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**Dirección de la Revista:** Apartado de Correo 3812, Oficina de correos Trigal Sur, Valencia, Edo. Carabobo. Venezuela.  
Correo electrónico: revistaeduweb@gmail.com

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# DE LOS FINES Y PROPÓSITOS DE EDUWEB, REVISTA DE TECNOLOGÍA DE INFORMACIÓN Y COMUNICACIÓN EN EDUCACIÓN

Eduweb, la revista de Tecnología de Información y Comunicación en Educación, es una publicación de carácter nacional e internacional de divulgación del conocimiento, del uso, aplicación y experiencias de las Tecnologías de la Información y Comunicación (TIC) en ambientes educativos. Con la revista se pretende divulgar las innovaciones que en materia de TIC están siendo implementadas y ensayadas en los diferentes niveles y modalidades del sistema educativo venezolano e iberoamericano. De igual manera contribuir a proyectar las experiencias de estudiantes de pre y postgrado, docentes, investigadores y especialistas en TIC en educación en la Universidad de Carabobo y en otras universidades de Venezuela y de otros países de Iberoamérica. Es una revista arbitrada e indexada adscrita al programa de la especialización en Tecnología de la Computación en Educación, de la Facultad de Ciencias de la Educación de la Universidad de Carabobo, registrada bajo el ISSN 1856-7576. Editada en formato impreso y digital.

## Visión

Ser un espacio académico-científico de difusión y divulgación de las distintas tendencias del pensamiento universal ubicadas en el área de TIC en ambientes educativos, con altos niveles de calidad académica.

## Misión

Promover y facilitar la difusión y divulgación de los productos de las investigaciones y experiencias de los docentes e investigadores de la Universidad de Carabobo y otras universidades del país y del mundo en el área de TIC en ambientes educativos; motivar la participación en redes comunes de información y publicación nacional e internacional; coordinar esfuerzos y velar por la calidad de las publicaciones a fin de procurar elevar el nivel académico del personal docente y de investigación mediante el desarrollo de trabajos de investigación como función esencial en su crecimiento académico.

## Objetivos

Servir como órgano de divulgación de las TIC y su influencia en ambientes educativos. Estimular la producción intelectual no solo en los docentes e investigadores de la Universidad de Carabobo, sino también en otros centros de educación e investigación nacional e internacional.

Propiciar el intercambio cultural, académico, científico y tecnológico con otros centros de educación superior en Venezuela y el mundo.

## CARTA DEL EDITOR

El equipo de trabajo de la Revista Eduweb se complace en esta ocasión al mirar un poco de su historia, específicamente sobre su esencia que como medio divulgativo del conocimiento ha atravesado estos últimos años. Nos ubicamos en el año (2007) volumen 1 N°1 en el que la carta al editor fue escrita por la Dra. Beatriz Mejías de Dayoub de la Universidad Central de Venezuela, emblemática casa de estudio en Venezuela. Nuestra respetada profesora dibujó las siguientes palabras “Esta revista viene a constituir un espacio muy importante y estoy segura que será acogida con entusiasmo por todos aquellos docentes, investigadores y otros profesionales, que durante largos años hemos venido trabajando con mucho tesón y esfuerzo en todo lo que implica la relación Educación -Tecnologías de la Información y Comunicación”; han transcurrido catorce años de la dedicación de estas letras y sin duda representan uno de los pilares sobre los cuales se ha erigido el eje transversal de quienes venimos trabajando en este tema.

El volumen 1 N°2 (2007) tuvo el privilegio de ser dirigido por la pluma del teórico Julio Cabero Almenara de la Universidad de Sevilla España, el catedrático en ese entonces encabezó su dedicación con una cita del poeta andalusí Solomon Ibn Gabiral (1021 - 1058).” En el camino a la sabiduría, el primer paso es silencio; el segundo, escuchar; el tercero, recordar; el cuarto, practicar; el quinto, enseñar a otros.”. Y esta es la función que pretende desempeñar Eduweb. Revista de Tecnología y Comunicación en Educación, la que pueda servirnos de plataforma para que enseñemos a otros, nuestro conocimiento, reflexiones e investigaciones que tenemos sobre las TIC, con el objeto de construir un mundo educativo mejor: más eficaz, de más calidad, más democrático, más igualitario, y más significativo. Ciertamente, no puede decirse menos que un honor por parte del teórico contemporáneo más importante de los últimos tiempos, al concedernos ese compromiso adquirido de “enseñar a otros”.

Por su parte, el volumen 2 N° 1 (2008) fue escrito por la excelsa Prof. Elena Dorrego+ donde afirmó: “Particularmente hacemos referencia al Congreso Expedición Eduweb, que desde el 1999 se ha venido realizando cada dos años organizados por la Facultad de Educación de la Universidad de Carabobo (UC). Las temáticas de los dos primeros se enfocaban hacia el uso de las TIC en la modalidad presencial, mientras que en los siguientes se refleja la evolución y el avance que ha tenido la educación a distancia en las IES venezolanas. La Dra. Dorrego nos dejó grandes aportes teóricos, quienes tuvimos la oportunidad de compartir con ella damos fe de su amplio dominio sobre el tema no solamente de diseño instruccional, sino el uso de la tecnología en el contexto educativo; siempre será recordada por la forma cómo concibió la educación.

En el mismo volumen 2 N° (2008) tuvimos el privilegio de contar con la escritura del Dr. Julio Barroso catedrático de la Universidad de Sevilla – España, en ese entonces sentenció “A nivel de profesores y alumnos, podemos decir que el principal cambio que se está produciendo es el pasar de modelos de enseñanza centrados en el profesor a modelos centrados en el estudiante”. Leemos estas líneas y pensamos en su vigencia; ya que el mundo está trabajando en la virtualidad como alternativa para mantener puertas abiertas de las distintas universidades pese al aislamiento producto de una pandemia que ha sometido al planeta; esa ha sido una realidad irrefutable, los docentes han hecho grandes esfuerzos en el acompañamiento de actividades en línea.

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Enfocados en nuestro objetivo de divulgación, seguiremos recordando los distintos autores que a través de los años han dejado su huella imborrable en el tema tesis de la revista.

En este número se divulgan una serie de trabajos internacionales producto de unidades y grupos de investigadores de distintos países que nos alientan en nuestro esfuerzo y dedicación.

**Elsy Medina**  
Directora-Editora



## EDITOR'S LETTER

The Journal Eduweb work team is pleased on this occasion to look at a little of its history, specifically its essence that as a means of disseminating knowledge it has gone through in recent years. We are located in the year (2007) volume 1 No. 1 in which the letter to the editor was written by Dr. Beatriz Mejías de Dayoub of the Central University of Venezuela, emblematic house of study in Venezuela. Our respected teacher drew the following words: "This magazine is going to constitute a very important space and I am sure that it will be welcomed with enthusiasm by all those teachers, researchers and other professionals, who for many years have been working with great determination and effort in all that implies the relationship Education-Information and Communication Technologies"; Fourteen years have passed since the dedication of these letters and without a doubt they represent one of the pillars on which the transversal axis of those of us who have been working on this issue has been built.

Volume 1 N ° 2 (2007) had the privilege of being directed by the pen of the theoretician Julio Cabero Almenara of the University of Seville Spain, the professor at that time headed his dedication with a quote from the Andalusian poet Solomon Ibn Gabiral (1021 - 1058). "On the path to wisdom, the first step is silence; the second, to listen; the third, remember; the fourth, practice; the fifth, teaching others". And this is the role that Eduweb intends to perform. Journal of Technology and Communication in Education, which can serve as a platform for us to teach others our knowledge, reflections and research that we have about ICT, in order to build a better educational world: more effective, of higher quality, more democratic, more egalitarian, and more meaningful. Certainly, nothing less than an honor can be said on the part of the most important contemporary theorist of recent times, in granting us that acquired commitment to "teach others."

For its part, volume 2 N ° 1 (2008) was written by the exalted Prof. Elena Dorrego + where she stated: "We particularly refer to the Eduweb Expedition Congress, which since 1999 has been held every two years organized by the Faculty of Education from the University of Carabobo (UC). The themes of the first two focused on the use of ICT in the face-to-face mode, while the following reflect the evolution and progress that distance education has had in Venezuelan HEIs. Dr. Dorrego left us great theoretical contributions. Those of us who had the opportunity to share with her attest to her broad domain of not only instructional design, but also the use of technology in the educational context; she will always be remembered for the way she conceived education.

In the same volume 2 N ° (2008) we had the privilege of having the writing of Dr. Julio Barroso, professor at the University of Seville - Spain, at that time he sentenced "At the level of teachers and students, we can say that the main change What is taking place is the transition from teacher-centered teaching models to student-centered models". We read these lines and think about their validity; since the world is working in virtuality as an alternative to keep open doors of the different universities despite the isolation product of a pandemic that has subjected the planet; This has been an irrefutable reality; teachers have made great efforts to monitor online activities.

Focused on our dissemination objective, we will continue to remember the different authors who over the years have left their indelible mark on the journal's thesis topic.

In this issue, a series of international works produced by units and groups of researchers from different countries are disclosed, encouraging us in our effort and dedication.

**Elsy Medina**  
Director - Editor

## **Scrum: A new framework applied to education**

### **Scrum: Un nuevo marco aplicado a la educación**

**Antonieta Kuz**

antonetakuz@gmail.com

<https://orcid.org/0000-0002-8696-0859>

Universidad Metropolitana para la Educación y el Trabajo  
Buenos Aires, Argentina.

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#### **Abstract**

The digital transformation entails the inclusion and development of agile methodologies that allow adapting the way of working to the conditions of the project, achieving flexibility to the specific circumstances of the environment by working collaboratively. The extrapolation of Scrum to education pursues a purely practical and experiential learning, with the aim of achieving the full development of its autonomy, abilities and skills. Consequently, the objective pursued by this article is to highlight the different topics that are considered when working with Scrum and presenting one example of the application of agile methodologies in the classroom eduScrum.

**Key Words:** Scrum, Agile Methodologies, agile learning.

#### **Resumen**

La transformación digital conlleva la inclusión y desarrollo de metodologías ágiles que permitan adecuar la forma de trabajar a las condiciones del proyecto, logrando flexibilidad a las circunstancias específicas del entorno mediante el trabajo colaborativo. La extrapolación de Scrum a la educación persigue un aprendizaje puramente práctico y experiencial, con el objetivo de lograr el pleno desarrollo de su autonomía, habilidades y destrezas. En consecuencia, el objetivo que persigue este artículo es destacar los diferentes temas que se consideran al trabajar con Scrum y presentar un ejemplo de la aplicación de metodologías ágiles en el aula con eduScrum.

**Palabras clave:** Scrum, Metodologías Ágiles, aprendizaje ágil.

## 1. Introduction

Today's world is in a stage of continuous change, which entails modifications in education. Since ancient times, classrooms have embodied a medium where knowledge can be disseminated, but today spaces outside the classroom are necessary as it is where students formulate their own notions and knowledge. In this way, the intelligent school is one that manages to interweave knowledge inside and outside the classroom. At present, there are several schools that re-pose the traditional way of teaching, so in this context it is essential to study various examples of schools in different countries of the world such as the United States, India, Spain, Finland (Sanmartín, 2016) among others with the explicit purpose of knowing in order to eventually and, gradually, implement a process of change and educational improvement.

According to the IEEE (1990), Software Engineering is the application of a systematic, disciplined and quantifiable approach to the development, operation and maintenance of software. A branch called Educational Software Engineering provides support when making software applications that implement learning processes. In addition, traditional methodologies are well known, but agile methodologies have been on the rise recently.

The agile movement seeks alternatives to traditional project management, as these approaches help teams respond to erraticity through incremental and iterative work cadences and empirical feedback. The implemented methodology provides opportunities to evaluate the direction of the project throughout the life cycle, through sprints or iterations; and this leads to you being able to build the right product.

Learning in this context focuses on skills for the 21st century, where the priority is learning to learn. Therefore, incorporating agile methodologies into the educational field requires adaptation to the teaching context, in general, and to that of the educational institution and subjects, in particular. In this way, educational institutions have begun to use Scrum to help teams learn to learn more effectively, in a more pleasant way, developing their capacities and collaborative work to a greater extent, strengthening teaching activity from a broader and renewed vision.

The objective of this article is to highlight the different topics that are considered when working with Scrum in classroom environments. It is structured as follows: in section 2, Software Engineering is contextualized, emphasizing the description of agile methodologies. Section 3 presents a brief survey of the XP, Crystal, and Scrum frameworks. In section 4 describes the methodologies. Section 5 describes Scrum in the classroom, briefly describing one application example eduScrum. Finally, the conclusions are presented.

## 2. Software Engineering: Context and Methodologies

Pressman describes Software Engineering as a discipline or area of Computer Science, which offers methods and techniques that allow the development and maintenance of quality software. It is made up of a series of templates that cover the methods, tools and procedures. Due to the particular characteristics of educational developments, it is necessary to consider the pedagogical aspects and communication with the user for each particular case together with the adaptation of the paradigms to educational theories (Salcedo Lagos, 2000).

All methodology must be adapted to the context, which can be successful applications in any software project, taking into account all the project variables such as development time, human resources, among others. On the one hand, there are traditional methodologies that, from their origins addressed a large number of project contexts, which without hesitation required a relatively high effort so that they can be adapted also considering the existence of changing requirements providing a disciplined approach to assigning tasks and responsibilities within a development organization. We find agile methodologies that provide a tailored solution for projects and provides controlled process, with few principles; flexible process with adaptation.

At the beginning of 2001, seventeen experts from the software industry met in Snowbird, Utah; with the objective of combining and describing the principles and values that they believed should allow teams to develop software quickly, responding to the changes that could arise during the course of the project. They sought to offer an alternative to traditional software development processes, which is why at that meeting the term agile was coined and they outlined the agile manifesto, a document that summarizes this philosophy. Following this meeting, a non-profit organization dedicated to promoting agile software development concepts was created, called The Agile Alliance.

### 2.1. Agile manifesto and principles

The agile manifesto values (Uribe y Valencia, 2007) the individual and the interactions of the development team on the process and tools (people are the main success factor of a software project, so it is essential to build a good work team that is the environment), developing software that works more than getting good documentation (not producing documents if they are not necessary), collaboration with the client more than negotiating a contract (looking for constant interaction between the client and the development team) and responding to changes rather than strictly following a plan (planning must be flexible and open). The values that shape the manifesto support its principles, these being the characteristics of agile processes:

- 1) The priority is to satisfy the customer through early and continuous deliveries of software that adds value.
- 2) Welcome and capture changes so that the customer has a competitive advantage.

- 3) Frequently deliver software that works from a couple of weeks to a couple of months, with the shortest possible time interval between deliveries.
- 4) Business people and developers must work together throughout the project.
- 5) Build the project around motivated individuals, give them the environment and support they need, and trust them to finish the job.
- 6) Face-to-face dialogue is the most efficient and effective method of communicating information within a development team.
- 7) Software that works is the primary measure of progress.
- 8) Agile processes promote sustainable development.
- 9) Continual attention to technical quality and good design improves agility.
- 10) Simplicity is essential.
- 11) Self-organized teams.
- 12) At regular intervals, the team reflects on how to become more effective, and adjusts its behavior accordingly.

### 3. Agile Frameworks

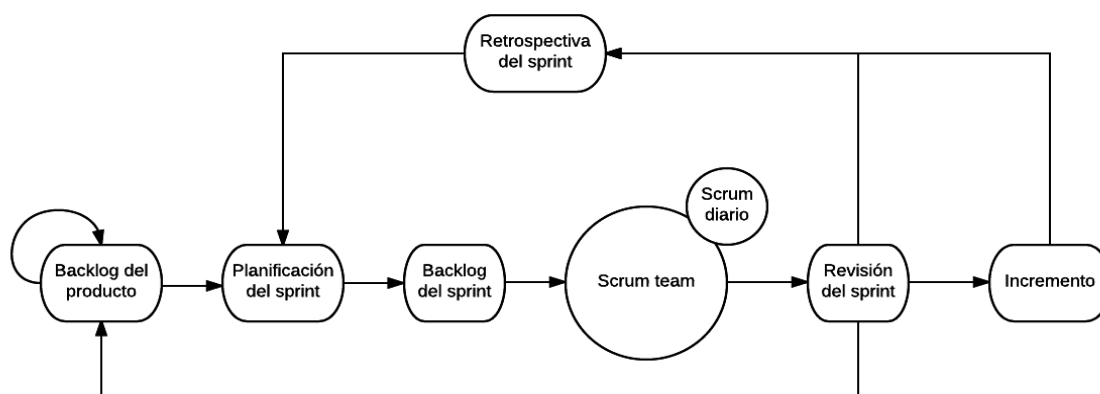
Taking into account and based on the Agile Manifesto, we can say that an Agile Framework can be defined as a specific software-development approach, and represents an overarching philosophy for software development, emphasizing the value of iterating quickly. There are many agile frameworks used and it is possible to modify parts of the frameworks as they see fit and as they iterate on their own agile processes. We detail below the most important agile frameworks:

**Extreme Programming (XP):** the project began in early March 1996 and enabled its developers to confidently respond to changing customer needs, even in the life cycle as it does emphasis on teamwork. In XP, managers, customers, and developers are equal partners in a collaborative team, which promotes self-organization around the problem. It provides a simple environment with simple rules based on values and principles, making it easy for teams to be highly productive.

**Crystal:** Alistair Cockburn developed a set of methodologies that are characterized by being focused on the members of the development team (this being a key factor) as well as reducing the number of artefacts produced. Along these lines, software development itself is considered a cooperative game that enables invention and communication, although limited by the resources to be used. The use of the word "crystal" refers to the various facets of a gemstone - each different face in an underlying core represents values and principles, while each facet represents a specific set of elements such as techniques, roles, tools and standards.

