

**EFEITO DAS TECNOLOGIAS DIGITAIS NA EFICIÊNCIA DO TRABALHO  
INDEPENDENTE DE ALUNOS LINGÜÍSTICOS NO CONTEXTO DA  
APRENDIZAGEM À DISTÂNCIA**

***EFFECTO DE LAS TECNOLOGÍAS DIGITALES SOBRE LA EFICIENCIA DEL  
TRABAJO INDEPENDIENTE DE ESTUDIANTES DE LINGÜÍSTICA EN EL  
CONTEXTO DEL APRENDIZAJE A DISTANCIA***

***EFFECT OF DIGITAL TECHNOLOGIES ON THE EFFICIENCY OF THE  
INDEPENDENT WORK OF LINGUISTICS STUDENTS IN THE CONTEXT OF  
DISTANCE LEARNING***

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**RESUMO:** A relevância do problema da utilização das tecnologias digitais no trabalho independente dos alunos se deve ao fato de que, durante o período de estudos na universidade, são lançados os fundamentos do profissionalismo e formadas as competências da atividade profissional independente. O objetivo do presente artigo é determinar o efeito das capacidades didáticas das tecnologias digitais sobre a eficácia e eficiência do processo de trabalho independente de alunos de lingüista no contexto da educação a distância. Com base na análise teórica de fontes científicas dedicadas ao estudo da possibilidade de utilização das tecnologias digitais no processo de trabalho independente dos alunos, o artigo apresenta as principais abordagens à definição do conceito de trabalho independente dos alunos e as principais áreas de utilização. tecnologias digitais em atividades educacionais. Conclui-se que o uso de tecnologias digitais na organização do trabalho autônomo dos alunos permite valorizar o seu trabalho e leva ao aumento dos resultados da EAD.

**PALAVRAS-CHAVE:** Tecnologias digitais. Aprendizagem online. Trabalho independente dos alunos. Atividade de aprendizagem. Desempenho do aluno.

**RESUMEN:** *La relevancia del problema del uso de tecnologías digitales en el trabajo independiente de los estudiantes se debe a que, durante el período de estudios en la universidad, se establecen los fundamentos de la profesionalidad y se forman las habilidades de la actividad profesional independiente. El objetivo del presente artículo es determinar el efecto de las capacidades didácticas de las tecnologías digitales sobre*

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*la efectividad y eficiencia del proceso de trabajo independiente de los estudiantes de lingüística en el contexto de la educación a distancia. A partir del análisis teórico de fuentes científicas dedicadas al estudio de la posibilidad de utilizar tecnologías digitales en el proceso de trabajo independiente de los estudiantes, el artículo presenta los principales enfoques para la definición del concepto de trabajo independiente de los estudiantes y las principales áreas de uso. tecnologías digitales en actividades educativas. Se concluye que el uso de tecnologías digitales en la organización del trabajo autónomo de los estudiantes permite potenciar su trabajo y conduce a un aumento de los resultados del aprendizaje a distancia.*

**PALABRAS CLAVE:** *Tecnologías digitales. Aprender en línea. Trabajo independiente de los estudiantes. Actividad de aprendizaje. Rendimiento de los estudiantes.*

**ABSTRACT:** *The relevance of the problem of using digital technologies in the independent work of students is because, during the period of study at the university, the fundamentals of professionalism are laid, and the skills of independent professional activity are formed. The purpose of the present article is to determine the effect of the didactic capabilities of digital technologies on the effectiveness and efficiency of the independent work process of linguist students in the context of distance learning. Based on the theoretical analysis of scientific sources devoted to the study of the possibility of using digital technologies in the students' independent work process, the article presents the main approaches to the definition of the concept of students' independent work and the main areas of using digital technologies in educational activities. It is concluded that using digital technologies in the organization of students' independent work allows enhancing their work and leads to an increase in the results of distance learning.*

**KEYWORDS:** *Digital technologies. Online learning. Students' independent work. Learning activity. Student performance.*

## Introduction

The main area of solving the problem of improving the training of students of a language university is the development of students' independence, improving the organization of students' independent work in the study of language cycle disciplines, improving its methodological support, and implementing new digital and pedagogical technologies. Forming independence in students is the main goal of the educational process at the university.

