

A DIAGNOSIS OF THE LEVELS OF DEVELOPMENT OF HIGHER EDUCATION STUDENTS' COGNITIVE ACTIVITY IN THE PROCESS OF LEARNING A FOREIGN LANGUAGE USING ICT DURING PRACTICAL CLASSES

UM DIAGNÓSTICO DOS NÍVEIS DE DESENVOLVIMENTO DA ATIVIDADE COGNITIVA DE ESTUDANTES DO ENSINO SUPERIOR NO PROCESSO DE APRENDIZAGEM DE LÍNGUA ESTRANGEIRA UTILIZANDO TIC DURANTE AS AULAS PRÁTICAS

UN DIAGNÓSTICO DE LOS NIVELES DE DESARROLLO DE LA ACTIVIDAD COGNITIVA DE LOS ESTUDIANTES DE EDUCACIÓN SUPERIOR EN EL PROCESO DE APRENDIZAJE DE UNA LENGUA EXTRANJERA UTILIZANDO LAS TIC DURANTE LAS CLASES PRÁCTICAS

Kateryna BROVKO¹
Ivan BAKHOV²
Olena ZHDANOVA-NEDILKO³
Olena ONATS⁴
Dmytro KOSTENKO⁵

ABSTRACT: The article covers the issues of diagnosing the levels of development of the higher education students' cognitive activity in the process of learning a foreign language using ICT. Diagnosis allowed studying the level of students' motivation to learn a foreign language, as well as to determine the students' attitude to using ICT during the foreign language practical classes. Priority forms of conducting foreign language practical classes for students have been identified. Based on Bloom's Taxonomy, a program for using ICT in practical foreign language classes has been developed and outlined. Criteria and indicators for the development of higher education students' cognitive activity in the process of learning a foreign language using ICT are highlighted. The results of the study are described.

KEYWORDS: Diagnostics. ICT. Foreign language. Foreign language competence. Cognitive activity.

¹ Borys Grinchenko Kyiv University (KUBG), Kyiv – Ukraine. Senior Lecturer of Foreign Languages and Methodology Department. PhD. ORCID: <https://orcid.org/0000-0001-8572-9316>. E-mail: k.brovko@kubg.edu.ua

² Interregional Academy of Personnel Management (MAUP), Kyiv – Ukraine. Professor. Head of Department of Foreign Philology and Translation. Doctor of Pedagogical Science. ORCID: <https://orcid.org/0000-0002-8379-199X>. E-mail: i.bakhov59@gmail.com

³ Poltava V. G. Korolenko national pedagogical University (PNPU), Poltava – Ukraine. Associate Professor. Head of the Department of Pedagogical Skills and Management named after I. Ziaziun. Doctor of Pedagogical Sciences. ORCID: <https://orcid.org/0000-0001-5585-0051>. E-mail: o.zhdanova-nedilko@mail.ru

⁴ National Academy of Pedagogical Sciences of Ukraine (NAPS), Kyiv – Ukraine. Senior Researcher, Head of the Department of Economics and Management of General Secondary Education Institutions of the Institute of Pedagogy. PhD. ORCID: <https://orcid.org/0000-0003-3323-1289>. E-mail: olena.onats@mail.ru

⁵ Taras Shevchenko National University of Kyiv (UNIV), Kyiv – Ukraine. Assistant of Department of Foreign Languages for Mathematical Faculties of Educational and Scientific Institute of Philology. PhD in Public Administration. PhD in Pedagogics. ORCID: <https://orcid.org/0000-0002-4030-2287>. E-mail: dmytro.kostenko@mail.ru

RESUMO: O artigo aborda as questões de diagnóstico dos níveis de desenvolvimento da atividade cognitiva de estudantes do ensino superior no processo de aprendizagem de uma língua estrangeira por meio das TIC. O diagnóstico permitiu estudar o nível de motivação dos alunos para aprender uma língua estrangeira, bem como determinar a atitude dos alunos em relação ao uso das TIC durante as aulas práticas de língua estrangeira. Foram identificadas formas prioritárias de realização de aulas práticas de língua estrangeira para os alunos. Com base na Taxonomia de Bloom, foi desenvolvido e delineado um programa de utilização das TIC em aulas práticas de língua estrangeira. Destacam-se os critérios e indicadores para o desenvolvimento da atividade cognitiva dos estudantes do ensino superior no processo de aprendizagem de uma língua estrangeira através das TIC. Os resultados do estudo são descritos.