**Scrum:** is a process or technique for building products, and a framework that has been used to manage complex product development since the early 1990s. Jeff Sutherland et al, (2011) describes that Scrum was born as a new and different way of organizing human effort, rather than a way of conceiving work. This framework was given a name

that originated in rugby, where Scrum contained the perfect metaphor for what Sutherland understood as teamwork: coupling, unity of purpose, and clarity of goals. The Scrum team includes three roles: the product owner (decides what work should be done), the scrum master (acts as a helpful leader, helping the team and the organization to make the best use of scrum), and members of the development team (builds the product incrementally, in a series of sprints). A sprint is a fixed period of time with preference in the shorter intervals. In each sprint, the Scrum team will build and deliver a product increment, where each increment is a recognizable, operational, and visibly improved subset of the product that meets clear acceptance criteria and is built to a quality level called the Definition of Done (in English, Definition of Done). In Figure 1 you can see the summary of the relationship between artefacts and Scrum activities or tasks (Sutherland, 2016).



**Figure 1.** Scrum activities. Source: Own authorship.

### 3. Methodology

The research methodology is qualitative, through a documentary theoretical-methodological analysis, applying the search for information, organization and analysis of information.

### 4. The application of Scrum to the classroom

In the educational field, students need to develop general competencies, that is: capacities, abilities and aptitudes that will be useful in the academic environment and later in their professional career. Consequently, general competencies require active learning methods that enable the development of organizational capacity, planning, leadership, evaluation, self-evaluation, teamwork, among others. Online, agile methodologies offer principles, values and practices that can embody the solution to the context presented because the acquisition of skills is flexible and simple.

Based on the above, Scrum favors the creation of a conducive environment for students to be creative, enabling, on the one hand, that the classroom experience is enriching and

reliable, and on the other, the development of character with greater depth in the process learning, glimpsing the progress of the study through the successfully completed sprints. That is, Scrum through inspection, adaptation and transparency, becomes a learning framework (Pérez Benedi et al., 2011)

An analysis process is necessary for the implementation of Scrum in the academic environment, since it is essential to specifically define the context where it will be applied. This implementation presents two stages, the first concerns the way in which the agile process is transferred in the teaching process and the second, the identification of results will be the artifacts for it.

Agile classroom is designed through the integration of five (5) elements, where each of them can be combined in different ways in order to achieve specific objectives and the context. In fact, it will be most powerful when used synergistically as a complete system.

The elements are:

- Visible Class (in English, visible classroom): a visual learning management system.
- Learning Rhythm: a complete and iterative learning cycle.
- Collaborate: a situation model to increase collaboration capacity and defines the learning relationship between students.
- Empower: a situation model to increase the capacity for empowerment, and defines the learning relationship and the limits of choice between the teacher and the students.
- The journey: a scaffolding path to evolve any classroom towards self-organization. Integrate all other elements.

### 5.1. edScrum

The team model at eduScrum<sup>1</sup> (Delhij, van Solingen y Wijnands, 2015) is designed for optimal autonomy, collaboration, flexibility, creativity, motivation, and productivity. To understand how to apply it, it is essential to understand in advance the parts that make up a team. On one hand the teacher is the Product Owner and the responsible for determining what needs to be learned, monitoring and improving the quality of educational outcomes, and evaluating those outcomes always based on the definition of "finished" and the acceptance criteria. The teacher is expressly focused on the subject and should encourage cooperative work between teams. It defines the acceptance criteria that allow you to monitor the quality of what has been learned, for example: the minimum results of the assessments. Teachers sometimes act as super scrum masters, for the purpose of learning or teaching. On the other, the student team collaborates to achieve the learning objectives that are required at the end of the sprint, taking into account the acceptance criteria. The teams are self-organized, meaning that no one person can tell the team how to achieve the learning objectives. They are multidisciplinary, that is, they

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<sup>1</sup> EduScrum, web site <https://www.eduscrum.nl/es/resources/videos/>, last visit, July 2021

have the skills to achieve learning objectives and personal development together. It is worth noting that students may have specific skills, but the responsibility is group.

To understand the process generally, sprints coincide with well-established periods and each of them consists of the points listed below. It should be noted that the composition of the team during the sprint and the scope are not changed, while the quality can be renegotiated with the teacher. In the same way, and unlike Scrum, a sprint cannot be canceled in eduScrum (Wijnands y Stolze, 2019) but it is possible that additional assignments are provided to achieve the expected results.

The sheet is a chronological representation of the work of the sprint that allows to achieve the learning objectives, and the tasks and assignments move according to how they change status: pending, busy and finished - students move the tasks of the panel to- do (pending) to done (finished) passing through "in progress".

Two types of cards can be found on the boards (each of them is a chapter of a topic): stories (owned by the teacher) and tasks (owned by students). Now, on the first day of the sprint, the teams take each chapter and break it down into several tasks so that when all the tasks in the story are complete, all the students have learned that chapter. The impediments must be dealt with, such as various doubts that should be consulted with the teacher, among others; enabling the self-organization of students when distributing the work, explaining to each other and others. It should be noted that most of the class time is really effective study time and collaborative learning, also allowing retrospective on how to improve the process that they have followed and which parts they are going to eliminate, maintain or improve in the next sprint.

When all the tasks of a chapter are in the "done" panel then the remaining teams and the teacher understand that the students in that group have already understood the topic, so the teacher can ask them questions about those learned chapters and in case that they do not dominate any of them, reposition the card to "in progress".

## 5. Conclusions

As presented at the beginning of the article, Software Engineering has undergone several changes, where agile methodologies can be adjusted to a wide range of software development projects where development teams are small, with short deadlines, fickle requirements, based on in ICTs, who need a customized solution, simple and with high levels of quality. These methodologies focus on people and the software product, valuing collaborative work.

In the educational field, the application of agile methodologies can be seen in examples such as agile learning where knowledge comes from experience and decisions are made based on what is known. With regard to the pedagogical layer, it is feasible to mention that it allows to achieve learning, Scrum seeks for students to learn effectively, because teams self-organize and work in sprints, which allows them to learn topics evolving the



learning process. Through this agile work method, it is feasible to improve the quality of classes and learning, motivating students to a greater extent. Stakeholders use reviews and retrospectives to evaluate learning processes in the same sprint, allowing improvements to be made in the next sprint, if necessary.

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## **Prácticas de examen en línea en una institución de educación superior del Perú**

### **Online exam practices in a higher education institution in Peru**

**Roberto Carlos Dávila Morán**

rdavila430@gmail.com

<https://orcid.org/0000-0003-3181-8801>

Universidad Privada del Norte, Lima, Perú.

**Eucaris del Carmen Agüero Corzo**

caricorzo@gmail.com

<https://orcid.org/0000-0003-4587-3852>

Universidad Pedagógica Experimental Libertador, Maturín, Venezuela.

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#### **Resumen**

El propósito de este estudio fue examinar las percepciones de los estudiantes sobre las prácticas de exámenes en línea en una Universidad del Perú. La investigación es de diseño no experimental, de tipo básica; se empleó como instrumento el cuestionario en línea aplicado a 432 estudiantes de pregrado. Los resultados muestran la percepción que los exámenes en línea tienen beneficios significativos sobre los exámenes tradicionales basados en papel, la confiabilidad de la calificación y la eficiencia en términos de tiempo, esfuerzo y dinero. La implementación exitosa de éstos depende de diseñarlos para que sean válidos, confiables, seguros y flexibles.

**Palabras clave:** Examen en línea, educación superior, percepción de los estudiantes.

#### **Abstract**

The purpose of this study was to examine students' perceptions about online exam practices at a University in Peru. The research is of a non-experimental design, of a basic type; The online questionnaire applied to 432 undergraduate students was used as an instrument. The results show the perception that online exams have significant benefits over traditional paper-based exams, scoring reliability, and efficiency in terms of time, effort, and money. Their successful implementation depends on designing them to be valid, reliable, secure, and flexible.

**Keywords:** Online exam, higher education, student perception.

## 1. Introducción

Como resultado de la avanzada difusión de las tecnologías de la información con la creciente disponibilidad de opciones de plataforma de evaluación virtual, los exámenes en línea se están implementando cada vez más en las instituciones de educación superior (IES) como un medio para complementar o incluso reemplazar las pruebas en papel (Nicol, 2007). Los mismos, son comúnmente conocidos como exámenes electrónicos y anteriormente como evaluación basada en computadoras, pueden definirse como “un sistema que implique la realización de evaluaciones a través de la web o la intranet” (Ayo et al., 2007, p. 126). Funcionalmente, se pueden entregar utilizando un sistema dedicado o incluirse como un learning management system (LMS) como Blackboard, Moodle o Sakai (Sorensen, 2013). El módulo de actividad del examen permite al profesor diseñar y establecer exámenes que consisten en una variedad de tipos de preguntas, incluyendo opciones múltiples, verdadero-falso y de respuesta corta. Estos se mantienen en un banco de preguntas y se puede reutilizar en varios exámenes. Los exámenes se pueden configurar para permitir múltiples intentos. Por lo tanto, los sistemas de exámenes en línea permiten simplificar el proceso tradicional de exámenes basados en papel, especialmente cuando los tamaños de clase son grandes, desde el diseño y la aplicación del examen para marcar, informar, almacenar los resultados y efectuar análisis estadísticos (Osuji, 2012; Farzin, 2017). Hay un conjunto de investigaciones que destacan una serie de beneficios clave de los exámenes en línea, así como algunos desafíos notables desde las perspectivas de profesores y estudiantes (Nicol, 2007; Dermo, 2009; Dreher et al., 2011; Hodgson y Pang, 2012; James, 2016).

Entre sus principales ventajas sobre los exámenes en papel se encuentran que constituyen un sistema totalmente automatizado el cual mejora la validez de la evaluación, donde el rendimiento del examinado es una medida justa de habilidad y comprensión y que utiliza estilos de preguntas mejorados que incorporan interactividad y multimedia. Los exámenes en línea mejoran la fiabilidad de la puntuación y la robustez de los resultados de las pruebas, apoyando un análisis más profundo. Ellos también proporcionan retroalimentación inmediata, corrigiendo así rápidamente los conceptos erróneos. En comparación con los exámenes basados en papel, el uso de exámenes en línea puede mejorar significativamente la eficiencia de las tareas de gestión de datos, como marcar, moderar y almacenar información, reduciendo así la carga de trabajo de los docentes, que ahorran tiempo dedicado a la rutina de trabajo, al mismo tiempo que reduce significativamente la carga asociada con la vigilancia cuando se evalúan grandes cohortes.

## 2. Metodología

El estudio se desarrolló con un diseño no experimental de tipo básica (Hernández Sampieri et al., 2010). La técnica para el recojo de datos fue la encuesta; el Cuestionario de Percepción de La Evaluación Electrónica del Estudiante (Dermo, 2009) se utilizó como base sobre la cual elaborar un cuestionario en línea que consta de tres partes principales. En la primera parte se preguntó a los participantes por información. La segunda parte les

pidió que respondieran a una serie de declaraciones relativas a sus opiniones sobre los exámenes en línea, todas redactadas positivamente y agrupadas en seis conjuntos: pedagogía, validez, confiabilidad, factores afectivos, practicidad y seguridad. La tercera parte pidió a los participantes que seleccionaran las consideraciones importantes para la implementación exitosa de exámenes en línea. También se les pidió que comentaran sobre los temas abordados por el cuestionario en una cuarta sección. La validez del contenido del cuestionario se evaluó pidiendo a tres expertos en e-learning que emitan sus juicios sobre los elementos. Se recibieron comentarios positivos y se hicieron algunas revisiones menores al instrumento de acuerdo con sus sugerencias. La fiabilidad de los constructos (en la medida en que los ítems del cuestionario estaban relacionados entre sí) se examinó utilizando el alfa de Cronbach. Todos los valores estuvieron por encima de 0.70, lo cual es bueno. La encuesta se realizó del 17 de mayo de 2021 al 31 de mayo de 2021. Los participantes eran estudiantes de pregrado en cuatro disciplinas: Ingeniería, Administración, Derecho y Economía.

### *Perfil de los participantes*

Hubo 432 estudiantes encuestados: 56.02% mujeres y 43.98% hombres. El grupo más grande fue de la disciplina de Ingeniería (39.1% de los encuestados), seguido de Administración (31.4%), Derecho (16.1%) y Economía (13.4%). El 70% se describió a sí mismo como no tener experiencia previa de exámenes en línea y el 30% había tomado sólo un examen en línea. Esta variación parece reflejar la realidad sobre el terreno; la mayoría de los que tomen las pruebas eran estudiantes de primer año registrados en cursos básicos.

### **3. Resultados**

Los encuestados reportaron experiencias mixtas de exámenes en línea. De los 18 puntos del cuestionario, siete recibieron respuestas medias positivas, ocho tenían respuestas claramente negativas y tres tenían respuestas neutrales en general (ver tabla 1). Estas clasificaciones se basan en una escala de Likert adaptada de cinco puntos, donde el valor medio de 3 puede ser visto como una posición neutral, mientras que un valor medio por encima de esto se puede ver como positivo y una calificación media por debajo de 3 se considera negativo (Derme, 2009).

Para los estudiantes, el aspecto más ventajoso de los exámenes en línea era que la calificación se consideraba más precisa que los métodos tradicionales (media = 4.3). A continuación, se consideraron más eficientes en términos de tiempo, esfuerzo y dinero gastado en el proceso de examen (media = 4.1). Las preocupaciones más fuertes para los estudiantes, reflejadas respuestas negativas, fueron la imparcialidad de los bancos de preguntas (media = 1.7) y si la tecnología era lo suficientemente eficaz para hacer frente a las trampas y el plagio (media = 1.6).

**Tabla 1.**
*Respuestas de los participantes a las ventajas de los exámenes en línea.*

Elementos del cuestionario	MA	DA	NS	ED	TA	Media
1. Pedagogía	%	%	%	%	%	
La retroalimentación inmediata en los exámenes en línea ayuda a los estudiantes a profundizar comprensión de la asignatura	34.7	18.3	9.3	21.8	15.9	3.2
El uso de la tecnología más avanzada en los exámenes en línea permite a los estudiantes adoptar un nuevo enfoque de aprendizaje: el aprendizaje en línea	17.4	63.2	7.2	9.7	2.5	3.9
Los exámenes en línea facilitan un enfoque de aprendizaje más adaptativo que los de papel	8.6	27.8	9	38.4	16.2	2.8
2. Validez						
Los exámenes en línea son apropiados para cualquier materia	5.3	8.3	11.3	27.3	47.7	1.9
Los exámenes en línea son adecuados para comprobar el nivel de conocimientos de los estudiantes	2.3	4.6	12.3	29.6	51.2	1.8
Los exámenes en línea facilitan una evaluación más auténtica que los métodos tradicionales mediante la integración de multimedia, simulaciones	28.5	41.4	12.3	12.5	5.3	3.7
3. Fiabilidad						
La corrección automática de los exámenes en línea es más precisa que la corrección en papel	55.8	24.5	11.1	4.4	4.2	4.3
Los exámenes en línea son más justos que los de papel	1.2	3.2	17.1	21.1	57.4	1.7
La tecnología utilizada en los exámenes en línea es fiable	17.1	6.9	5.1	25	45.8	2.3
4. Factores afectivos						
Los exámenes en línea reducen el estrés y la ansiedad de los exámenes	14.1	9.3	3.0	46.5	27.1	2.4
El uso de los exámenes en línea permite a los estudiantes centrarse y concentrarse más en las preguntas	23.1	17.6	10.4	31.7	17.1	3.0

Los estudiantes se sienten más cómodos haciendo un examen en línea que en papel	17.4	43.8	5.1	19.2	14.6	3.3
<b>5. Practicidad</b>						
Los exámenes en línea son más eficientes en términos de tiempo, esfuerzo y dinero gastado	42.6	34.7	6.9	7.9	7.9	4.1
La creación de un banco de preguntas de opción múltiple reutilizables permite un fácil almacenamiento y revisión	16.2	32.2	7.2	20.1	24.3	2.9
Los exámenes en línea son más accesibles que los de papel	25.7	45.4	9.7	8.6	10.6	3.6
<b>6. Seguridad</b>						
Los materiales de prueba y los resultados de los exámenes en línea son más seguros que los métodos tradicionales	15.5	28.5	11.1	17.6	27.3	2.9
La tecnología utilizada en los exámenes en línea es lo suficientemente eficaz para tratar las trampas y el plagio	3.7	3.0	10.2	18.1	65	1.6
El uso de preguntas aleatorias de un banco significa que las trampas durante los exámenes en línea es menos probable que en los de papel	23.1	52.3	4.2	8.1	12.3	3.6

La encuesta también enumeró varias consideraciones que podrían mejorar la implementación de exámenes en línea. Se pidió a los participantes que seleccionaran elementos de una lista de verificación, como se muestra en la tabla 2.

**Tabla 2.**

*Consideraciones para la aplicación efectiva de los exámenes en línea.*

<b>Consideraciones</b>	<b>Frecuencia</b>	<b>%</b>
<b>1. Diseño de examen en línea</b>		
Mantener un banco de preguntas validadas para las pruebas adaptativas	370	85.6
Desarrollar diferentes tipos de preguntas tipo	365	84.5
Proporcionar una retroalimentación significativa e inmediata	378	87.5
<b>2. Seguridad en los exámenes en línea</b>		
Mantener la confidencialidad	367	85.0
Minimizar las trampas	270	62.5
Autenticación	312	72.2

<b>3. Propósito del examen en línea</b>		
Examen formativo para el aprendizaje	310	71.8
Vinculación de los exámenes en línea con los resultados de aprendizaje previstos	325	75.2
Vincular el análisis de los resultados a los criterios de garantía de calidad	298	69.0
<b>4. Apoyo institucional</b>		
Integración del examen en línea en el plan estratégico	321	74.3
Proporcionar recursos y facilitar procedimientos	303	70.1
Apoyo a profesores y estudiantes	337	78.0

#### 4. Discusión

En general, los participantes parecían considerar las prácticas de exámenes en línea actualmente implementadas por la Universidad Alas Peruanas insatisfactorio. Aunque identificaron varias características positivas de los exámenes en línea, incluyendo la fiabilidad de calificación y eficiencia en términos de tiempo, esfuerzo y costo, también señalaron muchos desafíos a los que se enfrenta la implementación exitosa de exámenes en línea en áreas tales como seguridad, validez y equidad. En consecuencia, la encuesta ha identificado una serie de posibles mejoras en los exámenes en línea en la Universidad Alas Peruanas y, en general, entre las instituciones de educación superior (IES) peruanas, desde la perspectiva de los estudiantes.