The current stage of higher education development is associated with the transition to the practical implementation of a new educational paradigm, which is aimed at creating an integrated system of continuing education, at expanding the scope of independent activity of students in terms of involving digital technologies in the process of cognition, which form self-organization and self-education skills.

In our research, we proceed from the fact that digital technologies in education are not just learning tools, but also qualitatively new technologies in the training of

competitive specialists. Using digital technologies involves the application of various computer programs and educational courses. Such programs rely on using illustrative means of learning, which becomes much more effective with the help of a computer. They allow expanding significantly the creative potential of students, going beyond the traditional learning model. The ability to learn independently is acquired using electronic learning materials, educational databases, computer-based training programs, and testing systems. Teaching students to use the opportunities of independent work taking into account information technology is a complex and lengthy but very important process.

### Literature review

The analysis of psychological and pedagogical literature shows that the problem of independent work and methods of its organization has been studied in the works of many researchers. The authors of these works define concepts of independent work (ZHUKOV; SIMONENKO, 2004), independent cognitive activity (LEATHWOOD, 2006), and independence (ROSHCHUPKINA, 2015). The involvement of digital technologies in the learning process is also considered in the works (ALZHRANI, 2017; CHANG; HUNG; LIN, 2015; VRAZHNOVA; ANASTASOV; NIKIPORETS-TAKIGAWA, 2021). The works (COSTA; HARRIS, 2017; FAIZI; CHIHEB; EL AFIA, 2017; ILINA *et al.*, 2021) deal with didactic and psychological-pedagogical problems of using computer technologies in the learning process.

According to the researchers, the need to find new approaches to the organization of students' independent work in contemporary conditions, when digital technologies are an integral part of the educational process, is associated with the resolution of the following contradictions:

- between the dynamic development of digital technologies, didactic support tools, and the preservation of traditional learning models (SHISHOV *et al.*, 2018; UFIMTSEVA, 2020);
- between the need to master the ways of modeling learning using digital technologies and the lack of implementation of system-based technologies (GALLARDO ECHENIQUE; MARQUÉS MOLÍAS; BULLEN, 2015).

Contemporary psychological and pedagogical literature offers various approaches to the definition of the concept of students' independent work of students" (Table 1).

**Table 1** - Approaches to the definition of the concept of students' independent work

Source	Approaches to the definition of the concept of students' independent work
MERENKOV <i>et al.</i> , 2016	Students' independent work is an intense activity of students, organized by the teacher, aimed at the implementation of the didactic purposes at a specially designated time
TOMASHEVSKAYA; MALINOVSKAYA, 2011	Students' independent work is the most important component of the teaching process, involving the integration of different types of individual and collective training activities, which is carried out during classroom training and extracurricular classes, without the participation of the teacher but under his direct supervision
ZHDANOVA, 2013	Students' independent work is a purposeful set of subjective actions of a student under the guidance of a teacher based on the use of tools to support the educational process. Independence is an integral quality of a personality that determines his ability to carry out independent work based on forming qualities of reflexive control

In the context of the modern learning paradigm, independent work dominates among other types of educational activities of students and allows considering knowledge as an object of the student's activity (BROAD, 2006). The cognitive performance of students in the course of carrying out independent work is characterized by a high level of independence and activity and is the involvement of the subject in creative activity (KOTOVA; KHASANOVA, 2018).

Independent work at the university provides for the gradual assimilation of new material, its consolidation, application in practice, and repetition. The effectiveness of independent work depends on its organization, content, interrelation, and nature of tasks in a particular type of independent work and, certainly, the results of its implementation (CARNELL, 2007).

