us consider how in the scientific literature, scientists interpret the notions of "independent work", "independent learning activities", "educational technology" and what aspects of the problem of organizing independent work of foreigners are most relevant.

We will distinguish between the notions of "independent work" and "independent learning activity", according to O. Malykhin, and therefore interpret the notion of "independent work of students" as a form of organization of learning, and the one of "independent learning activity of students" as a kind of learning activity aimed at mastering certain knowledge.

L. Savchuk notes that "independent cognitive activity is a complex formation that depends on the level of preparation of students and is manifested in the following aspects: mental (ability to be engaged in some activity); intellectual (ability to solve cognitive tasks); moral (motivated attitude to the subject of knowledge), the main components of which are as follows: motivational, semantic, procedural and resultative".

S. Genkal understands independent cognitive activity as "an activity that consists in independent determination of goals, objectives and problems based on cognitive needs and interests, motives, choosing one's own cognitive path aimed at creating a creative educational product."

The issues of educational technology in the higher educational institutions have been studied by well-known Ukrainian and foreign scientists. Ukrainian researcher O. Kozlova considers educational technology as a radical renewal of instrumental and methodological tools of pedagogy and methodology while maintaining continuity in the development of pedagogical science.

To achieve a high level of language training of the future students of Zaporizhzhia State Medical University, the Preparation Center for Foreign Citizens uses an integrated approach that combines pragmatic and creative approaches to organizing independent work of foreign students on the basis of different educational technologies combined together. Such an approach helps to personalize and control the process of independent study of language material.

The combination of different educational technologies helps to solve such methodological tasks as improving the quality of independent learning of foreign students and increasing their motivation for independent learning activities.

Independent learning activity of foreigners at the pre-university stage of language training includes both reproductive and creative processes, namely:

- 1) reproductive independent activities – completion of training tasks that require comprehension, memorization and reproduction of previously studied material to consolidate knowledge, skills and abilities;
- 2) reconstructive independent activities – listening to the teacher's explanations, making plans, taking notes, etc.;
- 3) creative independent activities – drawing up schematic summaries, solving creative tasks, participation in Olympiads, preparation for holidays;
- 4) research independent activities – participation in project activities.

The organization of independent work on the basis of information and





telecommunication technologies requires searching for the necessary information on the Internet; storing the received information and its editing; passing interactive training on the basis of multimedia information; use of various sources of information. Foreign students at the pre-university stage of language training have the opportunity to work independently with multi-format and multi-level e-learning resources, such as interactive videos, interactive-multimedia textbooks, multimedia presentations, online courses etc.

Interactive video lessons with an educational video plot are supplemented by the teacher's explanation, grammar tables, text tasks. The effectiveness of video lessons is increased due to auditory and visual perception of the given material. Watching video lessons allows foreigners to regulate the process of their independent learning activities: to consolidate and revise the theoretical and practical part of the class at which they were present or absent.

Interactive multimedia textbooks are electronic materials the purpose of which is, firstly, to provide educational information with extensive use of technical resources of multimedia educational technologies, secondly, to make possible to receive feedback from students, and, finally, to introduce the means of control and self-control level of mastering language and speech material.

The introduction of interactive manuals in the educational process of language departments and language training centers allows to intensify independent learning activities of foreigners and improve the quality of language knowledge and language skills, communication skills, to develop independent search and research activities of foreign students starting from the pre-university stage.

Multimedia presentations are an electronic educational and methodological resource allowing not only to diversify the forms of providing educational material for independent work of students, but also to optimize the process of independent mastering of educational material: it increases motivation to study the subject, activates cognitive abilities of foreigners, develops their creative abilities, provides the algorithm which helps to form the skills of definition of the basic information and its verbal and visual (in the form of drawings, schemes, tables, graphs, diagrams, etc.) compression.

Online courses are forms of independent work that deepen and expand knowledge of the subject, help to develop language and speech skills and self-control in the form of tests with an opportunity to get the results and comments on errors quickly. Online courses contain not only lexical and grammatical material, but also possess a mandatory communicative material component with relevant tasks presented in the form of situational and thematic tasks, video or audio, photo tasks, etc.

Tests are forms of self-control after passing which foreigners are able to quickly obtain more accurate and objective information about their level of proficiency in the Ukrainian language.

Creative tasks are forms of organizing independent work of foreigners using the OneNote Class Notebook service.