##### *Pedagogía*

Desde una perspectiva teórica, se ha asumido que la retroalimentación inmediata es una ventaja fundamental pedagógicamente de los exámenes en línea, según lo informado por varios estudios (Heinrich et al., 2009; Dreher et al., 2011; Hodgson y Pang, 2012; Kuikka et al., 2014). La tabla 1 muestra que sólo el 53% de los encuestados a este estudio estuvieron de acuerdo o totalmente de acuerdo en firmemente en que la retroalimentación inmediata en los exámenes en línea ayuda a los estudiantes a obtener una comprensión más profunda del tema. La falta de reconocimiento de la utilidad de la retroalimentación puede ser el resultado del hecho de que el examen en línea actualmente implementado en la Universidad Alas Peruanas es exclusivamente sumativo y no proporciona una evaluación formativa para que los estudiantes no reciban comentarios. Como la retroalimentación inmediata puede ayudar a corregir conceptos erróneos y mejorar el aprendizaje de los estudiantes, es indispensable dar a los estudiantes retroalimentación inmediata y significativa sobre las evaluaciones sumativas y formativas (Hodgson y Pang, 2012; Kuikka et al., 2014). La tabla 2 muestra que el 87.5% de los participantes reconoció la importancia de la retroalimentación como una consideración crucial que podría mejorar la implementación del examen en línea, siendo esto la respuesta más fuerte a un ítem de la tercera sección del cuestionario. Más de dos tercios (71.8%) de los participantes también consideraron que los exámenes en línea son adecuados para la evaluación formativa para medir el aprendizaje, en lugar de una

evaluación del aprendizaje. Por lo tanto, uno de los objetivos del examen en línea debe ser promover el aprendizaje mediante la provisión de comentarios constructivos y en tiempo real. Un examen en línea no es sólo una herramienta de calificación automatizada; también es parte integral del proceso de aprendizaje en sí (Jordan, 2013). Por lo tanto, la retroalimentación efectiva debe centrarse en ayudar a los estudiantes a adquirir una comprensión clara de los conceptos y reforzar sus conocimientos. El desafío de proporcionar retroalimentación relevante, oportuna y profunda a los estudiantes radica en el considerable trabajo que se necesitará para capacitar al personal académico y apoyarlos en el desarrollo de una retroalimentación de calidad, adoptando un enfoque más creativo y eficiente, como el uso de audio (McGarvey y Haxton, 2011) y comentarios en video en conjunto con comentarios escritos.

Tres cuartas partes de todos los participantes estuvieron de acuerdo o muy de acuerdo en que el uso de tecnología de vanguardia en los exámenes en línea permite a los estudiantes tomar un nuevo enfoque de aprendizaje: e-learning. Esto es consistente con los hallazgos de otras investigaciones (Dermo, 2009). Es probable que los estudiantes expertos en tecnología prefieran el aprendizaje digital que satisfaga sus necesidades. Como los exámenes en línea son parte de un enfoque de aprendizaje que se ha convertido en la corriente principal de las universidades, el personal académico debe alejarse de sus métodos tradicionales en el aula y adoptar nuevos métodos de integración de las tecnologías emergentes en la enseñanza y aprendizaje, sin embargo, la Universidad Alas Peruanas ha sido lento para adoptar plenamente el aprendizaje en línea. Se necesita tiempo, esfuerzo y dinero para desarrollar la infraestructura, las habilidades, las actitudes y la política para facilitar este enfoque. Es necesario el apoyo institucional para avanzar en el desarrollo sostenible del aprendizaje en línea. Aproximadamente dos tercios de los que respondieron al cuestionario confirmaron la importancia de integrar los procesos de evaluación y aprendizaje en línea dentro de los planes estratégicos de la universidad.

Una característica importante de los exámenes en línea es la adaptabilidad de las pruebas para satisfacer las diversas necesidades de los estudiantes. Las pruebas adaptativas, en las que el programa informático adapta automáticamente la siguiente pregunta en función del rendimiento de cada estudiante en las secciones anteriores de la evaluación, se consideraron problemáticas, sin embargo, solo el 36.4% de los participantes opinó que el software de exámenes en línea facilitó un mayor avance en las pruebas adaptativas para los estudiantes y respondía a sus diversas necesidades de aprendizaje. La razón de la percepción general negativa (media = 2.8) puede deberse a que los participantes no habían entendido del todo el concepto de prueba adaptativa, ya que las pruebas que conocían en la Universidad Alas Peruanas eran de formato tradicional. Moodle y otros paquetes de software ofrecen varias funcionalidades de exámenes en línea, pero parece que el comité de exámenes y el personal no eran conscientes de su valor pedagógico. Esto ilustra la necesidad de actualizar la versión de Moodle de forma consistente e instalar todos los plugins necesarios, como la retroalimentación de las tareas y el cuestionario adaptativo, que permite a los profesores crear pruebas que midan eficazmente las capacidades de cada participante. Además,



para ampliar sus funcionalidades, otros programas de exámenes deberían integrarse en Moodle (o en cualquier LMS). Por último, para hacer los exámenes en línea más eficientes, el personal debería estar capacitado para desarrollar preguntas de prueba adaptativas.

### *Validez*

Uno de los componentes más importantes de la evaluación es la validez del examen. La tabla 1 muestra que los participantes perciben que los exámenes en línea no son válidos, ya que no son apropiados para muchas asignaturas (75%) y no están bien para evaluar las habilidades de pensamiento de orden superior (80.8%). Una crítica común a las preguntas de opción múltiple es que evalúan el conocimiento de los hechos, pero no la comprensión. Un estudiante que no esté seguro de la respuesta correcta puede simplemente adivinar, como observó un participante. Esta conclusión es similar a la de otros investigadores (Hodgson y Pang, 2012). Refleja la necesidad de encontrar formas innovadoras de desarrollar diferentes tipos de preguntas que midan con precisión y apoyen el nivel de conocimientos de los estudiantes. Un examen en línea debe ir más allá de los ítems de opción múltiple, que deben utilizarse en combinación con otros tipos. Cuatro quintas partes de los participantes consideran que esto es una consideración crítica para la implantación efectiva de los exámenes en línea. Los exámenes en línea, especialmente para los cursos de idiomas, deben incluir elementos en los que los estudiantes escuchen material de audio y luego respondan a preguntas sobre el mismo, y otros en los que tengan que dar respuestas orales grabadas en vídeo. Otros tipos de preguntas que también deben incluirse son ensayos cortos y trabajos escritos que demuestren la comprensión de los estudiantes del material y el pensamiento crítico. Una de las principales dificultades en el diseño de los exámenes en línea es crear preguntas no objetivas para medir la comprensión profunda de los estudiantes. Se requiere un trabajo considerable para preparar al personal, no sólo técnicamente sino también pedagógicamente, para diseñar mejor las preguntas de opción múltiple y otros tipos de preguntas que realmente evalúen los resultados de aprendizaje previstos del curso, incluyendo el aprendizaje de orden superior (Kuikka et al., 2014).

La tabla 1 muestra que dos tercios de los participantes (69.6%) están de acuerdo o muy de acuerdo en que los exámenes en línea facilitan una evaluación más auténtica que los métodos tradicionales gracias a la integración de multimedia y simulaciones. Chua y Don (2013) y Kuikka et al. (2014) informan de resultados similares y concluyen que las nuevas tecnologías permiten exponer a los examinados a vídeos, audios o simulaciones antes de responder a diferentes tipos de preguntas relacionadas con el material multimedia, lo que hace que los exámenes en línea sean más atractivos que los métodos tradicionales. Los estudiantes valoran el aprovechamiento de la tecnología para transformar las prácticas de evaluación y garantizar que ésta sea válida y auténtica, mediante estrategias como la simulación, los enfoques basados en problemas, portafolios de pruebas y la integración de la evaluación en línea y presencial. La tabla 2 muestra que dos tercios de los encuestados reconocen la importancia de la calidad en los exámenes en línea al estar

de acuerdo en que el análisis de los resultados debe estar vinculado a criterios de garantía de calidad.

### *Fiabilidad*

La fiabilidad es una cuestión importante en cualquier examen. Cuando se preguntó a los participantes si pensaban que los exámenes en línea mejoraba la exactitud de los resultados, más de tres cuartas partes estuvieron de acuerdo en que la corrección automática es más precisa que la corrección en papel. Un participante comentó que los exámenes en línea son justos y no tienen ningún sesgo en la calificación. Esto coincide con las conclusiones de Baleni (2015), que también encontró que la corrección transparente y la entrega inmediata de las calificaciones dan a los estudiantes más confianza en los resultados que en los de los exámenes tradicionales. No obstante, muchos participantes se mostraron preocupados por la exactitud de los resultados debido a errores en las preguntas y respuestas. Uno de ellos comentó que las preguntas incorrectas no se pueden cambiar durante el examen y nos vemos obligados a dar respuestas erróneas. Cualquier ambigüedad en las preguntas invalidará la prueba. Por lo tanto, cada pregunta debe ser revisada por expertos en la materia y el personal académico debe asumir la plena responsabilidad del proceso de evaluación. Esto se refleja en el primer ítem de la tabla 2, donde cuatro quintas partes de los encuestados consideran que el éxito de la implantación de los exámenes en línea requiere el mantenimiento de bancos de preguntas validadas. Aunque la mayoría considera que los resultados de los exámenes en línea son más precisos, una proporción aún mayor (78.5%) de los participantes no está de acuerdo con que los exámenes en línea sean más justos que los basados en papel. Creían que la aleatorización de las preguntas significaría que a algunos estudiantes se les podrían hacer preguntas relativamente fáciles y a otros más difíciles. Esta conclusión coincide con otros estudios (Dermo, 2009; Farzin, 2017). Así pues, para garantizar que las preguntas de los exámenes en línea evalúen adecuadamente los mismos resultados de aprendizaje previstos para todos los estudiantes y tengan una dificultad equivalente (Jordan, 2013). Es necesario considerar las pruebas adaptativas, donde se seleccionan diferentes tipos de preguntas de un banco de preguntas y se utilizan herramientas algorítmicas para asignarlas a niveles de dificultad (Gershon, 2005).

La infraestructura informática existente en la Universidad Alas Peruanas puede no ser lo suficientemente robusta como para hacer frente al creciente número de estudiantes que realizan exámenes en línea. Los exámenes están sujetos de interrupción debido a la lentitud de los ordenadores, a la lentitud de la carga, a la mala conectividad de la red o a las interrupciones del suministro eléctrico de energía. Cuando se produce uno de estos problemas técnicos, hay que reprogramar los exámenes, lo que resulta inconveniente y estresante para los estudiantes. Las universidades deberían mejorar su infraestructura y proporcionar laboratorios totalmente equipados con recursos de seguridad adecuados (Osuji, 2012). Casi dos tercios de los participantes indicaron que el éxito de la implantación de los exámenes en línea depende del apoyo institucional, que incluye la creación de condiciones adecuadas para la realización de los exámenes, la facilitación

de los procedimientos administrativos y la provisión de los recursos financieros necesarios para la mejora de las infraestructuras.

### *Factores afectivos*

Otro ámbito importante de preocupación fueron los aspectos afectivos de los exámenes en línea. Tres cuartas partes de los participantes no estaban de acuerdo con la afirmación de que los exámenes en línea reducen el estrés y la ansiedad. Este resultado está en línea con el trabajo de Bernik y Jereb (2006) y Whitelock (2006). Los participantes mencionaron en sus comentarios varias razones de su estrés, como la interrupción de los exámenes por problemas técnicos, su desconocimiento con el uso de Moodle para los exámenes en línea, su falta de conocimientos informáticos y la mala redacción de las preguntas. Un participante se quejó de que los estudiantes no recibían suficientes instrucciones al principio de los exámenes en línea, un problema agravado por el hecho de que Moodle está en inglés. Como la mayoría de los participantes (70%) era la primera vez que realizaban un examen en línea, no estaban familiarizados con la plataforma de exámenes en línea y una clara comprensión de sus prácticas (James, 2016). Por lo tanto, es importante que las instituciones presten más atención a la formación tanto del personal académico como de los estudiantes en el proceso de examen en línea antes de que realmente participen en eso (Osuji, 2012; Jordan, 2013). La tabla 2 muestra que el 78% de los participantes considera que el apoyo a los profesores y a los estudiantes es importante para la aplicación eficaz de los exámenes en línea. Los pocos minutos de orientación dado a los estudiantes antes del examen fue insuficiente para proporcionar instrucciones suficientemente claras. El personal académico necesita tiempo y conocimientos especializados para preparar preguntas de calidad, proporcionar comentarios y gestionar los exámenes en formatos digitales.

Una clara mayoría (61.2%) de los participantes está de acuerdo con las conclusiones de Bernik y Jereb (2006), en que los estudiantes se sienten más cómodos haciendo un examen en línea que uno en papel, quizás porque este formato reduce considerablemente la necesidad de vigilar el examen. Por el contrario, las respuestas fueron neutrales en general a la sugerencia de que el formato en línea permite a los estudiantes centrarse mejor en las preguntas. Una razón que dio un participante para estar en desacuerdo con esto fue que podía ser difícil concentrarse en la pantalla debido a la necesidad de utilizar papel para resolver problemas específicos, especialmente los que requieren un cálculo o manipulación algebraica. También señaló que, dado que la puntuación se otorga únicamente solo por elegir la opción correcta, un estudiante que eligiera la incorrecta no podría ser recompensado por seguir el método correcto.

### *Practicidad*

Los resultados también muestran que el 77.3% de los encuestados está de acuerdo en que los exámenes en línea son más eficientes que los de papel en términos de tiempo, esfuerzo y coste. El proceso totalmente automatizado puede eliminar o simplificar la

impresión, la calificación, el análisis de los resultados, la vigilancia y la carga de trabajo del personal, especialmente en el caso de clases de gran tamaño. Este hallazgo está alineado con los de varios estudios (Dermo, 2009; Dreher et al., 2011; Baleni, 2015). Sin embargo, para hacer uso de la tecnología en línea para reducir la carga de trabajo del personal, primero es necesario migrar de un papel a un enfoque digital de la pedagogía y el aprendizaje, que es un proceso largo y costoso, especialmente en la fase inicial de la implantación (Jamil et al., 2012; Kuikka et al., 2014).

Podría decirse que otra de las ventajas de los exámenes en línea es el ahorro de tiempo que supone la creación de bancos de preguntas de control reutilizables, de preguntas de opción múltiple reutilizables, que se pueden almacenar y revisar fácilmente para su uso en cohortes posteriores, aunque los encuestados se dividieron casi por igual entre los que estaban de acuerdo y los que no lo estaban (media = 2.9). Los elementos de la prueba deben renovarse para reducir el riesgo de trampas y de memorización. Las preguntas de los exámenes en línea también deben estar sujetas a normas de garantía de calidad, garantizando que el diseño de las preguntas se ajuste a los objetivos de aprendizaje del curso.

Aunque los únicos exámenes en línea que se realizan actualmente en la Universidad Alas Peruanas son exámenes sumativos que se llevan a cabo en los laboratorios de computación del campus, el 71.1% de los participantes percibieron que los exámenes en línea eran más accesibles que los basados en papel. Las pruebas formativas deben realizarse de forma regular. Los exámenes en línea pueden realizarse en cualquier momento y lugar, incluso durante las clases, y pueden combinarse con trozos de aprendizaje relevantes aprovechando los dispositivos móviles de los estudiantes (Shraim y Crompton, 2015). Un factor relevante es el reciente y significativo desarrollo y expansión de la educación en línea y a distancia. El panorama educativo de Perú está experimentando una transformación en la que las universidades se encuentran en diferentes fases de adopción del aprendizaje y los exámenes en línea. Para que más universidades adopten este enfoque, hay que tener muy en cuenta la flexibilidad en la realización de los exámenes en línea, la mejora de la infraestructura y abordar los problemas de seguridad.

### *Seguridad*

La seguridad es un aspecto crítico de cualquier examen. La tabla 1 muestra que los participantes están divididos más o menos por igual en cuanto a si los materiales y los resultados de los exámenes son más seguros cuando los exámenes se realizan en línea en lugar de los métodos tradicionales. Esta conclusión es coherente con las de Bernik y Jereb (2006) y Dermo (2009). Los sistemas de gestión de exámenes, como Moodle, incorporan funciones de supervisión para proteger los datos de accesos no autorizados mediante el seguimiento y el registro sistemáticos de actividades como el inicio y el cierre de sesión, el acceso al examen, la navegación por las preguntas y las respuestas. El contenido de cada examen se guarda de forma segura en una base de datos en un servidor accesible sólo al personal autorizado. Como se observa en la tabla 2, el 85% de

los participantes considera muy importante la confidencialidad y la seguridad de la red de los exámenes en línea para evitar el uso indebido de los bancos de preguntas y otros datos, que deben almacenarse en un formato cifrado de alta seguridad.