Such understanding of the essence of independent work allows taking into account the external and internal aspects of this concept. On the one hand, independent work is considered as a pedagogical means of organizing and managing the student's

independent activity in the educational process (ASANALIEV; SOZCU; SOZCU, 2012), while on the other hand, it is a specific form of educational and scientific cognition (NIETO MORENO DE DIEZMAS *et al.*, 2016; SEKERIN *et al.*, 2018).

In the current context of the informatization of society and the pedagogical system, the problem of independence reaches a substantially new level. The analysis of research on the problem of using digital technologies in teaching students allows determining the main directions of their intense use in educational activities (Table 2).

**Table 2** - The main areas of application of digital technologies in educational activities

Source	Areas
BULLEN; MORGAN, 2015	Expanding opportunities to improve the quality of education, opening up new opportunities for the development of thinking in students, selecting individual means of acquiring knowledge through independent work using the computer, implementing important functions of the use of digital technologies as a factor of convergence of education with the real world
ELISAFENKO; KRUGLIKOVA; PROTASOVA, 2019	Organizing training based on a combination of traditional and modern teaching methods, pedagogical and digital learning technologies, associated with the creation of a unified educational information environment
USTINOVA; PODBEREZINA; SHEFER, 2017	Developing students' independence based on interactive learning technologies and digital technologies

*The research hypothesis:* using digital technologies in the organization of students' independent work allows enhancing their work and improves the results of distance learning

### Research objectives

The objectives of the present research are as follows:

- to carry out an analysis of theoretical achievements concerning the development status of the problem of students' independent work, and the main areas of using digital technologies in educational activities;

- to formulate and substantiate the general concept of an empirical study of the effectiveness of implementing digital technologies in the independent work of linguistic students;

- to organize a survey of teachers and analyze student performance during distance learning;

- to summarize the materials of the survey of teachers and the analysis of student performance, to carry out a comparative analysis and interpretation of the results.

The article consists of an introduction, a literature review, research methods, results, discussion, and conclusion.

## Methods

### Research model

With the beginning of the COVID-19 pandemic and the forced implementation of online learning in the higher education system, the role of distance independent education has increased. Based on the Linguistic Faculty of Russian State Social University (RSSU), a study was carried out on the effect of digital technologies on improving the efficiency of the independent work of linguists students.

The regular format of online training at the RSSU is based on the formation of independent asynchronous learning based on a special educational platform Moodle. When assessing students' academic performance, subjects were taken into account in which additional digital technologies were implemented into the educational process during the ongoing online distance learning from the 2<sup>nd</sup> semester, aimed at strengthening the role of students' independent work (Table 3).

**Table 3**

Digital technology	Characteristics
Mentimeter	An Internet application that conducts a survey in real-time and provides results at the general discretion. The program contributes to the interactivity of each lesson since it allows structuring answers in real-time and involving each of the participants in the educational process
Miro	Shared access tool (via a link or by email) that provides the opportunity for structuring, planning processes, and systematization of brainstorming
Gosoapbox	The Internet application, which provides the opportunity to hold

	discussions, using the "understanding barometer" (a special function of the application that provides the teacher with information about the students' understanding of the material offered during the lecture); the application has a separate scoreboard for questions and answers, as well as a function that automatically evaluates the answers provided by students and summarizes the results. The application works in real-time, displaying the interactive presence of the student in the classroom
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### **Research methods**

During the research, the methods of theoretical analysis of scientific sources devoted to the study of the possibility of using digital technologies in the students' independent work were used.

The authors also used the method of the empirical study of the effect of digital technologies on improving the efficiency of the independent work of linguistic students, namely, an anonymous online survey (via e-mail) of teachers of RSSU, aimed at determining the didactic capabilities of digital technologies in the organization of independent work of linguistics students, as well as a comparative analysis of the progress of linguistics students during online training in the language cycle subjects before and after the implementation of digital technologies into the process of independent work.