PALAVRAS-CHAVE: Diagnóstico. TIC. Língua estrangeira. Competência em língua estrangeira. Atividade cognitiva.

RESUMEN: El artículo aborda las cuestiones del diagnóstico de los niveles de desarrollo de la actividad cognitiva de los estudiantes de educación superior en el proceso de aprendizaje de una lengua extranjera utilizando las TIC. El diagnóstico permitió estudiar el nivel de motivación de los estudiantes para aprender una lengua extranjera, así como determinar la actitud de los estudiantes hacia el uso de las TIC durante las clases prácticas de lengua extranjera. Se han identificado formas prioritarias de realización de clases prácticas de lenguas extranjeras para los estudiantes. Basado en la Taxonomía de Bloom, se ha desarrollado y esbozado un programa para el uso de las TIC en clases prácticas de idiomas extranjeros. Se destacan criterios e indicadores para el desarrollo de la actividad cognitiva de los estudiantes de educación superior en el proceso de aprendizaje de una lengua extranjera utilizando las TIC. Se describen los resultados del estudio.

PALABRAS CLAVE: Diagnóstico. TIC. Idioma extranjero. Competencia en lengua extranjera. Actividad cognitiva.

Introduction

Ukraine's entry into the European education space and the challenges caused by COVID-19 in the socio-economic situation in the world, and Ukraine in particular, actualizes the use of distance learning technology in higher education institutions in learning a foreign language during practical classes. After all, the system of professionally-oriented foreign language training of higher education students based on using ICT significantly increases their level of development of cognitive activity to learn a foreign language using software and methodological tools that can take into account: individual, emotional, and students' cognitive characteristics; the level of their language training; choice of own education trajectory and content of education material.

Undoubtedly, this problem is timely, which is confirmed by the annual world conferences on the introduction of E-learning and distance learning in higher education. In particular, the World Summit on the Information Society (2021), ICTERI: International Conference on ICT in Research, Education and Industrial Applications, Advances in Intelligent Systems and Computing (2021), International Conference on Information Science and Communications Technologies, ICISCT (2020) etc.

The aim of the article is to diagnose the levels of development of higher education students' cognitive activity in the process of learning a foreign language using ICT during practical classes.

The task of the study is to determine the level of students' youth motivation to learn a foreign language; research the level of development of higher education students' cognitive activity in the process of learning a foreign language of using ICT during practical classes; substantiation of the program of using ICT during practical classes in a foreign language; analysis of the received information.

Analysis of research and publications

The theoretical basis of the study is the provisions and conclusions of theories and concepts of Ukrainian (KOTENKO; KOSHARNA, HOLOVATENKO, 2020; KUSHNIR *et al.*, 2020; PETRYK, 2019; PROSHKIN; GLUSHAK; MAZUR, 2018; SOLOMAKHA; KOSHARNA, 2020; ZAKIROVA; HAYDAROV, 2020) and foreign scientists (AHMAD *et al.*, 2021; BARR, 2016; BUCUR; POPA, 2017; KUDDUS; KHAN, 2021) on using ICT during the foreign languages' practical classes in higher education institutions.

Thus, among the recognized scientific and pedagogical community of Ukraine and abroad the prevailing opinion is that using ICT during the practical classes in a foreign language has a number of advantages, such as (ICTERI, 2021; ICISCT, 2020; KOTENKO *et al.*, 2020): the ability to present material clearly that is effective for language development and speech skills, in particular the grammatical aspect of speaking through the use of computer-generated visual aids; the use of ICT is appropriate during training and consolidation of the use of time forms through the implementation of electronic test tasks, quizzes, etc.; the process of learning with the use of ICT becomes more interesting and effective, the use of grammatical structures in oral speech is automated; grammatical correctness of speech is formed due to repeated use of speech structures; the use of multimedia presentations, interactive projector and tables is an effective tool in the semantization of lexical items and the initial development of their use; serve

as a means of creating semantic support, structuring, generalizing and systematizing the acquired knowledge, through the use of animated tables, drawings and diagrams, videos, etc.; have a great practical focus due to the connection with real life and other academic disciplines.