Además, la respuesta más fuertemente negativa (media = 1.6) fue a la afirmación de que la tecnología de los exámenes en línea es suficientemente eficaz para hacer frente a las trampas y al plagio, con la que hasta el 83.1% de los participantes estaba en desacuerdo y sólo el 6.7% estaba de acuerdo. Evitar las trampas en los exámenes en línea puede ser difícil, dada la disponibilidad de tecnologías como Bluetooth, redes inalámbricas, teléfonos móviles y dispositivos portátiles. Estos proporcionan varias formas de buscar en Internet y de comunicarse con otros durante los exámenes y no son fáciles de bloquear. Además, con grupos grandes de estudiantes que se examinan en diferentes momentos, un grupo puede beneficiarse de otro al transmitirse información sobre el examen. Por lo tanto, hacer trampa puede ser difícil de prevenir, sobre todo porque los estudiantes expertos en tecnología siempre encontrarán formas innovadoras de hacer trampa. Aunque la Universidad Alas Peruanas ha promulgado recientemente una normativa contra el uso del teléfono móvil, exigiendo a los estudiantes que lo apaguen durante exámenes, varios participantes mencionaron comportamientos poco éticos en sus comentarios. Un estudiante menciona que se le hace más fácil hacer trampa en un examen en línea porque a menudo uso mi reloj inteligente para enviar una captura de pantalla a todo el grupo. Otro estudiante comentó que utiliza su teléfono móvil para enviar mensajes de texto y chatear con mis amigos. Por lo tanto, es un reto encontrar formas de minimizar las trampas. Más de la mitad (62.5%) de los participantes se refirieron a la necesidad de combinar diferentes técnicas y estar al día con soluciones de software de seguridad innovadoras. El navegador Secureexam, por ejemplo, impide que los estudiantes abran cualquier otra ventana durante un examen en línea y desactiva las opciones del botón derecho, como copiar, pegar y capturar la pantalla (Anusha et al., 2012; Sarrayih y Ilyas, 2013).

La autenticación de los examinados es otro aspecto importante de la seguridad, como señalaron casi dos tercios de los participantes. La mera exigencia de introducir un nombre de usuario y una contraseña no es suficiente para este propósito. Las tecnologías de detección, como las cámaras web, el análisis biométrico de las pulsaciones del teclado y otros sofisticados programas informáticos, están disponibles para apoyar la vigilancia y la autenticación, lo que permite al sistema verificar la identidad de los estudiantes y validar sus logros. Sin embargo, la autenticación de la identidad y el control son más difíciles en el caso de los exámenes en línea a distancia, la autenticación de la identidad y el control son más difíciles, ya que, a diferencia de lo que ocurre en un aula con la presencia física de un supervisor, los estudiantes a distancia suelen realizar los exámenes en entornos no controlados, como casas o lugares públicos. Por lo tanto, para demostrar y mantener la integridad, las universidades requieren vigilancia en tiempo real. El software de supervisión remota permite a los estudiantes realizar los exámenes en cualquier lugar que elijan, supervisando la manipulación del ratón y los movimientos de la cabeza y los ojos para detectar los intentos de engaño.

Aunque Moodle no dispone de funciones totalmente eficaces para tratar las trampas y el plagio. Proporciona una amplia gama de opciones para aleatorizar el orden de las preguntas de opción múltiple y barajar las respuestas, minimizando así el comportamiento poco ético. La tabla 1 muestra que el 75.4% de los participantes está de acuerdo en que las preguntas aleatorias de un banco hacen que sea menos probable hacer trampas durante los exámenes en línea que en los de papel, lo que coincide con las conclusiones de Bernik y Jereb (2006).

## 5. Conclusiones

Con el uso generalizado y creciente de exámenes en línea en instituciones de educación superior en Perú, este estudio ha examinado los aspectos prácticos de dichos exámenes e identificado varios factores a considerar para apoyar la implementación exitosa de exámenes en línea desde la perspectiva de los estudiantes de la Universidad Alas Peruanas.

Los participantes percibieron que los exámenes en línea tenían ventajas significativas sobre los tradicionales basados en papel, incluida la fiabilidad de la puntuación y la eficiencia a largo plazo en términos de tiempo, esfuerzo y costos. Los hallazgos también indican que los aspectos de equidad, validez y seguridad son los principales desafíos a los que se enfrenta la implementación exitosa de exámenes en línea.

Por lo tanto, la eficacia de los exámenes en línea se puede lograr mediante el diseño de los mismos para que sean válidos, fiables, seguros y flexibles, con el propósito de promover el aprendizaje y asegurar la alineación con los resultados de aprendizaje previstos. La implementación exitosa requiere apoyo institucional, incluida la creación de condiciones adecuadas para la realización de exámenes en línea, facilitando los trámites administrativos, proporcionando el apoyo financiero necesario, mejorar la infraestructura, la creación de la capacidad del personal académico y proporcionarles orientación y apoyo técnico y pedagógico. Este estudio ha demostrado que, en aras del desarrollo sostenible, el enfoque de examen en línea debe integrarse dentro de la planificación estratégica de la Universidad.

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## Desarrollo de los derechos de la naturaleza en Ecuador

### Development of the rights of nature in Ecuador

**Girard David Vernaza Arroyo**

girard.vernaza@utelvt.edu.ec

<https://orcid.org/0000-0001-8591-6154>

Universidad Técnica Luis Vargas Torres: Esmeraldas, EC.

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#### Resumen

La presente investigación tuvo como objetivo identificar los principales problemas conceptuales, legislativos y jurisprudenciales relativos a la naturaleza como sujeto de derechos y los que le son reconocidos en la Constitución ecuatoriana de 2008. Para desarrollar el tema se aplicó una metodología cualitativa con base en la circularidad hermenéutica, la cual permitió realizar una exploración inicial del tema para definir los objetivos y determinar el estado del arte mediante la revisión documental. La conclusión es que los derechos de la naturaleza carecen de un desarrollo teórico, legislativo y jurisprudencial que garanticen su comprensión a tenor de las exigencias y expectativas creadas con la entrada en vigencia de la Constitución de 2008.

**Palabras clave:** Naturaleza, derechos de la naturaleza, legislación ambiental, legislación, jurisprudencia.

#### Abstract

The objective of this research was to identify the main conceptual, legislative and jurisprudential problems related to nature as a subject of rights and the rights that are recognized in the Ecuadorian Constitution of 2008. To develop the subject, a qualitative methodology was applied based on the hermeneutical circularity, which allowed an initial exploration of the subject to define the objectives and determine the state of the art through documentary review. The main conclusion is that the rights of nature currently lack a theoretical, legislative and jurisprudential development that guarantees their adequate understanding in accordance with the demands and expectations created with the entry into force of the 2008 Constitution.

**Keywords.** Nature, rights of nature, environmental legislation, legislation, jurisprudence.

## 1. Introducción

El estudio de los derechos de la naturaleza, y la subsecuente cualidad de sujeto de derechos que se le atribuyó en la Constitución ecuatoriana de 2008 (Asamblea Constituyente, 2008), ha sido abordado desde diferentes perspectivas; principalmente desde la ecología y los estudios ambientales, sin que exista hasta el presente un dimensionamiento del contenido y alcance jurídico de esos derechos, los elementos de la naturaleza a los que concretamente se les pueden reconocer y hacer efectivos, y los mecanismos legales necesarios para su desarrollo y defensa ante posibles violaciones del Estado o los particulares (Bustamante, 2019).

En este contexto, los derechos de la naturaleza han funcionado, hasta el presente, como un argumento adicional a los históricamente utilizados para defender los recursos naturales, los ecosistemas, los bienes ambientales y en general todo lo que pueda ser afectado por la acción humana, sin que se precise su ámbito específico de validez y distinción respecto al Derecho ambiental, que se ha ocupado en las últimas décadas de proveer un marco regulatorio y una estructura conceptual apropiada para la protección del medio ambiente.

Estudiar el desarrollo de derecho, sea de personas o entes distintos como la naturaleza o los animales; en algunos casos declarados sujetos con derechos; requiere al menos tres perspectivas; la construcción de un marco conceptual idóneo para su explicación y fundamentación teórica; el desarrollo legislativo, que debe incluir contenido y alcance, mecanismos de defensa como personas legitimadas para activarlos; finalmente la interpretación y aplicación de la legislación vigente, los jueces y tribunales que han debido resolver demandas por presunta violación de los derechos de la naturaleza.

Debe indicarse como punto de partida, que en el Ecuador ninguna de las tres perspectivas mencionadas ha tenido, hasta el presente, un desarrollo apreciable, razón que justifica el presente estudio que, tiene como propósito hacer una revisión del tema y construir un esbozo del estado del arte, a partir de la revisión de estudios teóricos, la legislación relativa la protección del ambiente y la jurisprudencia relevante de algunos tribunales ecuatorianos al respecto.

La pregunta a responder es la siguiente ¿Cuál es el estado de desarrollo de los derechos de la naturaleza en el Ecuador, desde el punto de vista teórico, legislativo y jurisprudencial? Para su desarrollo se aplicó una metodología cualitativa, que permitió extraer las ideas, conceptos, categorías y argumentos relativos a los derechos de la naturaleza, la sistematización de las normas jurídicas vigentes sobre el tema y las tendencias jurisdiccionales en los casos resueltos por presunta violación de derechos de la naturaleza desde 2008 hasta el presente.

## 2. Metodología

La metodología cualitativa empleada tuvo entre sus objetivos como primer lugar, la identificación de los principales problemas teóricos y conceptuales relativos a la naturaleza como sujeto de derechos y los derechos que le fueron reconocidos en la Constitución de 2008. En segundo lugar, determinar el grado de desarrollo del marco regulatorio vigente para proteger los derechos de la naturaleza. En tercer lugar, se presenta la existencia de una línea jurisprudencial en materia de derechos de la naturaleza.

En el contexto del paradigma cualitativo se asumió la hermenéutica; tal como señala Leal (2005), se entiende por hermenéutica el arte de interpretar textos del cual sabemos que es un vocablo derivado del verbo griego *Hemeneuo* que significa interpretar y se justifica en una circularidad metódica justamente en el mismo texto y en la totalidad del mismo, además privilegia la intención del autor, al contexto y al medio de significación como sistematización.

En este trabajo, la referida circularidad está compuesta de la siguiente manera; exploración temática que se ve reflejada en los objetivos; comprensión inicial, constituida por el estado del arte; la comprensión profunda subyace en las respuestas que emergieron de las ideas, conceptos, categorías y argumentos relativos a los derechos de la naturaleza, su delimitación, contenido y alcance.

El estado del arte se presenta en el epígrafe relativo a la indefinición de la naturaleza como sujeto de derechos, donde se pone de manifiesto que en los estudios teóricos sobre el tema no se ha avanzado más allá de la apología de la naturaleza como sujeto de derechos, sin ahondar en las implicaciones teóricas y las consecuencias prácticas de romper con una tradición jurídica, según la cual solo las personas individuales o colectivas pueden ser sujetos de derechos, pero no entes no humanos como es la naturaleza.

Para analizar el ya referido punto de la investigación, se hizo una revisión de las principales publicaciones de los últimos diez años distribuida en libros, artículos científicos, reportes institucionales e información de diversa naturaleza, obtenida de sitios web verificados en su contenido. Una búsqueda exhaustiva de la información por autores, permitió verificar que tras la diversidad de publicaciones se encuentran los mismos investigadores que repiten enfoques y argumentos a través de diferentes medios.

Para determinar el nivel de desarrollo legislativo y jurisprudencial de los derechos de la naturaleza, se hizo una revisión de la legislación de contenido propiamente ambiental, puesta en vigencia desde 2008 hasta el presente; donde se constató que los derechos de la naturaleza se mencionan, pero no se desarrolla su contenido y alcance, ni la manera en que son protegidos en la legislación sobre minería, aguas, medio ambiente o

delitos ambientales. Lo mismo se aprecia en la legislación procesal donde no se ha avanzado más allá de aplicar los mismos principios y norma procesal a sujetos tan diversos como las personas y la naturaleza.

Finalmente, para determinar el desarrollo jurisprudencial se revisaron varias sentencias de la Corte Constitucional del Ecuador relativas a los derechos de la naturaleza, donde se pudo determinar que no existe una línea definida en cuanto al contenido y alcance de tales derechos, los elementos de la naturaleza que deben ser considerados sujetos de los mismos y las obligaciones del Estado y la sociedad para proteger elementos de la naturaleza como ríos, bosques o ecosistemas frágiles, que no se limiten únicamente a la legislación ambiental tradicional y apliquen un nuevo paradigma derivado de la consideración de la naturaleza como sujeto.

## 2. Indefinición de la naturaleza como sujeto de derechos

Aquí se sistematizan los principales problemas conceptuales relacionados con los derechos de la naturaleza, pues si bien el sujeto a quien se atribuyen tales derechos parece evidente, el tema es más complejo cuando se trata de determinar qué es y qué no es naturaleza o a qué elementos se le atribuyen esos derechos y a cuáles no. La idea básica es que si la naturaleza considerada como un todo es sujeto de derechos, por mera lógica debería afirmarse que tiene la misma cualidad que cada uno de sus componentes. Dicho de otra manera, si los derechos reconocen a una totalidad, por ejemplo, todos los seres humanos, no habría manera de negar la misma condición a cada una de las partes de esa totalidad, pues de lo contrario discriminaría a qué o quiénes dentro de la totalidad, aún reuniendo la propiedad esencial que les une de modo esencial no entra bajo el paraguas que cubre a esa totalidad. Si se pregunta ¿Qué es la naturaleza? La respuesta señalaría todo lo existente en el mundo tangible, desde las montañas hasta los animales grandes o pequeños que la habitan; inclusive las fuentes de agua, los microorganismos, los peces como parte de la especie marina, y así todo lo que puede ser percibido por el ser humano.

De los elementos referidos, surge la pregunta ¿Cuáles son sujeto de derechos y cuáles no? Al ser la Constitución de República la norma suprema donde se declara la naturaleza como sujeto de derechos, la respuesta debería buscarse en primer lugar, en su contenido, pero allí no aparece sino la palabra repetida para indicar su cualidad de sujeto, sin mayores precisiones que pudieran arrojar una luz sobre el modo interpretativo de esa condición que la asimila al ser humano en cuanto a su consideración jurídica.

Del mismo modo, no es posible encontrar una guía en la intención del constituyente, pues lo publicado sobre el tema por los actores involucrados en el proceso, apenas pasa de lo anecdótico; permitiendo hacer mención, por ejemplo, de las personas que intervinieron, los debates a lugar en las comisiones respectivas y en el pleno de la Asamblea Constituyente o en los medios de comunicación (Fundación Pacha Mama, 2008).

A ello debe añadirse lo infructuoso de la búsqueda en los estudios de Derecho ambiental o de Derechos constitucional anteriores a la Constitución, pues su inexistencia es un hecho ya conocido en el país ante lo que podría llamarse una demanda o idea clara de consideración a la naturaleza como algo más que un objeto del Derecho, y como tal una fuente de recursos naturales.

Este planteamiento es reafirmado por un estudio reciente de F. Simón Campaña, ya desarrollado extensamente en la tesis doctoral defendida por el autor de esta investigación en la Universidad de Oriente de Santiago de Cuba (Vernaza, 2019). Según el ya referido autor, “la iniciativa de otorgarle derechos de la naturaleza provino de fuera del país, no estaba en la agenda de ninguno de los actores políticos nacionales o del movimiento indígena, incluso es posible identificar cierta oposición inicial del movimiento indígena por considerar que esto podía ser una amenaza a sus derechos territoriales” (Campaña, 2019).

Por tratarse de una idea proveniente del extranjero materializada en la Constitución, que tiene sus fundamentos en estudios con cierto grado de profundidad y sistematicidad, podría buscarse el modo de entender la naturaleza como sujeto de derechos que permita una definición precisa de todo lo que nos rodea. Sin embargo, tampoco existe ese desarrollo conceptual a nivel internacional; aparte de algunas referencias a teorías como la *Gaia* (Zaffaroni, 2011) o las elaboradas por los defensores de los derechos de los animales (Martínez & Acosta, 2017), no es posible encontrar una elaboración a nivel conceptual de la naturaleza como sujeto en general, o como sujeto de derecho en particular.

Esa falta de desarrollo a nivel nacional o internacional sobre la naturaleza como sujeto de derechos coloca al estudioso en una encrucijada difícil de resolver, por cuanto no permite disponer de un aparato conceptual que identifique el ser concreto sobre el que recaen esos derechos reconocidos, y por tanto deja a los defensores de los mismos sin una guía segura para determinar cuándo se puede alegar una violación de los derechos atribuidos a la naturaleza como totalidad. Se podría decir que la naturaleza es lo que todos nombran, pero no alcanzan a definir, y esa definición es imprescindible cuando se trata de atribuirle consecuencias jurídicas.

La indefinición genera una serie de problemas jurídicos de sumo interés. Por ejemplo, no contar con una definición de la naturaleza a quien se le atribuyen derechos, resulta poco menos que imposible para el legislador identificar los deberes correlativos a esos derechos, los sujetos obligados y el contenido y alcance de esas obligaciones, así como las acciones concretas para hacerlos efectivos o reivindicarlos en caso de violación por otros sujetos de derechos.

También afecta la aplicación práctica de esa categoría jurídica que es la de sujeto de derechos, construida desde el Derecho romano como una cualidad inherente al ser humanos, dotado de conciencia y voluntad y capaz de actuar con base en fines que

persigue de manera consciente. Si a un ente distinto al ser humano se aplica esa cualidad puede resultar complejo hacerla operativa, pues hasta donde llegan los conocimientos actuales, la naturaleza en general o cualquiera de sus componentes, carece de ellas. Finalmente, está el problema de aplicar la condición de sujeto de derechos de la naturaleza a sus partes esenciales.

Se puede inferir que cualquier persona estaría de acuerdo en que los animales son una parte esencial de la naturaleza, como los ríos, los bosques o cada árbol en particular, como también los virus que causan enfermedades y las plagas que afectan los cultivos destinados a la alimentación humana. Sin embargo, la ciencia ha realizado ingentes esfuerzos para eliminar los virus y exterminar el infortunio propagador de las plagas; al tiempo que incurre en la indiscriminada tala de árboles, contamina los ríos y se alimenta de animales domesticados, o se sirve de ellos para espectáculos o animales de compañía.

Lo que causa perplejidad es que mientras contienen los elementos indicados son considerados, sujeto de derechos, según la Constitución ecuatoriana, cada uno de ellos por separado no goza de esa protección, pues son utilizados como medios para satisfacer fines o necesidades humanas, en contra de la máxima moral que indica que los sujetos no deben ser empleados como un medio para alcanzar los fines de otros, pues son en sí mismos fines valiosos (Herrero, 2016).

En resumen, o bien todos los elementos de la naturaleza son sujeto de derecho por lo que el ser humano no podría moralmente utilizarlos como medios, o la cualidad de sujeto de derechos atribuida a la naturaleza tiene un carácter ontológico imposible de precisar con los instrumentos y categorías analíticas desarrolladas hasta el momento. La dificultad no se presenta únicamente ante los estudiosos, sino también al legislador como se verá en el apartado siguiente.