The use of e-learning resources allows foreign students to organize their independent work better, get a deeper understanding of the material, as well as helps



the teacher to rank the material according to the level of language training of foreigners.

The use of modern information technologies and technical resources that determine these technologies provides the development of reading and listening skills and abilities on the basis of audio texts or video stories; development of the ability of monological and dialogical speech on the basis of a real communicative situation; improving writing skills when doing homework or communicating in chats or social networks (Teams, Viber, Telegram); increase of vocabulary with lexical units from different spheres of communication.

During their out-of-class hours, foreign students should enter into real communication which is closely related to the everyday routine and their social and personal life, and should find solutions to communicative problems on their own. For example: “Find out which supermarkets are in your area. Where is the pharmacy, hairdresser’s salon? Where can you buy clothes? How much does this or that product cost? Draw a route from your home to the university”.

While using various e-learning resources to organize independent work of foreign students, teachers-methodologists create a new educational environment that enhances the independent work of their students, increases the ability of foreigners to get education on their own, optimizes learning, reduces the time needed to receive information, develops the ability to acquire knowledge which will be used in everyday, cultural, educational and professional communication.

### **Summary and conclusions.**

Thus, the organization of independent work of foreign students at the pre-university stage of language training on the basis of modern innovative technologies allows to intensify cognitive activity, to form the ability to use electronic learning resources for further self-development and self-education. The summarized experience can be used in educational practice of higher educational institutions as a perspective direction aimed on increasing the efficiency of the organization of independent work of foreigners on the basis of modern innovative technologies.

### **References**

1. Vasetska L.I. Innovative educational technologies as a factor of optimization of language training of foreigners at the pre-university stage of education / Vasetska L.I. // Scientific journal of M.P. Drahomanov NPU : Series 5: Pedagogical Sciences: Realities and Prospects.– Kyiv : M.P. Drahomanov NPU Publishing Office, 2017. - Issue 58. - P. 45 - 49.
2. Voropai N. A. Psychological and pedagogical aspects of the organization of independent work of students in the context of the Bologna process. URL: [http://ps.stateuniversity.ks.ua/file/issue\\_52/61.pdf](http://ps.stateuniversity.ks.ua/file/issue_52/61.pdf).
3. Genkal S. E. The relationship between the components of independent cognitive activity as a condition for the effectiveness of learning / Genkal S. E. // Modern information technologies and innovative teaching methods in training of specialists: methodology, theory, experience, problems: coll. of scientific works. / editorial board: I. A. Zyazyun (head of the board) [and others]. - Kyiv-Vinnytsia: Vinnytsia, 2006. - Issue 9. - P. 123–126.



4. Kozlova G. M. Methodics of teaching in high school: Handbook. - Odessa: ONEU, rotaprint, 2014. - 200 p.

5. Kulaga I. V., Ilnitskyi D. O. World experience in organization and development of the university distance learning system. – Kyiv, 2013.

6. Malykhin O. V. Organization of independent educational activity of students of higher pedagogical institutions: theoretical and methodological aspect: monograph. Kryvyi Rih: Publishing House, 2009. 307 p.

7. Savchuk, L. O. Formation of the information technology component of the professional training of future economists in the process of independent educational and cognitive activities: author's abstract of dissertation ... Cand. Sc. (Ped.): 13.00.04 "Theory and methodics of professional education" / L. O. Savchuk; V. Hnatyuk TNPU - Ternopil, 2009. - 20 p.

**Abstract.** У статті узагальнено досвід впровадження сучасних інноваційних технологій в навчальний процес при організації самостійної роботи слухачів Центру підготовки іноземних громадян Запорізького державного медичного університету. Описано технології навчання української мови як іноземної, які орієнтовані на формування у іноземних слухачів навичок самостійної творчої діяльності та комунікативних вмінь. Для досягнення високого рівня мовної підготовки майбутніх студентів Запорізького державного медичного університету у Центрі підготовки іноземних громадян використовується інтегрований підхід, який поєднує прагматичний та творчий підходи до організації самостійної роботи іноземних слухачів на основі комбінації різних освітніх технологій. Узагальнений досвід може бути використаний в освітній практиці вищих навчальних закладів як перспективне направлення підвищення ефективності організації самостійної роботи іноземців на базі сучасних інноваційних технологій.

**Key words:** самостійна навчальна діяльність, саморозвиток, самоосвіта, сучасні інноваційні технології, самостійна робота, творча діяльність.

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