The results of a study conducted in 2021 at Kebangsan University in Malaysia are noteworthy. The results showed (BAKIEVA; MURADKASIMOVA, 2019) that 66% of respondents fully agreed that the use of smartphones and the Internet improved their communication skills orally and in writing, while another 11% disagreed, 23% of respondents are hesitant to answer.

Thus, all the above proves that the use of ICT makes the process of learning a foreign language more interesting and exciting, while stimulating students' interest in learning a foreign language compared to traditional teaching aids such as picture cards and textbooks, which in turn coincides with the concept 21st century education (BARR, 2016; BUCUR; POPA, 2017; ICTERI, 2021).

Methods

The theoretical and methodological basis of the study is a systematic approach to the study of the fundamental provisions of higher education students' cognitive activity. To solve the set tasks, such general scientific methods were used. Among them were the method of analysis and synthesis (for the purpose of logical and consistent scientific substantiation regularities of the use of ICT in teaching foreign languages to higher education students), scientific abstraction, induction and deduction (in generalizing the Ukrainian and foreign experience in the development of higher education student's cognitive activity in the process of learning a foreign language using ICT during practical classes). Special methods: mathematical and statistical processing of research results - for the analysis of the obtained data, establishment of quantitative and qualitative indicators of research results, computer processing of experimental data, etc.

Using a set of methods provided an opportunity to obtain objective information about the state of development of students' cognitive activity in the process of learning a foreign language using ICT. System-structural and system-functional analysis (when developing a program for the development of higher education students' cognitive activity in the process of learning a foreign language using ICT during practical classes); abstract-logical (for theoretical generalization of research results and formulation of conclusions). The results of the study are presented using charts, tables, and graphs.

To establish the validity of the results of the study, we used the method of statistical evaluation of hypotheses, Pearson's criterion χ^2 , which allows us to compare two empirical distributions and decide whether the difference between them is random or not. Such distributions in our study are the distributions of the control and experimental groups according to the levels of development of cognitive activity.

According to the algorithm of application of the criterion χ^2 , the zero and alternative hypotheses were formulated: H_0 - states the existence of a sufficient level of development of higher education students' cognitive activity to study a foreign language using ICT.

H_1 - claims the lack of a sufficient level of development of cognitive activity of higher education students to learn a foreign language using ICT. Therefore, at the level of significance $\alpha = 0,05$ and three degrees of freedom, the critical value is 7.82.

Results

The observational experiment was aimed at determining the levels of development higher education students' cognitive activity in the process of learning a foreign language using ICT during practical classes. In the process of forming the sample, we conducted a randomization procedure, which ensured the representativeness of the experimental sample of the general population of students of II-III courses. Thus, the study involved 105 students studying at the Pedagogical Institute of Borys Grinchenko Kyiv University. Criteria and indicators for the development of higher education students' cognitive activity in the process of learning a foreign language using ICT were determined, in particular:

1. Motivational criterion (indicators): the presence of positive motives for mastering and deepening knowledge of a foreign language; the ability to set goals with faith in achieving them);

2. Emotional and volitional criterion (indicators): the desire to master as deeply as possible foreign language communicative competence);

3. Cognitive criterion (indicators): the presence of deep, strong, generalized, systematic knowledge; flexibility and critical thinking);

4. Practical-activity criterion (indicators): the implementation of foreign language competence through the presence of grammatical and lexical skills; the ability to build grammatically and lexically correct sentences understandable to the interlocutor; communicative topics covering various aspects of human life).