### 3. No hay desarrollo legislativo de los derechos de la naturaleza

En virtud de que no existe una determinación clara del sujeto sobre el que deben recaer los derechos atribuidos a la naturaleza, es evidente que su desarrollo legislativo se verá comprometido, tal como ha acontecido en los más de doce años de vigencia de la Constitución de 2008. Según el numeral 8 de su artículo 11, el contenido de los derechos se desarrollará de manera progresiva a través de las normas, la jurisprudencia y las políticas públicas, por lo que es necesario analizar en este punto cuál ha sido el grado de desarrollo de los derechos de la naturaleza mediante la legislación, y en el siguiente epígrafe su desarrollo por la vía jurisprudencial.

Lo primero que debe indicarse es que no existe una ley especial que desarrolle el contenido y alcance de los derechos de la naturaleza, ni una reserva de ley que obligue al legislador en tal sentido, como se deduce de la redacción de los artículos 71 y 72. Por tanto, lo que se haya regulado en la legislación con posterioridad a 2008 puede responder a una obligación derivada de la propia Constitución, que atribuye la cualidad de sujeto

de derechos a la naturaleza y le adjudica derechos específicos, o de una necesidad de coherencia normativa cuando se establece el marco regulatorio del uso, aprovechamiento o explotación de los recursos naturales.

Esta última aseveración es la que nos parece correcta y será confirmada con el análisis de la legislación ambiental dictada hasta el presente, donde en la mayoría de los casos la naturaleza aparece mencionada sin que se establezcan reglas concretas para su protección como sujeto de derechos, distintas a las habituales destinadas al proteger los recursos naturales y establecer obligaciones a los sujetos que interactúan en torno a los mismo. Aquí conviene hacer una distinción realizada por el jurista mexicano Raúl Brañes. Según el autor existen tres tipos de normas o de legislación ambientales (Brañes, 2001, pág. 11):

- La legislación común de relevancia ambiental o legislación de relevancia ambiental casual, integrada por las normas jurídicas expedidas sin ningún propósito ambiental, pero que regulan conductas que inciden significativamente en la protección del medio ambiente, sus orígenes datan del siglo XIX.
- La legislación sectorial de relevancia ambiental, integrada por las normas jurídicas expedidas para la protección de ciertos elementos ambientales o para proteger el medio ambiente de los efectos de algunas actividades, que es propia de las primeras décadas del siglo XX.
- La legislación propiamente ambiental, integrada por las normas jurídicas expedidas con arreglo a la moderna concepción que visualiza al medio ambiente como un todo organizado a la manera de un sistema.

En el caso del Ecuador, la legislación ambiental propiamente dicha es aquella dictada para imponer el régimen regulatorio de determinados recursos naturales, mientras que la legislación común de relevancia ambiental la que sin tener ese propósito incluye normas destinadas a la protección del ambiente o a sancionar las infracciones sobre el mismo. Entre las primeras, se encuentran las leyes orgánicas que, dictas después de 2008, establecen el marco normativo de recursos naturales en particular, mientras como ejemplo de las segundas identificamos al Código Orgánico Integral Penal que tipifica delitos y prevé sanciones para quienes atenten contra el bien jurídico constituido por ambiente el ambiente y la naturaleza o Pacha Mama.

Antes de entrar en el análisis de cada una de esas leyes que contemplan lo relevante para la protección de los derechos de la naturaleza, debe indicarse que en el año 2018, a propósito de cumplirse la primera década de una Constitución con derechos de la naturaleza, se reunió un grupo de juristas y ambientalistas para hacer un balance del desarrollo en ese tiempo, y el resultado fue más bien magro pues las diversas aristas exploradas no arrojaron sino tenues referencias la naturaleza o sus derechos sin ningún progreso digno de mención.

Los trabajos fueron publicados en el texto titulado *Una década con derechos de la*

*naturaleza* (Maldonado & Martínez, 2019), y contiene trabajos sobre la judicialización de los derechos de la naturaleza, los derechos de la naturaleza en el ámbito administrativo y en el ámbito penal, así como el estudio de la jurisprudencia constitucional relevante y algunos casos de conflictos socio ambientales donde se alega afectación a los derechos de la naturaleza.

Otro estudio que configura el estado de la cuestión sobre el desarrollo legislativo es el trabajo publicado por Diego Viteri Núñez titulado *Los derechos de la naturaleza en la legislación Ecuatoriana*, (Viteri, 2019), donde el autor hace un balance de la legislación propiamente ambiental dictada hasta ese momento y sus características principales en cuanto a los derechos de la naturaleza, llegando a la conclusión de ésta se menciona en esas disposiciones jurídicas, pero no existe un desarrollo del contenido y alcance de esos derechos que pueda considerarse apreciable.

Las leyes más importantes dictadas hasta la actualidad, por su carácter orgánico y la amplitud de sus regulaciones, son en orden cronológico la Ley de Minería, (Asamblea Nacional, 2009), la Ley Orgánica del Régimen de la Soberanía Alimentaria (Asamblea Nacional, 2009-a), la Ley Orgánica de Recursos Hídricos y Usos y Aprovechamiento del Agua (Asamblea Nacional, 2014-a) y el Código Orgánico del Ambiente (Asamblea Nacional, 2017).

En ninguno de esos cuerpos legales se desarrolla el contenido de la naturaleza, solo mencionan en su parte expositiva o como un deber general de las entidades del sector público o los ciudadanos concernidos por sus regulaciones, pero no se define el agua, los recursos mineros o los destinados a la alimentación como sujetos de derechos. Por lo que se refiere al régimen jurídico penal, donde consta en el Código un capítulo denominado *delitos contra la naturaleza o Pacha mama*, lo cierto es que los delitos tipificados en el mismo son los delitos ambientales comunes a cualquier legislación penal, algunos de los cuales ya existían en el Código Penal de 1971 bajo el título de *delitos contra el medio ambiente*.

Por otra parte, no se advierte en la configuración de esos delitos en el Código vigente, una influencia de los derechos de la naturaleza en la configuración jurídica de los delitos ambientales; a pesar de referir en el título como bien jurídico la naturaleza, ninguno de los delitos la protege a ella de un modo especial, es decir como sujeto de derechos, y no se tipifica infracción alguna que se configure cuando se violan los artículos 71 y 72 de la Constitución donde constan los derechos de la naturaleza.

En resumen, no existe en la actualidad en el Ecuador ningún desarrollo apreciable de los derechos de la naturaleza en el plano legislativo, pues no hay una ley especial que los desarrolle en su contenido y alcance, y la legislación ambiental solo menciona esos derechos y a la naturaleza como sujeto, pero no les atribuye consecuencia alguna por lo que se mantienen en el plano de las intencionalidades positivas que no se materializan en normas jurídicas operativas que permitan su adecuada protección como sucede en el caso de los derechos de las personas.



De modo que el legislador no ha extraído aún todas las consecuencias posibles de la condición de sujeto de derechos atribuida a la naturaleza, ni ha hecho realidad las esperanzas cifradas en su inclusión en la Constitución de 2008, que garantiza una mejor protección del ambiente y la naturaleza al atribuirle una condición similar a los seres humanos que son titulares de derechos. El discurso del constituyente finalmente no se ha traducido en el discurso del legislador ni del teórico del Derecho; debería evaluarse sí a pesar de las limitaciones señalada no pesan también sobre su protección en sede judicial, análisis que se realiza en el epígrafe siguiente.

#### 4. No hay líneas jurisprudenciales sobre los derechos de la naturaleza

El concepto de líneas jurisprudenciales es complejo, pues se construye a partir de casos relevantes durante un período de tiempo para determinar las similitudes en las decisiones de los tribunales, generalmente del más alto tribunal de la justicia ordinaria o el de la jurisdicción constitucional, sobre un mismo tema en cuanto a normas aplicadas, argumentos utilizados y decisiones adoptadas. En el estudio de esos casos el investigador debe considerar la mayor cantidad de sentencias posibles, clasificarlas, catalogarlas y extraer los elementos comunes que le permitan construir una línea que identifique la doctrina sentada sobre la materia. En definitiva, debe escoger las sentencias que “tienen un peso estructural fundamental dentro de la línea por oposición a sentencias de menor importancia doctrinal” (López, 2009, pág. 160).

A partir de esos presupuestos el investigador Álvaro Andrés Motta Navas realizó una sistematización de las principales definiciones del concepto de líneas jurisprudenciales que conviene considerar por su importancia para el estudio de la jurisprudencia sobre los derechos de la naturaleza. Las principales características de las líneas jurisprudenciales, según su resumen, serían las siguientes (Motta, 2010, pág. 21).

1. Son elementos de análisis de jurisprudencia encaminadas a determinar el precedente judicial aplicable en casos futuros de características similares.
2. Exigen la realización de narraciones sobre determinado tema o problema jurídico tratado por la jurisprudencia, y requiere la presentación de una teoría jurídica completa sobre la materia.
3. Permiten la representación visual del tratamiento jurídico de una materia por parte de los jueces.
4. Son un método de identificación de decisiones previas que tienen fuerza vinculante y constituyen buenas razones para la estructuración de decisiones subsecuentes, ajustadas a los estándares fijados por la reiteración.
5. Son una técnica que permite la citación y referencia jurisprudencial dentro de esquemas de jurisprudencia libre o indicativa, lo que supone que los tribunales deben ajustarse a ella para evitar que sus decisiones sean revisadas y en su caso revocadas por un tribunal de instancia superior.

6. Son un sinónimo de la regla o subregla de derecho, contenido en una providencia judicial para su aplicación obligatoria en casos con los que comparte características distintivas.
7. Son un método de organización de argumentos y razonamientos contenidos en las providencias judiciales.
8. Son un ejercicio metodológico encaminado a identificar una tendencia jurisprudencial vigente, con base en un patrón fáctico o en una institución jurídica específica, con vocación de uniformidad.

En cuanto método, la línea jurisprudencial consta de una serie de pasos delimitados por Héctor Santaella Quintero en su estudio sobre *La línea jurisprudencial como instrumento esencial para conocer el Derecho*, donde plantea que la aplicación de esta metodología consta de al menos cinco pasos que serían los siguientes (Santaella, 2016, pág. 7):

1. Identificar un problema jurídico claramente establecido que haya sido resuelto por la jurisprudencia. Definir un patrón fáctico y jurídico en el que típicamente se presente la cuestión indagada, que sirva de marco de referencia a la búsqueda de sentencias.
2. Realizar una investigación exhaustiva de los distintos pronunciamientos que se hayan ocupado del asunto en el lapso señalado como objeto de estudio.
3. Previa selección de las principales providencias (sentencias hito).
4. Ordenar y agrupar ese material en torno a posturas defendidas a lo largo del tiempo, que reflejen los debates internos que se han dado en la jurisprudencia y hagan apreciable la evolución y vicisitudes de la regla controlante del caso.

Ahora bien, en los estudios revisados no consta cuántas sentencias deberían revisarse aplicando ese método, para determinar una línea jurisprudencial sobre un tema determinado, que en nuestro caso serían los derechos de la naturaleza cuando son judicializados por los jueces ecuatorianos. Sobre ese particular realizó un estudio el investigador Farith Simón Campaña en el trabajo antes citado (Campaña, 2019). Según el autor, hasta el 10 de junio de 2018, es decir diez años después de ser catalogada la naturaleza como sujeto de derechos, la Corte Constitucional se había pronunciado por el tema en un total de 32 decisiones.

¿Es suficiente esa cantidad de decisiones para determinar una línea jurisprudencial? Si consideramos que entre ellas se encuentran no solo sentencias sino dictámenes, autos de admisión y resoluciones, la respuesta a esa pregunta sería negativa. Por otra parte; al no ser en todos los casos resoluciones sobre el fondo del asunto, en muchos de ellos los derechos de la naturaleza aparecen mencionados de paso o como argumento de refuerzo sobre algún punto de hecho o de Derecho, sin que haya una delimitación clara de los aspectos abordados en este ensayo, es decir de la determinación del sujeto de derechos naturaleza y de las normas que desarrollan sus derechos.

Como esa investigación mencionada llega hasta 2018, recurrimos al Boletín Anual de la Corte Constitucional correspondiente al año 2020, donde se constata que entre los casos seleccionados para su conocimiento y solución no consta ninguno sobre los derechos de

la naturaleza entre los más relevantes, aunque en sus estadísticas el organismo menciona como nuevos temas seleccionados los “derechos de la naturaleza y seguridad jurídica en el contexto de concesiones mineras que se habían emitido dentro de la zona parte de la reserva de biosfera Podocarpus-El Cóndor y de la reserva biológica Cerro Plate” (CCE, 2020, pág. 66).

Es decir, no se trata de casos sino de un caso respecto del cual todavía no existe una sentencia a favor o en contra de los accionantes. Otros autores, han hecho algunos intentos por catalogar la jurisprudencia sobre los derechos de la naturaleza y establecer sus características, pero al menos los que fueron consultados se quedan en la promesa porque no hay mucha fuente jurisdiccional de donde sacar algo provechoso sobre el tema (DPE, 2013).

Volviendo al trabajo citado con anterioridad, el autor tampoco llega a una conclusión sobre cuál es el concepto de la naturaleza a la que se le atribuye la cualidad de sujeto de derechos y se le adjudican derechos concretos, pues la Corte Constitucional en las sentencias que analizó es tan confusa como los teóricos mencionados en el primer epígrafe de este ensayo, refiriéndose aquella como “ser vivo” cuyo reconocimiento como sujeto de derecho implica la ruptura del paradigma tradicional de relacionarse el ser humano con la naturaleza, y ser el origen de un nuevo paradigma radicalmente distinto (CCE, 2016, pág. 12).

Más desconcertante es que en la misma sentencia, unas líneas más abajo, la Corte señala que “los derechos de la naturaleza, al igual que el resto de derechos consagrados en la Constitución son inalienables, irrenunciables, indivisibles, interdependientes y de igual jerarquía; siendo un deber fundamental del Estado respetar y hacer respetar los derechos garantizados y establecidos en la norma constitucional” (CCE, 2016, pág. 13). Esa afirmación puede interpretarse de dos maneras distintas. La primera es que equipara la naturaleza y al ser humano en cuanto a sujeto de derechos de igual categoría, es decir que la naturaleza debe ser considerada y tratada como *si fuera un ser humano*, pues sus derechos tienen las mismas características que los de aquéllos.

La otra interpretación posible es que la Corte Constitucional recurre, como los teóricos de los derechos de la naturaleza y el legislador, a ese tipo de argumentos para que no quede por fuera la mención de la naturaleza como sujeto de derechos, sin atribuir a ese concepto un contenido concreto ni derivar del mismo alguna consecuencia práctica importante. Es como si cada quien por su lado y de manera independiente adoptara la misma pose grandilocuente sin considerar los problemas mencionados a lo largo de este escrito, pues desde ninguna de las perspectivas válida para abordar el tema se puede advertir un desarrollo considerable, que por lo menos marque una tendencia en el orden teórico o práctico.

En resumen, tampoco existe una línea jurisprudencial definida en cuanto al contenido y alcance de los derechos de la naturaleza; tampoco sobre el ser sobre el que recae la

cualidad de sujeto y debe ejercer las facultades que se derivan de su adjudicación, pues en el nivel de la aplicación de la Constitución y las leyes tampoco se ha dado respuesta a los dilemas que presenta la cualidad de sujeto de derecho atribuida a la naturaleza.

En todo caso se ha impuesto la retórica, la mención, la referencia y la utilización de los derechos de la naturaleza como un argumento adicional a los tradicionales sobre la necesidad de proteger el ambiente y los recursos naturales. En ese contexto, se impone otra cuestión que debe ser desarrollada en futuras investigaciones, y es la pregunta hipotética de qué hubiera pasado si no se atribuye esa cualidad a la naturaleza y no se le adjudican derechos específicos.

Una conjetura válida es que todo seguiría como antes, es decir, que el Derecho ambiental estaría cumpliendo la misma función de regular el uso, aprovechamiento y explotación de los recursos naturales y los bienes ambientales dentro de los estándares definidos en la comunidad internacional y aquellos que se incorporen en el Derecho interno.

Es probable que los derechos de la naturaleza hagan de ese Derecho ambiental un mecanismo de prevención protección y sanción más eficaz, pero hasta ahora no se ha demostrado que así sea en los 12 años de una naturaleza ecuatoriana con derechos.

## 5. Conclusiones

Como resultado de este proceso investigativo apoyado en su carácter epistemológico y metodológico de la circularidad hermenéutica, se exponen seguidamente los elementos conclusivos más importantes, entre aquellos encontrados en los documentos relativos a los derechos de la naturaleza y su cualidad de sujeto, que fueron el eje fundamental en la exploración inicial, el estado del arte y ahora en la comprensión profunda del tema estudiado.

1. Los principales problemas teóricos y conceptuales relativos a la naturaleza como sujeto de derechos y los derechos que le son atribuidos en la Constitución se refieren a dos aspectos distintos. En primer lugar, a la indefinición de la naturaleza en tanto sujeto, pues si bien desde un punto de vista general no habría dificultades en señalar que todo lo que nos rodea es naturaleza y por tanto sujeto, cuando se desciende a los elementos que la integran se puede apreciar que éstos no son sujetos de derechos.
2. El segundo problema es que no se ha definido, a nivel teórico, el contenido y alcance de los derechos de la naturaleza, ya que en las fuentes revisadas se da por entendido que ese contenido está precisado en la Constitución, cuando en realidad no es así porque los derechos que allí se enuncian si se interpretan literalmente el derecho a la existencia y mantenimiento de sus ciclos vitales es imposible de materializar, y el derecho a la restauración existe en el Derecho ambiental desde sus inicios.
3. Los problemas conceptuales se reflejan a nivel legislativo, donde no se ha desarrollado el contenido y alcance de los derechos de la naturaleza, ni se han determinado cuáles de entre todos los elementos que la integran se benefician de la

calidad de sujeto de derecho que se le atribuye a la totalidad. Y es que las leyes que establecen el marco regulatorio de la minería, el agua o los recursos forestales no dicen que esos recursos sean sujetos, ni que por ello deban recibir una protección especial distinta a la que brinda el tradicional Derecho ambiental.