Teachers of the Linguistic Faculty of the RSSU and students majoring in theory and methodology of teaching foreign languages and cultures were involved in the survey. The total number of participants was 84 people, including 61 students and 23 teachers.

### **Mathematical processing of research results**

Mathematical and statistical methods of processing the results of the study included recalculation of academic performance from point estimates to percentages.

For the calculations, grades were taken that confirmed the successful assimilation of the subject (excellent, good, and satisfactory grades were taken into account). The unsatisfactory ratings were not taken into account. To calculate absolute success, only excellent and good grades were considered.

## **Results**



The results of the expert survey allow determining the didactic capabilities of digital technologies in the organization of independent work of linguistic students (Table 4).

Table 4 - Didactic capabilities of digital technologies in the organization of independent work of linguistics students

No	Didactic capabilities of digital technologies in the organization of independent work	%*	Rank
1	Providing the flexibility of the educational process based on variability, changes in the content and teaching methods, forms of organizing training sessions, a combination of various learning techniques for students of different levels of training	82.6	1
2	Changing the complexity of the tasks, objectives, and pace of their implementation	73.9	2
3	Enhancing learning and cognitive activity of students through game-based learning, simulating the qualitatively new type of visualization of educational material, both real and virtual objects, processes, and phenomena	65.2	3
4	Increasing motivation and cognitive interest of students in the study due to the novelty of the teaching methods, the possibility of individualization of training, implementing technical capabilities of the computer, ensuring a positive emotional background of the learning process	60.9	4-5
5	Organizing the flexible educational process management through the implementation of pedagogical correction and continuous feedback; the qualitative change of control of educational activities is the monitoring along with diagnosis, feedback, and stages evaluation, providing control of consistency and objectivity characteristics	60.9	4-5

Note: compiled based on an expert survey; \* – percentage of expert mentions

Tables 5 and 6 present the results of linguistics students' academic performance during distance learning.



**Table 5** - Results of students' academic performance during the 1<sup>st</sup> semester

No	Subject	Number of students	Excellent	Good	Satisfactory	Passed successfully, %	Absolute success, %
1	Theory and methodology of teaching foreign language	61	9	19	31	60	49
2	Foreign language learning technologies	61	13	30	7	89	71
3	Linguodidactics	61	13	21	7	88	55
4	Translation studies	61	11	25	13	78	59
Average		61	11.5	24	14.5	79	56

As is seen from Table 5, 79% of the total number of students studied successfully. In terms of the good and excellent grades (absolute academic performance), on average 56% of the student showed good learning outcomes.

**Table 6** - Results of students' academic performance during the 2<sup>nd</sup> semester

No	Subject	Number of students	Excellent	Good	Satisfactory	Passed successfully, %	Absolute success, %	Comparison with academic performance in the 1 <sup>st</sup> semester	Comparative changes in absolute success
1	Theory and methodology of teaching foreign language	61	12	29	12	81	70	+ 21%	+ 21%
2	Foreign language	61	19	32	5	92	84	+ 3%	+ 13%

	learning technologies								
3	Linguodidactics	61	13	31	9	86	56	+ 2%	+1 %
4	Translation studies	61	14	27	6	90	68	+ 12%	+ 9%
Average		61	13.5	26	8	87	69.5	+ 8 %	+13.5 %

After implementing digital technologies in the organization of independent work of linguistics students, the indicators have changed (Table 6). Some subjects indicate a positive coefficient compared to the previous semester.

### Discussion

Table 6 shows that the grades in the subjects "Theory and methodology of teaching foreign languages", "Technologies of teaching foreign languages", and "Translation Studies" have increased, and the success rates have a positive value.

Thus, students gain better knowledge during their studies. However, it is worth paying more attention to a subject such as "Linguodidactics" when organizing independent work.