In our opinion, each criterion of cognitive activity of student of higher education students' cognitive activity by a certain degree of manifestation of the characterized indicators. The criteria defined by us can be formed in the form of key students' competencies at different levels. By level, we mean the degree of qualitative manifestation of indicators of higher education students' cognitive activity.

Note that in determining the levels of development higher education students' cognitive activity we have identified the following structure of levels: *high (cognitive-value and cognitive-significant)*, *medium (cognitive-oriented)*, *low (cognitive-disoriented)*.

High (cognitively significant) level indicates the presence of positive motives for mastering and deepening knowledge of a foreign language; ability to set goals with faith in achieving them); awareness of the value and significance of mastering foreign language communicative competence for future professional activity; availability of deep, stronger, generalized, systematic knowledge; mastering the skills of flexible and critical thinking; ability to build grammatically and lexically correct sentences understandable to the interlocutor; ability and willingness to support communicative topics that cover different aspects of human life based on an innovative approach).

Intermediate (cognitive-oriented) level indicates situational interest and partial presence of positive motives for mastering and deepening knowledge of a foreign language; lack of clear idea and desire to master foreign language communicative competence; the dominance of internal motives and a certain dependence on external factors; unstable and incomplete knowledge; weak skills and abilities of flexible and critical thinking, the ability to build grammatically and lexically correct sentences understandable to the interlocutor; fragmentary readiness to support communicative topics that cover various aspects of human life; the desire to reconcile positions with the insufficient formation of abilities to construct subject-subject interaction in dialogue.

Low (cognitively disoriented) level indicates a low rate of positive motives for mastering foreign language communicative competence; reduced ability to set goals and lack of strong faith in achieving the goal; non-systemic knowledge; lack of skills of flexible and critical thinking and the ability to build grammatically and lexically correct sentences understandable to the interlocutor; lack of ability to construct grammatically and lexically correct sentences understandable to the interlocutor; unformed ability to establish a foreign language dialogue.

Discussion

To determine the levels of development of higher education students' cognitive activity in the process of learning a foreign language using ICT during practical classes comprehensive methods of pedagogical diagnostics were used: observation, dialogues/polylogues, conversations, questionnaires, interviews, diagnostic creative tasks.

We also determined the levels of development higher education students' cognitive activity in the process of learning a foreign language using ICT during practical classes with the help of reproductive, reproductive, and problem-solving questions. Such as: «What equipment is needed to increase personal productivity during practical classes in a foreign language?», «What additional opportunities to learn a foreign language do you use?», «Are you interested in learning a foreign language through the use of Web services and modern ICT?» ? etc.), as well as exercises «Time Travel» (BROVKO *et al.*, 2022).

The use of a number of diagnostic methods allowed to determine different levels of development of higher education students' cognitive activity in the process of learning a foreign language using ICT during practical classes, mostly medium (cognitive-oriented): 15.3% of students, low (cognitive-disoriented) level in 8.1% of respondents and correspondingly high (cognitively significant) in 76.6% of students.

According to the results of the ascertaining stage and the logic of the research, the need to use ICT to increase the level of development of higher education students' cognitive activity in the process of learning a foreign language using ICT during practical classes was outlined.

Therefore, we have developed a program for using ICT during the foreign language practical classes, which included cognitive tasks of different levels based on Bloom's Taxonomy approach. The program was tested remotely on the Moodle platform and involved the active use of ICT to achieve the goals, content, forms, methods, and tools of foreign language learning (Table 1).

Table 1 – Analysis of a program for using ICT during the foreign language practical classes