4. Por lo que se refiere a la identificación de una posible línea jurisprudencial en materia de derechos de la naturaleza, la respuesta a esa cuestión es negativa, pues las sentencias de la Corte Constitucional hasta el momento se han limitado a repetir en algunos casos las ideas vagas formuladas por los teóricos, y en otros a transcribir el contenido de la Constitución, sin entrar a considerar aspectos de fondo como las peculiaridades del sujeto naturaleza, las formas de hacer efectivos sus derechos y los problemas que plantea.
5. A modo conclusivo, se afirma que no existe en la actualidad en el Ecuador, ni en la legislación vigente, ni en la jurisprudencia; un desarrollo apreciable de los derechos de la naturaleza; esta aseveración se basa en que no se ha dictado una ley especial que los desarrolle en su contenido y alcance, ni han establecido los tribunales una línea jurisprudencial que permita identificar cuáles de los elementos de la naturaleza adquieren la calidad de sujetos de derechos, cuál es el contenido y alcance de éstos y qué mecanismos legales e institucionales deben utilizarse para su protección y defensa ante eventuales violaciones por el Estado, las personas o las comunidades.

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## **Aprendizaje colaborativo en tiempos de pandemia hacia la construcción de un eje socioeducativo**

### **Collaborative learning in times of pandemic towards the construction of a socio-educational axis**

**Luis Guanipa**

lguanipa1@uc.edu.ve

<https://orcid.org/0000-0003-4686-945X>

**Ginoid N. Franco**

gfranco@uc.edu.ve

<https://orcid.org/0000-0002-5410-9381>

Universidad de Carabobo (UC). Facultad de Ciencias de la Educación, Venezuela.

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#### **Resumen**

En la actualidad se ha desarrollado la Educación a Distancia gracias a la existencia de las Tecnologías de Información y Comunicación. Es por ello, que el propósito de esta investigación fue consolidar un eje socioeducativo basado en la educación a distancia que coadyuve al aprendizaje colaborativo en el área de Estudios de Postgrado de la FaCE-UC en tiempos de pandemia, sustentado con aprendizaje colaborativo, significativo, constructivismo, enseñanza sincrónica y asincrónica. Por otra parte, el método fue la hermenéutica de Gadamer. Se llegó a la conclusión, que tanto los docentes como los estudiantes expresaron que, mediante las herramientas de comunicación digital, plataformas y redes sociales se pudo adquirir el conocimiento de manera adecuada, mediante procesos sincrónicos y asincrónicos, además consideran que esto ayudará a cambiar la cultura presencial abriendo paso la construcción de una cultura bimodal y virtual.

**Palabras clave:** Educación a distancia, aprendizaje, constructivismo.

#### **Abstract**

At present, Distance Education has been developed thanks to the existence of Information and Communication Technologies. That is why the purpose of this research was to consolidate a socio-educational axis based on distance education that contributes to collaborative learning in the area of Postgraduate Studies of the FaCE-UC in times of pandemic, supported by collaborative, meaningful learning, constructivism, synchronous



and asynchronous teaching. On the other hand, the method was Gadamer's hermeneutics. It was concluded that both teachers and students expressed that through digital communication tools, platforms and social networks it was possible to acquire knowledge in an appropriate way, through synchronous and asynchronous processes, they also consider that this will help to change the culture face-to-face, paving the way for the construction of a bimodal and virtual culture.

**Key Words:** Distance education, learning, constructivism.

## 1. Introducción

### **Devenir de la Inserción Tecnológica en la Educación Universitaria a nivel internacional**

Los procesos comunicativos han evolucionado desde el lenguaje articulado, hasta la apertura a la era de la información y comunicación, la cual generó modificación de varios contextos, incluyendo el educativo, ya que la red pública internet trajo consigo que los procesos de búsqueda, mecanismos y procedimientos de información sean más rápidos; sin embargo, hoy día lo que se busca es ir más allá mediante una “Gestión de Conocimiento” donde se generen reflexiones de la información y se cumpla con el intercambio desnacionalizado del conocimiento (Guanipa, 2019).

Dentro de este marco de perenne transformación, las Tecnologías de Información y Comunicación (TIC) no fueron creadas inicialmente para el desarrollo educativo; sino el desarrollo económico, pero es innegable que paralelo a su desarrollo surgió oportunamente un nuevo paradigma de la enseñanza y del aprendizaje, partiendo de la utilización de las TIC como reforzamiento a la educación presencial, luego la educación mixta (presencial y virtual) favoreciendo la flexibilidad que algunos sistemas educativos formales necesitaban y convirtiéndose así en una propuesta importante de innovación e inclusión hasta llegar a la educación a distancia, en ésta última como plantea Malagón, Rodríguez y Ñanez (2019) se ha convertido en punto de referencia al momento de estructurar programas o universidades con este enfoque “La Universidad Nacional de Educación a Distancia (UNED) en España, la Fernuniversität Hagen en Alemania, la Open University en Reino Unido, la Universidade Aberta en Portugal, entre otras a nivel europeo” (p. 26).

Por otra parte, también existe experiencia en los Estados Unidos donde se ha presentado un notable crecimiento en el número de instituciones educativas privadas y estatales que ofertan programas de pregrado, postgrado y educación continua, destacando las Universidades de Berkeley, Michigan y Florida, en el ámbito privado la universidad de Harvard, Western Governors University (WGU) y Phoenix University, la cual se considera como la mayor universidad de educación a distancia del país (Malagon et al, 2019).

Es conveniente resaltar en relación a la educación a distancia que modalidad de educación no determina en sí misma un cuerpo único de saberes, metodologías, procedimientos; sino, que recoge en su hacer particularidades propias del contexto en los que se desenvuelve, tal como resalta Villalonga (2015) al conceptualizarla como:

El uso de técnicas pedagógicas, recursos y medios de comunicación específicos para facilitar el aprendizaje y la enseñanza entre alumnos y docentes que están separados por el tiempo o la distancia. Las técnicas, recursos y medios de comunicación dependen de factores como: la asignatura, las necesidades y el contexto del alumno, la competencia y experiencia del docente, los objetivos de la instrucción, las tecnologías disponibles y la capacidad institucional (p. 5).

En este sentido, debido al éxito de esta modalidad en educación se ha impulsado su inserción en la mayoría de las universidades situadas en países desarrollados ya que se articulan la tecnología y los procesos formativos, mientras que en los países en vías de desarrollo existen universidades transitando el camino de la actualización de recursos tecnológicos, humanos, económicos y de infraestructura. Tal es el caso, de universidades en México, Costa Rica, Colombia, El Salvador, Paraguay, Ecuador, Panamá, Argentina y Puerto Rico que han aprobado marcos legales que autorizan a las universidades en la administración de los programas de pregrado y postgrado cien por ciento virtuales.

Esta visión del mundo ha permeado en Venezuela donde, existen universidades públicas que trabajan completamente a distancia dentro de las que se encuentra: la Universidad Nacional Abierta (UNA) como la primera del país en utilizar sistemas no tradicionales, tales como: educación a distancia, tele educación, enseñanza programada, entre otros; fue concebida para operar a escala nacional y posee actualmente más de sesenta y siete (67) sedes extendidas a lo largo de todo el país, convirtiéndola en una de las universidades con más sedes en la Nación. Seguidamente; aquellas bajo las modalidades mixtas la Escuela de Estudios Táctico Navales (ETNAV), Universidad del Zulia (LUZ) y dentro de las privadas: Universidad Rafael Bellosó Chacín (URBE), Universidad Yacambú (UNY), Universidad Católica Andrés Bello (UCAB) y Universidad Católica Cecilio Acosta (UNICA).

Dentro de las Universidades venezolanas públicas con trayectoria académica se encuentra la Universidad de Carabobo, la cual desde el año 2007 realizó proyectos pilotos para el uso adecuado de las tecnologías en ambientes educativos reales, con el fin de fortalecer el sistema educativo, difundir conocimientos, brindar acceso a la información, promover un aprendizaje de calidad y efectivo, y prestar servicios de forma más eficaz donde las clases de Pregrado son presenciales y en el Área de Estudios de Postgrado de las diferentes Facultades gran parte de los programas son bajo administración bimodal (Mixtas). Ahora bien, en la Facultad de Ciencias de la Educación (FaCE) de la precitada institución, se posee la experiencia en entornos virtuales donde emergen evidencias a nivel de pregrado y postgrado de integración curricular de las TIC en la educación, así como formación a los profesores para lograr su implantación en el

currículo: Herramientas Digitales para Educadores, Estrategias apoyadas en el uso de las TIC, entre otros.

Por lo que, en la actualidad su inserción en la Universidad de Carabobo ha encontrado sustento legal en el ámbito nacional e interno específicamente con la reciente aprobación de la Normativa de Educación a Distancia (2019) la cual en su artículo 2 la consagra como aquella de carácter “formativo, que utilice recursos de la plataforma tecnológica educativa de la institución y que se adapte a una de las modalidades de ejecución, utilizando para ello las Tecnologías de Información y Comunicación (TIC) en la gestión docente” (p. 10).

Es así como, en los estudios de postgrado de la FaCE en los distintos programas se desarrollan procesos educativos virtuales en respuesta a las exigencias de los escenarios sociales y el contexto educativo internacional que demanda la sociedad del siglo XXI, siendo importante las habilidades y destrezas en el manejo de recursos tecnológicos.

## **2. Educación a Distancia a la luz del aprendizaje colaborativo en tiempos de pandemia.**

El contexto actual mundial de desarrollo de la pandemia covid-19 ha obligado a las Instituciones de Educación Superior (IES) a reestructurar los procesos académicos para asegurar la prosecución académica a distancia, así como articular aspectos institucionales y de la formación para la investigación y producción de conocimientos de los estudiantes. Por ello, en razón a la suspensión de actividades académicas presenciales, la FaCE se adapta a las nuevas realidades y exigencias de los tiempos, cónsona con su sagrada misión de formar profesionales de la docencia de alta calidad académica que respondan a las exigencias del país y el mundo en sus distintos momentos históricos; de allí que, en los estudios de postgrado se asume la administración de la modalidad virtual así como la adecuación curricular de manera excepcional en sujeción al Decreto Estado de Excepción de Alarma N° 4.160, de fecha 13/03/2020 y prorrogado mediante Decreto N° 4.186 de fecha 12/04/2020, ante la pandemia Covid-19.

En este sentido, se hace presente la necesidad de repensar la administración curricular de los programas de los estudios de postgrado en la Facultad de Ciencias de la Educación de la Universidad de Carabobo (UC) y en el caso de la Maestría en Investigación Educativa, objeto de estudio; se ha asumido el desarrollo de las unidades curriculares de forma abierta y flexible para dar respuesta institucional a la situación de contingencia pandémica sobrevenida y los inconvenientes en la conectividad intermitente, en aras de asegurar la calidad, inclusión, construcción y transferencia del conocimiento de manera efectiva y productiva en estos entornos virtuales.

Es por ello, que la direccionalidad y alcance de la investigación se sitúa en el cuatrimestre Mayo-Julio con la atención de los participantes en el mencionado programa en observancia a reducir la brecha de inequidad en la medida de las posibilidades de estudiantes y facilitadores impulsando la autogestión de aprendizaje o aprendizaje autónomo relacionados no sólo con los contenidos de aprendizaje sino también con los intereses particulares de los participantes; de allí el seguimiento permanente y comunicación para valorar la calidad de esta experiencia en cuanto a la administración curricular a distancia, modalidad que en futuro cercano, será necesaria y pertinente. Todo ello conduce a los autores a la siguiente pregunta de investigación: ¿cómo se puede desarrollar la Educación a Distancia a la luz del aprendizaje colaborativo en tiempos de pandemia? y los subsiguientes propósitos de investigación

### **Propósito General**

Construir un eje socioeducativo basado en la educación a distancia a la luz del aprendizaje colaborativo en tiempos de pandemia.

### **Propósitos Específicos**

- Comprender la realidad socioeducativa de la educación a distancia en el contexto investigativo universitario.
- Interpretar las diferentes miradas de la educación a distancia en el área de Estudios de Postgrado de la FaCE-UC.
- Consolidar un eje socioeducativo basado en la educación a distancia que coadyuve al aprendizaje colaborativo en el área de Estudios de Postgrado de la FaCE-UC en tiempos de pandemia.

### **3. Relevancia del Estudio**

Los resultados esperados de esta indagación, servirán de aporte a los esfuerzos que viene realizando la FaCE-UC en la ejecución de acciones bajo el uso de herramientas tecnológicas que posibiliten el logro de la prosecución académica en postgrado. De igual forma, contribuirá significativamente a brindar aportes importantes de gran relevancia académica- curricular, que se constituyan como antecedente en nuestra Facultad y Universidad para abrir horizontes en esta modalidad a virtual, garantizando el derecho a la educación en el bien entendido de que estos procesos deben ocurrir al amparo de criterios de calidad académica y compromiso institucional.

Por otra parte, superar esquemas tradicionales en el contexto de comprender el caos del mundo hacia cierta unidad, para vislumbrar que, en una sociedad de constantes e incesantes cambios, si se tiene un sustento legal y constitucional en el empleo de las TIC en la educación, resulta imperante abrirse a nuevas experiencias y las diversas las percepciones de docentes y participantes. De manera que, esta experiencia analizada, estudiada y comprendida arrojará luces hacia la orientación en la transformación curricular. Finalmente, el aporte hacia las Ciencias de la Educación conllevará a la

sustentación epistémica y ontológica de las iniciativas institucionales que giran en torno a la incorporación de las TIC en el currículo y, por ende, en su quehacer organizacional.

#### **4. Aprendizaje colaborativo, significativo y constructivismo**

El aprendizaje colaborativo se basa en supuestos epistemológicos diferentes y tienen su origen en el constructivismo social, el cual recoge la esencia los fundamentos filosóficos del aprendizaje colaborativo. El aprendizaje colaborativo se produce cuando los estudiantes y los profesores trabajan juntos para crear el saber; es decir, parte de la base de que las personas crean significados juntas y que el proceso las enriquece y las hace crecer.

En vez de dar por sentado que el saber existe en algún lugar de la realidad “exterior” y que espera ser descubierto mediante el esfuerzo humano, el aprendizaje colaborativo, en su definición más estricta, parte de la base de que el saber se produce socialmente por consenso entre compañeros versados en la cuestión, teniendo en cuenta, que el saber es algo que construyen las personas hablando entre ellas y poniéndose de acuerdo. Cabe destacar, que en el aprendizaje colaborativo se quiere evitar que los estudiantes se hagan dependientes del profesor como autoridad en los contenidos de la asignatura o en los procesos grupales; por lo tanto, no le corresponde al profesor la supervisión del aprendizaje en grupo, sino que su responsabilidad consiste en convertirse, junto con los estudiantes, en miembro de una comunidad que busque el saber. (Barkley, Cross y Howell, 2007)

Por otra parte, tenemos el aprendizaje significativo el cual surge cuando el estudiante como constructor de su propio conocimiento relaciona los conceptos a aprender y les da sentido a partir de la estructura conceptual que ya posee. El aprendizaje se construye al relacionar los conceptos nuevos con los conceptos que ya se poseen y otras al relacionar los conceptos nuevos con experiencias que ya se tienen.

Es por ello, que para el Aprendizaje Significativo se desarrolle debe cumplir con dos condiciones básicas “Disposición del sujeto a aprender significativamente y que el material a aprender sea potencialmente significativo, es decir relacionable con sus estructuras de conocimientos” (Román y Diez, 1990, p. 74). Para que se puedan dar las disposiciones mencionadas anteriormente, hay que buscar la forma de generar la necesaria motivación a partir de los intereses de los estudiantes y construir previamente el material de manera significativa, para hacer esto hay que saber en qué contexto se desenvuelve los individuos a los que se les va a impartir los conocimientos y tener dominio conceptual del tema que se va a impartir, para poder relacionar de manera significativa el aprendizaje.

No se puede soslayar, el Constructivismo cuyas bases, anteceden a la moderna psicología y se remonta al movimiento intelectual que surge en Grecia en el siglo V a. c., conocido como Sofística. Los sofistas revierten la concepción geocentrista, que hasta el

momento había imperado, en una concepción antropocentrista, en la que el hombre, la sociedad y la educación, se revelan como importes y dignos de estudio.

Fuenmayor y Orellana (2002) plantean que Protágoras (480-410 a. c.) y Giorgias (380 a. c.), han sido considerados entre los principales representantes de tal movimiento intelectual, los cuales nos conducen hacia los planteamientos actuales del constructivismo radical. Es el hombre quien determina la existencia de las cosas, éstas son porque el hombre las conoce, si no las conoce no son, en palabras del constructivista radical, no hay realidad independiente del observador. En la actualidad, la postura constructivista se alimenta de diversas corrientes, el enfoque psicogenético piagetano, la teoría de los esquemas cognitivos, la teoría ausubeliana de la asimilación y el aprendizaje significativo, la psicología sociocultural vigotskiana, entre otras. Es por ello, que el proceso de construcción de los aprendizajes depende de dos aspectos fundamentales, de los conocimientos previos que tengan de la nueva información y de la actividad externa o interna que el aprendiz realice al respecto.