As empirical research has shown, independent work of students when studying curriculum disciplines at the university using digital technologies can be organized through:

- working with electronic publications aimed at preparation for practical classes;
- performing individual tasks based on the use of digital technologies;
- assessing current academic performance using electronic testing;
- using educational websites and automated educational software.

In general, based on the results of an expert survey (Table 4) and the analysis of scientific literature, it should be noted that when organizing students' independent work in the context of the use of digital technologies, it is necessary to rely on the approaches based on the differential, systemic and structural-functional communications.

The differential approach in using digital technologies in teaching allows expanding the availability of learning. It changes learning quality, contributes to the assimilation of new technologies, and the use of additional learning resources, and, as a

result, strengthens the role of students' independent work in the educational process (MERENKOV *et al.*, 2016). The objective need for a systematic approach in the organization of students' independent work characterizes the active use of digital technologies as effective methods that ensure the consistency and structural-functional coherence of educational material (UFIMTSEVA, 2020).

According to researchers (ELISAFENKO; KRUGLIKOVA; PROTASOVA, 2019; PODDUBNAYA *et al.*, 2021; SOKOLOVA; SERGEEVA, 2021), the main role in the organization of students' independent work is played by those digital technologies that open access to non-traditional sources of information, provide opportunities for the acquisition and consolidation of skills, and allow the implementation of new teaching methods.

In didactics, it is indicated that the development of independence occurs continuously, from the initial to the highest levels of independence – the creative level of independence. Simple reproductive independence is reproduction, which is characterized by performing tasks that require the reproduction of acquired knowledge. Creative independence is understood as an activity, which results in the independent discovery of something new and non-trivial (ROSHCHUPKINA, 2015).

A significant place in the students' independent work is occupied by the use of Internet technologies for effective information retrieval. The availability of a large number of electronic articles, reference literature, electronic educational and methodological developments, which are available on the websites of universities, certainly expand the creative potential of students, provided they can work creatively with the information retrieved. Besides the knowledge of search methods, students must master the methods of analysis, synthesis, and generalization of information (BULLEN; MORGAN, 2015).

The results of empirical research have shown that it is important for professional education to teach students to operate with special terminology, to express their opinion in a reasoned manner, to analyze facts, to act as an opponent, and to be able to conduct a discussion. In this regard, independent work with additional sources becomes important, providing the possibility of comparing the material, its generalization, comparison, analysis, and classification. The selection of the necessary information is another important problem for students. Students often face the problem of a lack of understanding the requirements level for information and the possibilities of its

application. Therefore, the selection of the necessary information and the assessment of its quality becomes a mandatory subject of study in any curricula.

Thus, the main problem of using digital technologies is the selection and application of really valuable information from the endless information flow, that is, the ability to navigate in a rapidly expanding information environment.

## Conclusion

Using modern digital technologies in the process of organizing students' independent work has several advantages. This concerns educational products are offered at a contemporary level; the possibility of choosing an individual mode of work by a student; shifting emphasis to electronic media; variability of tasks taking into account the potential capabilities and abilities of students; increasing professional motivation of students; and the possibility of objective electronic control over the state of assimilation by a student of the necessary educational material.

Using digital technologies in students' independent work lays the foundations for their further continuous self-education. Therefore, the pedagogical information and educational environment, which is created by integrating electronic and traditional forms of education, defines the student's self-directed work as more independent and creative.

During the empirical study, the didactic capabilities of digital technologies in the organization of linguistics students' independent work were defined, and the analysis of students' academic performance when using digital technologies in independent work was carried out.

The results of the study confirmed the hypothesis that using digital technologies in the organization of students' independent work allows intensifying their work and leads to an increase in the results of distance learning.

Further research can be focused on studying the innovative experience to create pedagogical conditions for the implementation of digital technologies in the course of independent work of students aimed at forming linguistic competencies among participants in the educational process of higher education institutions.

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