<i>Taxonomy of cognitive goals</i>	<i>Tasks and methods determining students activity</i>	<i>ICT technologies</i>
1. Evaluation	reflection exercises; ranking; one-minute essay; message to a friend; creating success cards; tree of expectations	Google Docs, WhiteboardFox, Padlet, Bubble.us, WordArt, Instagram, Facebook
5. Synthesis	Storytelling; rewriting; creating online-quests; improvisation; portfolio creation; puzzle development; creation of pedagogical advertising; preparation of video presentations; creating collages	Padlet, Rebus1.com, Adobe Photoshop, Slides, Prezi, Movie Maker, ToonDoo, WhiteboardFox, Sretch, Power Point, Powtoon
4. Analyzing	Classification; draw an analogy; compiling a list of basic concepts; Interactive games; brainstorming; aquariums; multimedia report; associative bushes; microphone; case	Padlet, WordArt, Kahoot, Cambridge English, British Council, BBC Languages, Real English, Google Forms, LearningApps.org
3. Applying	Development of mental map, diagram, poster, Gif-animations; creation of animated comics; preparation of group projects, slide shows; role-playing games and role-playing readings of foreign works; business games in audio and video chats	Bubble.us, Canva, Prezi, Adobe Photoshop, 2books.su, Animoto, Miro.com, Slides, Talking Photos, Movie Maker
2. Understanding	Commenting on an article on a blog, social network; giving your own examples; word cloud; conducting educational debates, quizzes; passing online tests, multimedia simulators	Instagram, Facebook, Tagdexo, WordArt, Kahoot, Cambridge English, British Council, BBC Languages, Real English, Google Forms
1. Knowledge	Grouping; compiling puzzles, lists of concepts; establishing sequence; addition of sentences; auditioning; watching video clips; conducting video conferences, online meetings; virtual tour	Google Docs, YouTube, Padlet, Pinterest, Zoom, Viber, Telegram, LearningApps.org, Hangouts, Cisco Webex, Skype, TED Talks

Source: Prepared by the authors

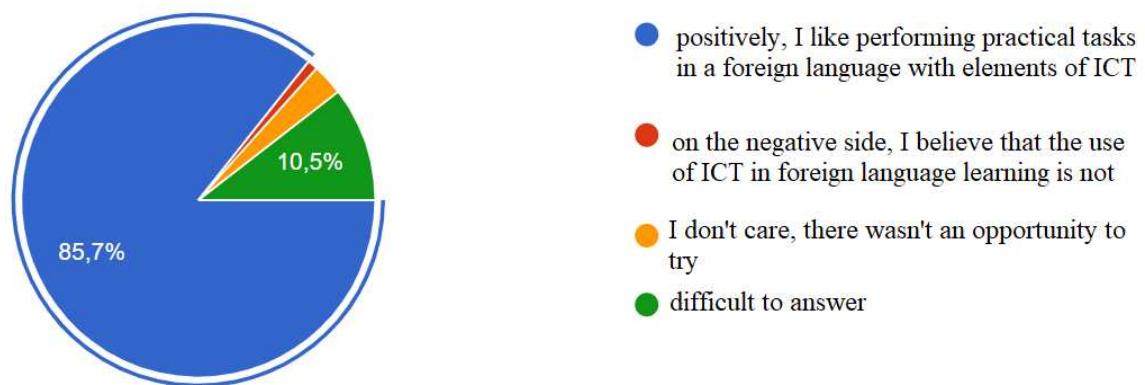
In order to carry out a control section on the levels of development higher education students' cognitive activity in the process of learning a foreign language using ICT during practical classes, the author's online questionnaire «Application of ICT in practical classes in English in youth priorities» was proposed. Aimed at determining the subject of students' interest in learning a foreign language; their attitude to using ICT during the foreign language practical

classes; determination of the priority form of conducting practical classes in a foreign language; research of ways to organize one's own cognitive activity in learning a foreign language.

Thus, according to the control phase of the study, it should be noted that the greatest interest in learning a foreign language and the opportunity to improve learning outcomes, 86.7% of respondents see the use of modern ICT in foreign language learning, which they believe provides opportunities to identify educational activities through the solution of non-standard, creative tasks and the use of interesting additional material. Another 13.3% of students are attracted by the systematic use of demonstration material.

Regarding the attitude of students to using ICT during practical classes in a foreign language, the majority of respondents, namely 85.7% answered that they are positive, they like to perform practical tasks in a foreign language with elements of ICT; 10.5% of respondents are hesitant to answer; 2.9% - were indifferent to this issue, because they had no experience of learning a foreign language through the use of ICT. And only 1.0% are negative because they believe that the use of ICT in learning a foreign language does not bring significant benefits (Fig. 1).