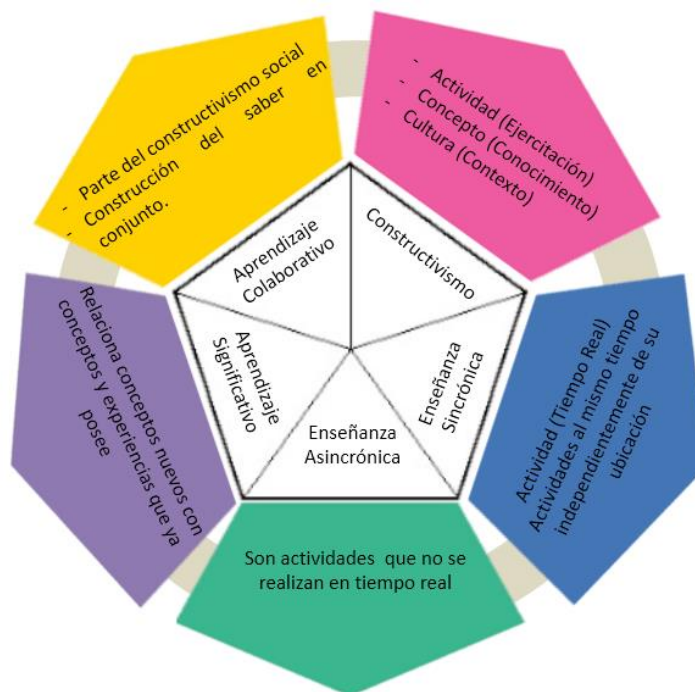
Por lo dicho anteriormente, hay que tener en cuenta que ésta teoría equipara al aprendizaje con la creación de significados a partir de Experiencias. Para ser exitoso y duradero, el aprendizaje debe incluir los tres factores cruciales siguientes: Actividad (ejercitación), Concepto (conocimiento) y cultura (contexto).

### **Enseñanza sincrónica y asincrónica.**

La enseñanza sincrónica se imparte y se recibe al mismo tiempo; dicha enseñanza en aulas virtuales y mixtas transcurre en lo que se denomina “tiempo real”. El tiempo real es cuando todos los participantes de una actividad se involucran en esa actividad al mismo tiempo, independientemente de su ubicación, en consecuencia, se necesita que los estudiantes asistan a una lección virtual durante la cual todos los participantes deben iniciar sesión al mismo tiempo, esa lección es una enseñanza sincrónica impartida en tiempo real (Cabero et al., 2004, pp. 30-31).

Por otra parte, se encuentra la enseñanza asincrónica la cual no depende del tiempo real, en este caso los estudiantes pueden realizar la interacción sin estar en tiempo real mediante una lección grabada para otro día, foro de discusión y realizar sus aportes ya que no es necesario que los participantes estén conectados al mismo tiempo para concluir sus asignaciones (Cabero et al., 2004, pp. 30-31).

## Complexus pentateórico



Fuente: Autores (2020) Infografía Pentateórica de la EaD.

Teniendo en cuenta que las características del aprendizaje colaborativo una es que tiene como origen el constructivismo social y la otra es la construcción del saber en conjunto, por otra parte se encuentran las características del constructivismo del cual surgen tres vertientes como son: actividad (ejercitación), concepto (conocimiento) y cultura (contexto), además el aprendizaje significativo tiene como característica la relación de los conceptos nuevos con los conceptos y experiencias que ya posee, no se puede soslayar la enseñanza sincrónica que es aquella que se realiza en “tiempo real” y enseñanza asincrónica que no es realizada en tiempo real.

En estas teorías ocurre un complexus ya que una de las características del constructivismo como se nombró anteriormente es el concepto (conocimiento), mientras en el aprendizaje colaborativo se busca la construcción del “saber” que en este caso también es conocimiento, pero para que se desarrolle ese conocimiento en el aprendizaje colaborativo al igual que en el constructivismo se debe realizar actividades teniendo en cuenta el contexto, lo único en que se diferencian es que en el aprendizaje colaborativo el aprendizaje se desarrolla en conjunto; en cuanto al aprendizaje significativo se caracteriza por la relación los conceptos nuevos que es el conocimiento del constructivismo y el saber del aprendizaje colaborativo con los conceptos y experiencias que ya se poseen - que no es más que el contexto del constructivismo - se puede entonces evidenciar la recursividad de estas teorías y que a su vez se relacionan a la

hora de impartir EaD de manera sincrónica y asincrónica mediante herramientas de comunicación digital, plataformas y redes sociales, donde se puede decir que este complexus pentateórico ocurre de manera compleja mediante principios hologramáticos, dialógicos y recursivos.

## 5. Método

Dentro del Método se encuentra el "Círculo Hermenéutico" que explica como "el movimiento de la comprensión que va del todo a la parte y de la parte al todo" (Gadamer, 1998, p. 63). En el que teje el discurso a partir de la comprensión analítica. Aclara el autor en su exposición: "El análisis comprensivo de las fuentes y su interconexión con las localidades problemáticas permitirá hacer congruente el hilo discursivo, en el razonamiento interpretativo y de aplicación de los contenidos a obtenerse" (Gadamer, 1993, p. 193).

La interpretación funde lo aspirado por el intérprete y lo ofrecido significativamente por el texto o el acto humano. En este sentido, alude a una suerte de condición ubicua del intérprete sobre el interlocutor, es decir, coloca en la subjetividad razonablemente crítica del intérprete, la responsabilidad de la interpretación, cuando aclara que el trabajo de éste no es simplemente reproducir lo que dice en realidad el interlocutor, sino que tiene que hacer valer su opinión de la manera que le parezca necesaria, teniendo en cuenta la autenticidad de la situación dialógica en que sólo él se encuentra como conocedor del lenguaje de las dos partes. En cuanto a la Aplicación, Gadamer la considera como un momento del proceso hermenéutico tan esencial e integral como la comprensión y la interpretación; es por ello, que la facticidad es el reflejo de validación de los enunciados interpretados al dibujar nuevos horizontes desde lo ya construido hacia lo construible en una relación de apropiación discursiva entre el hermeneuta y el objeto del conocimiento. (Gadamer, 1993, p.p. 193-194)

Esta preocupación interesa a Gadamer, para quien la aplicación no quiere decir aplicación ulterior de una generalidad dada, comprendida primero en sí misma a un caso concreto; ella es más bien la primera verdadera comprensión de la generalidad que cada texto dado viene a ser para nosotros: La comprensión es una forma de efecto, y se sabe a sí misma como efectual. Como forma de efecto, la aplicación, en tanto comprensión de una generalidad, como horizonte último, y luego de comprendido el soporte teórico e interpretado sobre la facticidad del mundo de la vida, devendrá la construcción teórica. Cabe destacar, que en la investigación se realizó una triangulación del corpus (textos y teorías), de los sujetos abordados (Docentes y participantes de la maestría Investigación Educativa) y la reflexión de los investigadores. De esa triangulación surgieron en relación a la EaD, las siguientes categorías: Aprendizaje, Enseñanza, Redes Sociales, Herramientas de comunicación digital, plataformas, categorías que son los cimientos de la investigación.



## Matrices Catoriales

Cabe destacar, que para el desarrollo de las matrices catoriales se desarrolló una codificación axial que “es comenzar el proceso de reagrupar los datos que se fracturaron durante la codificación abierta. En la codificación axial, las categorías se relacionan con sus subcategorías para formar unas explicaciones más precisas y completas sobre los fenómenos” (Strauss y Corbin, 2002, p. 135). Es por ello, que se desarrollan de la siguiente manera (Categorías, subcategoría, Axiomas Subcategoriales y Relaciones catoriales), como se mencionó anteriormente las categorías “son conceptos derivados de los datos, que representan fenómenos y que son ideas analíticas pertinentes que emergen de nuestros datos” (Strauss y Corbin, 2002, p.124), estas categorías surgieron después de haber hecho un detallado análisis, línea por línea del corpus (textos abordados) y los sujetos entrevistados, de allí surgieron subcategorías que “son aquellas que responden preguntas sobre los fenómenos tales como cuándo, dónde, por qué, quién, cómo y con qué consecuencias, dando así a los conceptos un mayor poder explicativo” (Strauss y Corbin, 2002, p. 136).

Una vez realizado las categorías y subcategorías se incorpora los axiomas subcategoriales teniendo en cuenta que un axioma es “un supuesto no demostrado (ni demostrable), cuya función consiste en permitir la demostración de otras fórmulas de la teoría” (Martínez, 2004, p. 243). Se puede decir entonces que es una proposición asumida dentro de un cuerpo teórico sobre la cual descansan otros razonamientos y proposiciones deducidas de esas premisas. Luego de haberse desarrollado los axiomas subcategoriales se plasmaron las categorías que se relacionan entre sí para luego desarrollar esa relación en el aporte al conocimiento.

**Tabla 1.**  
*Matriz Catorial*

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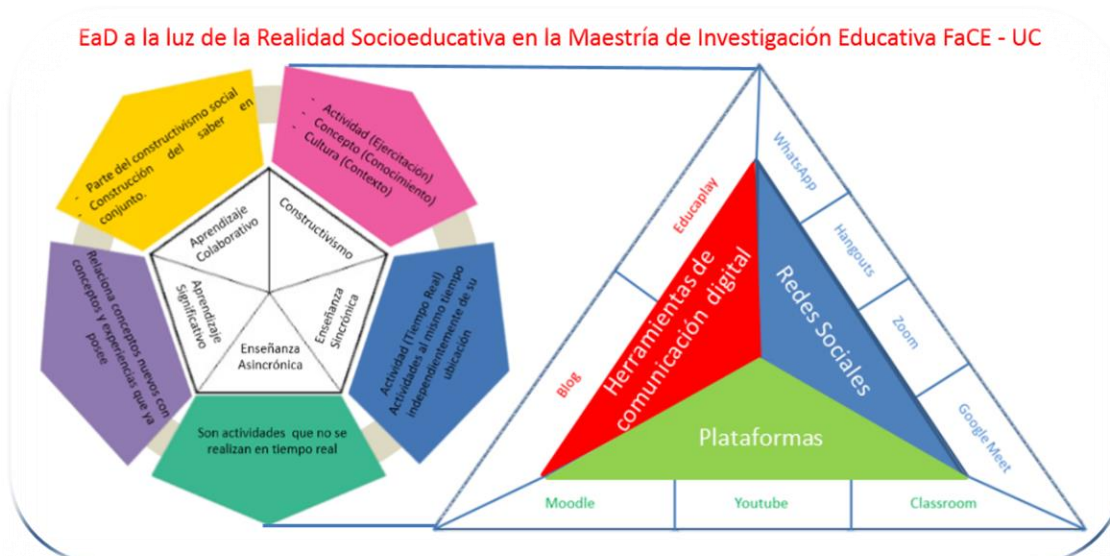
<b>Aprendizaje</b>	Colaborativo	Origen en el constructivismo social, construcción del saber en conjunto	Aprendizaje, enseñanza, redes sociales, herramientas de comunicación digital y plataformas.
	Significativo	Relación de conceptos nuevos con conceptos y experiencias que ya se poseen.	
	Constructivista	Actividad (ejercitación), concepto (conocimiento) y cultura (contexto).	
<b>Enseñanza</b>	Sincrónico	Más social, tiempo real, conectividad grupal.	
	Asincrónico	Actividades que no se realizan en tiempo real.	
<b>Redes Sociales</b>	WhatsApp	Foro chat, videos, tutoriales.	
	Hangouts	Video conferencia, presentaciones, video foro.	
	Zoom	Video conferencia, presentaciones, video foro.	

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	Google Meet	Video conferencia, presentaciones, video foro.
<b>Herramientas de comunicación digital</b>	Blog	Enlaces, videos, comentarios.
	Educaplay	Test, mapas, juegos, autoevaluación.
<b>Plataformas</b>	Moodle	Videos, materiales, asignaciones, foros, tareas, evaluaciones.
	Youtube	Videos tutoriales, canales educativos.
	Classroom	Materiales, videos, tareas, tutoriales, comentarios, evaluaciones.

## 6. Aporte al Conocimiento

Una vez realizada la triangulación del corpus, sujetos abordados y la reflexión de los investigadores surgió este aporte al conocimiento dado por un complexus pentateórico por un lado y por otro el abordaje socioeducativo de los docentes y participantes de la maestría de Investigación Educativa de la FaCE-UC mediante herramientas digitales, plataformas y redes sociales como se muestra en la siguiente infografía:



Fuente: Autores (2020) Infografía EaD a la luz de la Realidad Socioeducativa.

En el lado izquierdo de la Infografía EaD a la luz de la Realidad Socioeducativa (2020) se puede visualizar como el constructivismo, aprendizaje colaborativo y significativo hay puntos de encuentro como son el conocimiento, concepto o saber cómo se explicó en líneas anteriores, además hay también relación en cuanto a la cultura, contexto o experiencia y no se puede soslayar las actividades o ejercitación que a su vez se relacionan a la hora de impartir EaD de manera sincrónica (tiempo real) y asincrónica (cualquier momento que se acuerde) mediante herramientas de comunicación digital, plataformas y redes sociales que se encuentran del lado derecho del infograma, se

puede decir entonces que ocurre complexus de manera compleja mediante principios hologramáticos, dialógicos y recursivos.

Cabe destacar, que en la Facultad de Ciencias de la Educación de la Universidad de Carabobo específicamente en la Maestría de Investigación Educativa normalmente el abordaje académico es Bimodal; es decir, con encuentro presencial y el otro es virtual en la semana de actividades académicas, donde a los participantes se les asigna actividades para ser desarrolladas generalmente desde la plataforma Moodle o en su defecto por classroom, mediante materiales digitales en (PDF, Videos, presentaciones, textos, audios, foros, tareas y evaluaciones); sin embargo, cuando comienza el aislamiento social por causa de la pandemia del COVID-19 fue necesaria la implementación total de herramientas para el desarrollo de las clases a distancia que serían desde ese momento cien por ciento virtuales, dentro de esas estrategias surgen de acuerdo a la realidad socioeducativa que se estaba manejando, herramientas digitales que dominaban los docentes y dependiendo de la conectividad que tenían los docentes y participantes los procesos fueron generalmente asincrónicos y muy pocas veces sincrónicos, ya que en muchas oportunidades no se contaba con el suministro eléctrico o no todos contaban con conectividad permanente en sus hogares y los cyber - locales donde prestan servicio de internet - se encontraban cerrados a causa del aislamiento social por la pandemia.

Por otra parte, en el lado derecho de la infografía se puede observar las plataformas que fueron empleadas como fueron Moodle, classroom, Google Meet y YouTube, para el desarrollo de las actividades (Materiales, videos, tareas, tutoriales, comentarios, evaluaciones) y en el caso de YouTube los docentes realizaron tutoriales que luego subieron a sus canales para que los participantes pudieran tener acceso a ellos mediante el Classroom, blog o WhatsApp para poder ampliar los canales de comunicación entre el docente y los estudiantes, la ventaja de estas herramientas es que se realizaban de manera asincrónica.

En cuanto a las redes sociales, una de las más utilizadas fue WhatsApp, donde el proceso de comunicación fluyó de manera más sencilla ya que mediante grupos, el docente podía comunicarle información, realizar foro chat y mandar videos o tutoriales para ayudar con el proceso educativo, la ventaja en cuanto a esta herramienta es que generalmente se utiliza de manera asincrónica; por otra parte, se manejaron redes sociales como Hangouts, Zoom y Google Meet para desarrollar (video conferencias, presentaciones, video foro).

También se realizaron abordajes de herramientas de comunicación digital mediante Blog donde se colgaban (enlaces, videos y comentarios), la otra herramienta fue Educaplay utilizada por docentes para desarrollar (Test, mapas, juegos con su autoevaluación). Es importante destacar que tanto los docentes como los estudiantes expresaron que mediante las herramientas de comunicación digital, plataformas y redes sociales se pudo adquirir el conocimiento de manera adecuada, pese en algunos casos la falta de

electricidad y conectividad, consideran que esto ayudará a cambiar la cultura presencial, que tanto los docentes como participantes no tengan que tener gastos de traslado a las instituciones y como plantea la UNESCO “Es preciso aprovechar las Tecnologías de Información y Comunicación (TIC) para reforzar los sistemas educativos, la difusión de conocimientos, el acceso a la información, el aprendizaje efectivo y de calidad, y una prestación más eficaz del servicio” (UNESCO, 2015, p. 7).

En consecuencia, no basta con disponer de los más modernos medios, ellos no actúan solos. Al respecto, Facundo (2005) expresa que se requiere crear una cultura que fomente el cambio en las mediaciones pedagógicas, la superación de la vieja concepción de “enseñanza por exposición y aprendizaje por recepción” y la implantación de nuevos paradigmas de aprendizaje para aprovechar las tecnologías digitales. Esto quiere decir, que de manera ineludible la planificación, ejecución y evaluación del acto didáctico deben experimentar modificaciones; pues las formas y maneras de hacer docencia no pueden permanecer iguales a lo largo del tiempo, más aún considerando las implicaciones, consecuencias y efectos de esta era digital y la presencia en los regímenes de estudios universitarios de la modalidad mixta y virtual.

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# Las tecnologías de la información y su relación con la escritura

## Information technologies and their relationship with writing

**María Concepción Sánchez Ramos**

conchimary65@yahoo.es

<https://orcid.org/0000-0002-7707-8848>

Universidad de Carabobo, Valencia, Venezuela.

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### Resumen

El propósito de este artículo es presentar algunos argumentos y discernimientos acerca de las Tecnologías de la Información y Comunicación (TIC), y su relación con la escritura para la construcción activa de nuevos conocimientos, las cuales sirven de apoyo para formar productores de textos competentes, preparados para afrontar los retos y los constantes cambios que impone la sociedad actual. El desarrollo de las TIC ha influido de forma innegable en nuestra forma de vivir, y, por tanto, como factor social ha impactado de alguna manera los paradigmas educativos, debido a que pueden llegar a ser un excelente recurso didáctico en el proceso de enseñanza aprendizaje. La metodología empleada es de carácter documental bibliográfico.

**Palabras clave:** tecnología de la información, escritura, conocimientos.

### Abstract

The purpose of this article is to present some arguments and insights about Information and Communication Technologies (ICT), and their relationship with writing for the active construction of new knowledge, which serve as support to train competent producers of texts, prepared to face the challenges and constant changes imposed by today's society. The development of ICT has undeniably influenced our way of life, and therefore, as a social factor, it has impacted in some way the educational paradigms, because they can become an excellent didactic resource in the teaching-learning process. The methodology used is of a bibliographic documentary nature

**Keywords:** information technology, writing, knowledge.

## 1. Introducción

La escritura es considerada como una actividad comunicativa importante en todos los ámbitos de la vida del hombre. Es considerada un proceso cognitivo de alta complejidad; autorregulado que requiere no sólo conocimientos conceptuales sino aptitudes, habilidades y actitudes para construir ideas, opiniones, con el fin de ser expresados adecuadamente a la audiencia a quien va dirigida (Cassany, 1993; Díaz y Hernández, 2012). Además, la escritura posee una naturaleza procesual que es recursiva, pues permite al escritor planificar, textualizar y revisar constantemente.