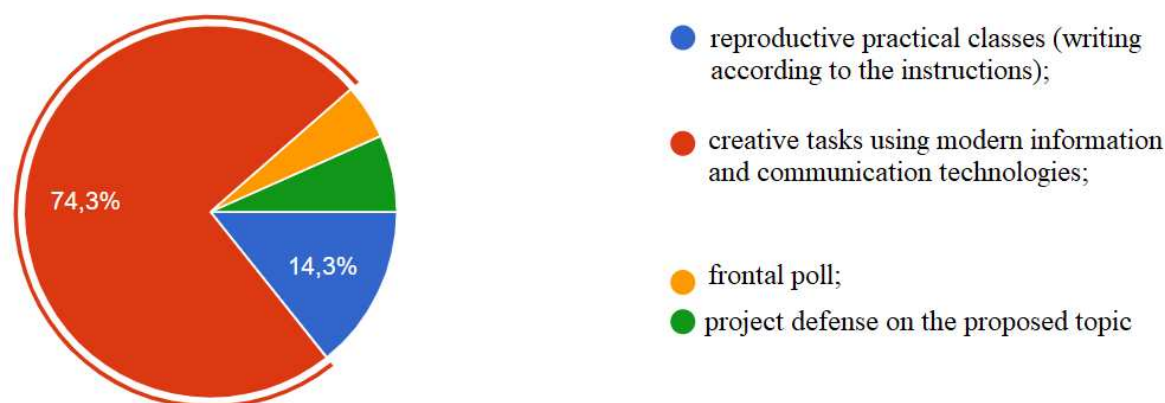
Figure 1 – Attitude to the use of ICT in practical classes in a foreign language



Source: Prepared by the authors

Regarding the priority form of conducting practical classes in a foreign language, 74.3% answered that they are most impressed by creative tasks using modern ICT, as it allows solving interesting, non-standard tasks that illustrate the practical significance of the material. 14.3% - reproductive practical classes (letter according to the instructions); 6.7% - defense of the project on the proposed topic; others - 4.8% preferred a frontal survey to discuss problem situations, the results of completed tasks (Fig. 2).

Figure 2 – Identification of the priority form of conducting practical classes in a foreign language

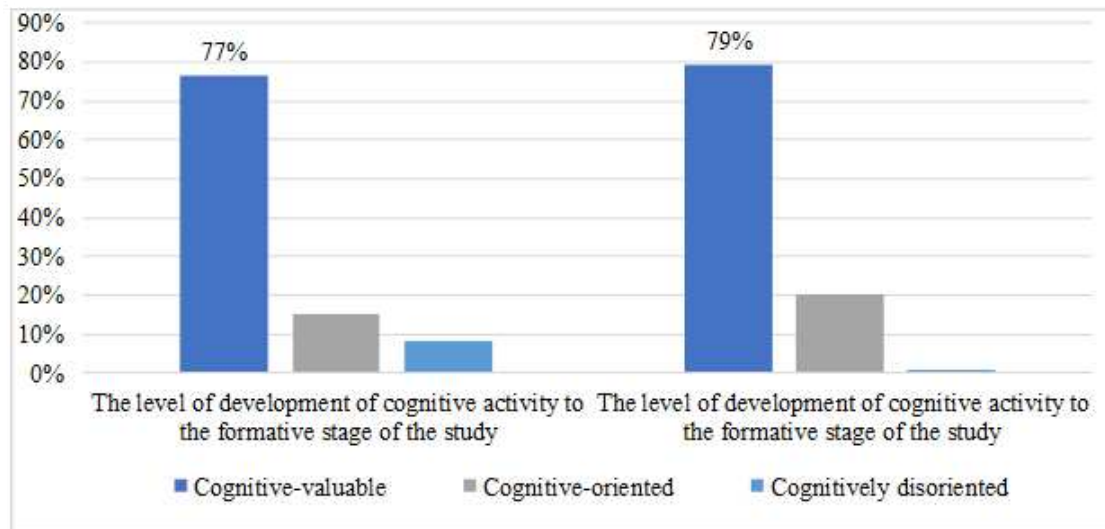


Source: Prepared by the authors

The last question of the online questionnaire was aimed at determining the views of students on how to organize their own cognitive activities to learn a foreign language. Thus, 68.6% of students in their answers said that in addition to performing basic tasks from time to time try to enrich their knowledge of a foreign language by watching foreign movies, videos on YouTube, visiting foreign sites, listening to foreign music, social networks, use mobile applications to learn languages, etc. 13.3% are not interested in learning a foreign language at all, 10.5% of respondents enjoy reading foreign literature and looking for opportunities to apply their knowledge in practice through travel abroad and communication with foreigners. The last 7.6% are willing to follow the latest developments in the practice of learning foreign languages.

Comparison of the results obtained before and after the formative stage of the study gives grounds to argue that, the involvement of students in learning a foreign language using modern ICT has a positive result. As evidenced by the high rates of the final sections of the study. A comparative analysis of the levels of development of higher education students' cognitive activity in the process of learning a foreign language using ICT is presented in the diagram (Fig. 3).

Figure 3 – The level of the development of student's cognitive activity



Source: Prepared by the authors

Conclusion

The experimental study showed that the approbation of the developed program for the development higher education students' cognitive activity in the process of learning a foreign language using ICT during practical classes is effective. This is confirmed by the calculated data, where the percentage of students with a high level of development of cognitive activity increased by 2.8%, the average level increased by 7.6%, while the low level decreased by 4.4%.

Thus, according to the formula $\chi^2 = 0,508$ do not exceed the critical value of 7.82, and therefore according to the rules of decision-making, the obtained values refute hypothesis H_0 and give grounds for accepting hypothesis H_1 , which indicates a sufficient level of cognitive development activities of higher education students to learn a foreign language using ICT.

Therefore, involving students in learning a foreign language using ICT is of great importance because it is an effective means of visualizing education material, maximally stimulates the implementation of their activities, their own activities, independence, and initiative, helps to actively participate in this process and motivates students to acquire professionally oriented foreign language competence.

Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the ethics committee of

the Pedagogical Institute of Borys Grinchenko Kyiv University (approval number: 2384, 19 August 2021).

Informed Consent Statement: Informed consent was obtained from all the participants involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy issues.

REFERENCES

- AHMAD, M. *et al.* The Impact of Integrating ICT in Malay Foreign Language Teaching and Learning. **Journal of Physics: Conference Series**, v. 1793, 012070, 2021. Available in: <https://iopscience.iop.org/article/10.1088/1742-6596/1793/1/012070>. Access in: 26 May 2022.
- BAKIEVA, G. Kh.; MURADKASIMOVA, K. Sh. Enhancing ICT Technologies in Teaching, Learning and Assessment of foreign languages in Uzbekistan. *In: INTERNATIONAL CONFERENCE ON INFORMATION SCIENCE AND COMMUNICATIONS TECHNOLOGIES, ICISCT, 2019, Tashkent. Annals [...].* Tashkent, Uzbequistão: IEEE, 2019. Available in: <https://ieeexplore.ieee.org/document/9012017>. Available in: 17 May 2021.
- BARR, D. Students and ICT: An analysis of student reaction to the use of computer technology in language learning. **IALLT Journal of Language Learning Technologies**, v. 36, n. 2, p. 19–38, 2016. Available in: <https://journal.iallt.org/article/view/8408>. Access in: 17 July. 2021.
- BROVKO, K. A. *et al.* Ethical and behavioral aspects of the influence of social networks on the development of students' cognitive interest in learning a foreign language in a professional direction. **Collection of scientific works «Academic studies. Series: Pedagogy»**, v. 1, p. 3–10, 2022.
- BUCUR, N.; POPA, O. Digital competence in learning English as a foreign language—opportunities and obstacles. **The 12th international conference on virtual learning**, v. 156, p. 257–263, Oct. 2017. Available in: https://www.researchgate.net/profile/Oana-Rica-Popa/publication/320558176_Digital_Competence_in_Learning_English_as_a_Foreign_Language-Opportunities_and_Obstacles/links/59ed9f314585151983ccee18/Digital-Competence-in-Learning-English-as-a-Foreign-Language-Opportunities-and-Obstacles.pdf. Access in: 18 Sept. 2022.
- ICTERI is an annual peer-reviewed international Computer Science conference.** 2021. Available in: <http://icteri.org/icteri-2021/about-us/>. Access in: 11 Oct. 2021.
- ICISCT.** International Conference on Information Science and Communication Technology, 2020. Available in: <https://ieeexplore.ieee.org/xpl/conhome/9076090/proceeding>. Access in: 11 Oct. 2021.

KOTENKO, O.; KOSHARNA, N.; HOLOVATENKO, T. Pre-service primary school teachers foreign language training by means of using innovative technologies. *In*: PAPADOPOULOS, I.; GRIVA, E.; THEODOTOU, E. (ed.). **International Perspectives on Creativity in the Foreign Language Classrooms**. Nova York: Nova Science Publishers, 2020.

KUDDUS, K.; KHAN, N. M. Attitude of the International Students Towards Integrating ICT in Foreign Language Learning: A Case Study. *In*: TUBA, M., AKASHE, S., JOSHI, A. (ed.). **ICT Systems and Sustainability**. Singapore Springer, 2021. Available in: https://link.springer.com/chapter/10.1007/978-981-15-8289-9_66. Access in: 17 Oct. 2021.

KUSHNIR, N. *et al.* Distance learning technologies in institution of higher education by means of LCMS moodle. **CEUR Workshop Proceedings**, v. 2732, p. 1152–1163, 2020. Available in: <http://ceur-ws.org/Vol-2732/>. Access in: 16 May 2022.

PETRYK, L. Efficiency of media tools use by primary school teacher at the foreign languages lessons: from awareness to readiness. **Osvitological discourse**, v. 3-4, n. 26-27, p. 185-196, 2019. Available in: <https://od.kubg.edu.ua/index.php/journal/article/view/628>. Access in: 19 Jun. 2022.

PROSHKIN, V.; GLUSHAK, O.; MAZUR, N. The modern trends in future foreign language teachers' training to ICT usage in their future career. **The Modern Higher Education Review**, v. 2, 2018. Available in: <https://edreview.kubg.edu.ua/index.php/edreview/article/view/47>. Access in: 08 Jun. 2022.

SOLOMAKHA, A.; KOSHARNA, N. Preparation of future teachers for using digital technologies in the process of early foreign language teaching. **Osvitological discourse**, v. 3, n. 30, p. 107-122, 2020. Available in: <https://od.kubg.edu.ua/index.php/journal/article/view/739>. Access in: 21 Oct 2021.

THE World Summit on the Information Society. **WSIS**, 2021. Available in: <https://www.itu.int/net4/wsis/forum/2021/>. Access in: 13 Jun. 2022.

ZAKIROVA, D. Y.; HAYDAROV, I. T. The Impact of Integrating ICT in Malay Foreign Language Teaching and Learning. **Journal of Critical Reviews**, v. 7, n. 5, p. 765-767, 2020. Available in: https://www.researchgate.net/publication/349936507_The_Impact_of_Integrating_ICT_in_Malay_Foreign_Language_Teaching_and_Learning. Access in: 17 Apr. 2021.

How to reference this article

BROVKO, K.; BAKHOV, I.; ZHDANOVA-NEDILKO, O.; ONATS, O.; KOSTENKO, D. A diagnosis of the levels of development of higher education students' cognitive activity in the process of learning a foreign language using ICT during practical classes. **Rev. EntreLinguas**, Araraquara, v. 8, n. esp. 2, e022053, 2022. e-ISSN: 2447-3529. DOI: <https://doi.org/10.29051/el.v8iesp.2.17310>

Submitted: 07/04/2022

Required revisions: 21/06/2022

Approved: 11/09/2022

Published: 10/11/2022

Processing and publication by the Editora Ibero-Americana de Educação.
Correction, formatting, standardization and translation.