Ahora bien, en su enseñanza deberían considerarse ciertos objetivos que tienen que ver con el desarrollo de la metacognición del estudiante o la capacidad de tomar consciencia de los procesos y subprocesos necesarios para la producción escrita eficaz, de la autorregulación de las estrategias que podrían usarse para el alcance de los propósitos propuestos por parte del escritor. Esta supone la puesta en marcha de un conjunto de procesos cognitivos complejos organizados entre sí de un modo recurrente e influido a su vez por diferentes variables y factores modulares tales como el conocimiento del género o de la tarea, la capacidad de la memoria operativa.

Las tecnologías de información y comunicación, en adelante TIC, en la educación, según los expertos, constituyen un fenómeno de gran trascendencia social, son un medio para potenciar la educación a partir del cual se puede fortalecer el proceso de la lectura y la escritura, dado que los estudiantes son hoy más sensibles a un entorno digital, porque posibilita un mayor grado de interacción con dispositivos electrónicos, teléfonos móviles, televisión digital, videojuegos y el uso habitual del internet. Dependiendo de la forma como se implementen, las TIC pueden tener un impacto que facilite o restrinja su uso. Esto lleva a reflexionar sobre la forma como se deben aprovechar las TIC, para que éstas sean implementadas en favor de la comunidad y no en su contra.

Así pues, la comunicación ha tenido un papel fundamental desde el principio de la creación del hombre, permitiendo interactuar con las personas y con el medio que lo rodea. El auge de las TIC, ha permitido que este proceso de interacción humana sea más rápido, ágil, y potenciado, facilitando la interconexión entre personas e instituciones educativas, eliminando (o al menos disminuyendo) las barreras espaciales y temporales que limitan el encuentro exclusivamente presencial.

En el contexto educativo, las TIC se reconocen como un conjunto de herramientas que permiten desarrollar una acción educativa que puede ir más allá de enfoques tradicionales; se está desplazando del aula de clase hacia la educación en línea o en la red. La educación virtual, por ende, deja a un lado y a su vez rompe con el paradigma de los esquemas de la educación clásica, memorística y tradicional, se generan no solo cambios en la creación de nuevos conocimientos, sino también en la forma de adquirir y repensar dichos saberes.

La educación desempeña un papel muy importante en el desarrollo integral del ser humano y las TIC a lo largo de los tiempos, ha ido posicionándose de forma relevante dentro del proceso de enseñanza y aprendizaje, hasta lograr un sitio especial en la configuración del proceso educativo, permitiéndole a sus protagonistas obtener herramientas y aprovecharlas para potenciar su capacidad de enfrentar las situaciones académicas propuestas y atender a los retos planteados en la sociedad actual.

Los grandes cambios científicos y tecnológicos gestados han impuesto una nueva realidad a la escuela y más aún al docente de hoy han replanteado las posturas ortodoxas de la educación, las cuales se caracterizaban por desarrollar una comunicación vertical dentro de una dinámica formativa donde el docente era el conocedor absoluto del saber en la materia que impartía, mientras que sus alumnos se convertían en receptores mecánicos y modeladores de conductas instruidas. Las tendencias actuales, apuntan hacia un proceso formativo abierto, multidireccional, horizontal, reflexivo, crítico y emancipador, basado en el diálogo intersubjetivo.

Asimismo, se hace énfasis en el acompañamiento guiado para orientar al alumno en el descubrimiento de sus conocimientos, a través del aprovechamiento de sus estilos y ritmos de aprendizaje en la construcción de saberes. Junto a estos cambios, también se han ideado nuevas metodologías formativas que se apoyan en las TIC, las cuales son herramientas esenciales de trabajo y aprendizaje en la sociedad actual donde la generación, procesamiento y transmisión de información conforman un factor esencial de poder y productividad, en consecuencia, resulta cada vez más necesario educar para la sociedad de la información desde las etapas más tempranas de la vida escolar y ofrecen un abanico de posibilidades; tal es el caso de la educación B-Learning concebida como una modalidad educativa de formación profesional que trasciende las limitaciones de tiempo y espacio, donde se combina la utilización de metodologías didácticas y dialógicas mediadas por la interacción con las herramientas tecnológicas, para la construcción del conocimiento y de experiencias significativas.

En la era globalizada que se está viviendo, los avances científicos y tecnológicos están jugando un papel de suma importancia en la manera que los estudiantes se acercan tanto a la escritura como a la lectura. De lo anterior, se desprende la intención del presente escrito, en reflexionar en torno a la importancia de la TIC y su relación con la escritura para la construcción activa de conocimientos.

## **2. El uso de las (TIC) como un modelo de enseñanza**

Partiendo de las ideas expuestas en el apartado anterior, las TIC son herramientas esenciales de trabajo y aprendizaje en la sociedad actual donde la generación, procesamiento y transmisión de información es un factor esencial de poder y productividad. En consecuencia, resulta cada vez más necesario educar para la sociedad de la información desde las etapas más tempranas de la vida escolar. Las potencialidades que ofrecen las herramientas de las TIC permiten la participación activa del estudiante en la construcción de su conocimiento. Aprender de manera diferente



impone replantear el modelo pedagógico a la luz de los cambios que se han producido en el paradigma actual de aprendizaje, que lo asume como un proceso de construcción de conocimientos basado en la experiencia del que aprende. Las TIC permiten recrear ambientes organizadores de aprendizajes complejos, estimular el trabajo colaborativo, examinar materiales en diversos modos de presentación y perspectivas diferentes, estimular la reflexión y la negociación.

Las TIC desde su surgimiento hace un par de décadas aproximadamente, han ido jugando un papel trascendental en las formas de concebir las estrategias pedagógicas, permitiendo a diversos investigadores rediseñar las formas de generar conocimiento y transmitirlo adecuadamente a los estudiantes, quienes adquieren más competencias, sumando un componente virtual a la enseñanza convencional y presencial. Como lo indica Vargas (2015), la educación se ha ido transformando en función a los recursos que la sociedad provee al devenir, considerando los movimientos surgentes y cómo se redimensionan las estrategias pedagógicas en función a las necesidades de aprendizaje presentes.

Cabe destacar que el procesador de textos permite que el escritor se concentre selectivamente en cada una de las frases de la composición: generar ideas, organizarlas, redactar. Así como también, permite al escritor librarse de los aspectos más mecánicos de la composición escrita como lo son, la ortografía, puntuación, gramática, permitiendo así concentrarse absolutamente en la elaboración del contenido de texto.

Pues bien, las TIC, son un medio maravilloso para expresar las ideas y los pensamientos. La realidad de hoy es que se evidencia que muchos docentes se niegan hacer uso de todas las preeminencias que ofrecen las distintas plataformas tecnológicas creadas con fines pedagógicos, el reto debería ser que los estudiantes escribieran más utilizando las TIC. Sandia, Luzardo y Aguilar (2016) señalan que la “incorporación y apropiación de las TIC implica un cambio radical en la visión que se tiene del proceso educativo” (p. 106). Este propósito debería ser el motor esencial para impulsar el acto lector y de esa manera generar ideas que luego puedan fijarse en un papel o en cualquier soporte digital, y así aumentar la necesidad de organizar el pensamiento a través de la palabra escrita.

### **3. Ventajas y desventajas de las TIC**

Como ya se ha mencionado anteriormente, las TIC son herramientas que permiten facilitar el trabajo docente. Sin embargo, hay que considerar que no reemplaza su rol de mediador y guía de los estudiantes. Por ello, es sustancial que se conozcan las ventajas que se pueden obtener al utilizar correctamente los medios tecnológicos, como también las desventajas que se pueden presentar al hacer uso de manera inapropiada. A continuación, se presentan algunas ventajas y desventajas de las TIC en la educación según Cacheiro (2014)

**Tabla 1.**  
*Ventajas y desventajas de las TIC.*

<b>Ventajas</b>	<b>Desventajas</b>
* Posee un alto poder de motivación, aumentando el interés y la atención por las tareas, siempre y cuando se utilicen adecuadamente.	* Puede suponer distracción siempre y cuando no se tenga la correcta planificación del proceso de enseñanza-aprendizaje.
* Apoyo a los estudiantes con necesidades educativas, a través de recursos y medios adaptados que favorecen la comunicación y a elaboración de tareas	* No toda la información existente en el internet es adecuada y para ello se debe reconocer su tipo de procedencia y alcance.
* Optimiza la capacidad de expresión del estudiante, puesto que permite la reelaboración de documentos de manera más rápida y sencilla, utilizando programas que ayudan a las correcciones.	* Las TIC no enseñan o preparan las clases por sí solas, por lo que se requiere de una formación por parte del discente y del docente para que el potencial del uso de las mismas sea el más alto posible.

Sánchez (2019)

#### **4. Escritura para construir nuevos conocimientos**

Estudios realizados en las últimas décadas, basados en la psicolingüística y en la psicología cognitiva, han permitido explorar la escritura como un proceso de construcción de significados que requiere de un complejo trabajo cognitivo. Se trata de un proceso que demanda la progresiva construcción de esquemas conceptuales que permitan interpretar datos previos y nuevos datos para transformarlos en conocimiento.

El proceso de escritura hoy es descrito como una actividad cognitiva compleja, debido a que el escritor, durante esta tarea pone en funcionamiento una serie de estrategias y conocimientos, es decir, un conjunto de operaciones que interactúan entre sí para llegar a la construcción del texto. Para que la escritura pueda desenvolverse de manera productiva requiere de subprocesos, que en íntima relación, suceden simultáneamente, de modo recursivo en la escritura: la planificación o preparación, la textualización o elaboración de borradores, la revisión y la edición definitiva (Cassany et. Al, 1993). Procesos que no se dan siempre obligatoriamente al escribir, puesto que depende de las circunstancias de producción, del tema, de los propósitos y de la audiencia.

De acuerdo con la psicolingüística y en el marco de la concepción constructivista del aprendizaje, se ha convertido en una herramienta de aprendizaje y en un saber que puede ser aprendido y consiguientemente enseñado. Esto significa entonces que en la escuela, la escritura debe ser concebida y utilizada de la misma forma que en la vida social: como un instrumento necesario para acceder al mundo del saber, para expresar puntos de vista, para comunicar sentimientos, emociones, experiencias, reflexiones, para informar a otros y para dejar constancia en el tiempo de saberes descubiertos. Por lo tanto, las situaciones de aprendizaje de la escritura en la escuela deben tener una

intención comunicativa y un contexto social real, para que los estudiantes la perciban como una actividad significativa y necesaria para su formación.

## **5. La composición escrita**

Investigaciones realizadas acerca de la composición escrita, hacen una distinción entre la escritura como proceso y la escritura como producto. Al respecto, existen diferentes concepciones necesarias de conocer para ampliar aspectos inherentes a este estudio. A continuación, se ofrece un breve recorrido teórico sobre estas concepciones.

Aunque la escritura aparece como un campo de estudio relativamente nuevo, éste se ha desarrollado de forma coherente. Desde la perspectiva del asociacionismo, según Ramos (2003), la composición era concebida como el influjo normativo y prescriptivo de la gramática. Escribir era un fenómeno mecánico centrado estrictamente en la representación gráfica de los datos lingüísticos proporcionados por fuentes externas. Sólo se prestaba importancia a las reglas ortográficas, los componentes teóricos, morfo lingüísticos y sintéticos vistos como un producto final.

Visto de esta manera, la composición escrita debe ser abordada desde un enfoque comunicativo y funcional y no como una simple repetición grafo motora de letras y signos. Mata y Arroyo (2005), sostiene que la coherencia en la investigación acerca de la composición escrita viene marcada de la concepción compartida por todos los investigadores de que la escritura es inseparable de los procesos lingüísticos, comunicativos y literarios. El movimiento intelectual sobre la escritura iniciado en los años cuarenta ha evolucionado desde la epistemología formalista centrada en el texto pasando por las teorías psicológicas centradas fundamentalmente en los procesos, hasta las teorías actuales más dialógicas que se centran tanto en el texto como en el proceso.

## **6. El acto de escribir**

Según Cassany (1990), la escritura es una manifestación de la actividad lingüística humana. Escribir es un poderoso instrumento de reflexión. En el acto de escribir, los redactores aprenden sobre sí mismo y su mundo para comunicar las percepciones a otros. Escribir confiere el poder de creer como persona y de inferir en su mundo. El acto de escritura se materializa a través de un proceso en el cual el redactor imagina la audiencia, formula objetivos, desarrolla ideas, produce anotaciones, borradores y un texto elaborado que corrige para satisfacer las expectativas de la audiencia. A medida que el proceso se desarrolla, el redactor realiza cada una de estas tareas en cualquier momento. Se puede enseñar a los alumnos a escribir con más eficacia animándoles a aprovechar todo ese conjunto de actividades que comprende el acto de escritura.

## 6. A manera de conclusión

La escritura es un proceso comunicativo continuo del ser humano, un desempeño de sus competencias comunicativas por medio de la palabra y ese desempeño está siempre en vías de ser mejorado y ampliado. Cada uno de nosotros podemos encontrarnos con situaciones comunicativas nuevas en la cual se necesita producir o interpretar textos orales o escritos que nunca había producidos o interpretado antes.

Ahora bien, las TIC son herramientas pedagógicas que actualmente se consideran necesarias en cualquier área del aprendizaje, puesto que hacen parte de los contextos sociales y familiares que frecuentan a diario los estudiantes, además se relacionan estrechamente con la lectura y escritura. Es decir, estas fortalecen, enriquecen y complementan en gran nivel los procesos de lectura y escritura, dado que si los estudiantes hacen buen uso de estas pueden encontrar temas de su interés, lo que facilita la comprensión de nuevos tópicos.

Reflexionar en torno a la actividad de escritura permite la apertura de un camino a nuevas formas de problematizar los fenómenos relacionados con los seres humanos muy especialmente lo que en la actualidad se vive con respecto a la influencia de las TIC y los nuevos soportes digitales que están generando en las mente de los jóvenes y a su vez como, tal vez, sin proponérselo han desvalorizado actividades como la lectura y escritura que son la médula del conocimiento y del desarrollo cognitivo individual, siendo éstas en definitiva las protagonistas, ejecutoras y propulsoras del desarrollo de la sociedad del conocimiento.

La enorme potencialidad que las herramientas tecnológicas ponen hoy a nuestro alcance hace inevitable el pensar aprovecharlas como apoyo en el desarrollo de los procesos de enseñanza aprendizaje, debido a que representan un recurso de gran versatilidad que han revolucionado a la sociedad de forma general, transformando el tiempo y el espacio.

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# Desafíos del diseño instruccional para la enseñanza remota de las matemáticas en contextos de poca penetración de internet

## Instructional design challenges for remote mathematics teaching in low Internet penetration contexts

**Wilmer Ríos-Cuesta**

wilmer.rios@correounivalle.edu.co

<https://orcid.org/0000-0001-8129-2137>

Facultad de Educación y Pedagogía, Universidad del Valle, Colombia

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### Resumen

La media de penetración del internet en Colombia es de 9,8% lo que la ubica por debajo de otros países de América cuya media es de 77,2%. Esta situación genera una serie de retos para las instituciones educativas pues supone aplicar las teorías del diseño instruccional a la elaboración de guías didácticas offline. Situados en un paradigma cualitativo de naturaleza descriptiva se hizo un análisis documental que permitió identificar algunos desafíos y oportunidades para afrontar la emergencia sanitaria en contextos de poca penetración de internet y que pueden implementarse en la enseñanza de las matemáticas.

**Palabras Clave:** diseño instruccional, enseñanza remota, educación matemática, emergencia sanitaria, educación a distancia.

### Abstract

The average Internet penetration in Colombia is 9.8%, which places it below other countries in the Americas whose average is 77.2%. This situation generates a series of challenges for educational institutions as it implies the application of instructional design theories to the development of offline didactic guides. A descriptive qualitative paradigm was used to identify some challenges and opportunities to face the health emergency in contexts of low Internet penetration that can be implemented in the teaching of mathematics.

**Keywords:** instructional design, remote teaching, mathematics education, new challenges, distance education.

## 1. Introducción

Grandes retos han suscitado para la enseñanza y el aprendizaje el hecho de tener que migrar algunos modelos educativos presenciales a la enseñanza remota, junto con los esquemas de evaluación diagnóstica, formativa y sumativa, en particular, en las matemáticas, donde los estudiantes suelen poner atención a lo que el profesor escribe y explica en la pizarra para tomar apuntes, y más aún, donde no se ha podido superar el modelo monumentalista descrito por Chevillard (2013) que sitúa al estudiante como un espectador de la obra matemática y que lo deja por fuera de su construcción. Este modelo de enseñanza hace énfasis en la memorización y repetición de los contenidos trabajados en clase.

Si bien se busca que los estudiantes desarrollen un pensamiento crítico y reflexivo frente a las situaciones de su contexto, es claro que, en algunas regiones, sobre todo en las que obtienen los más bajos resultados en las pruebas estandarizadas como la “ECAES” o “Saber Pro”, que miden el nivel de competencias de los programas de educación superior en Colombia, coinciden con modelos de enseñanza tradicional.

Sin embargo, las investigaciones sobre la mejora de los procesos de enseñanza y aprendizaje apuntan a cualificar la instrucción y la actuación de los implicados en las sesiones de clase. Parte de estos desarrollos recaen sobre el diseño instruccional de las secuencias de aprendizaje y de la evaluación. En este último punto, se tienen muchas dificultades al momento de trasladar los modelos de evaluación de la enseñanza tradicional a entornos remotos, más aún, cuando el docente no puede observar las acciones del estudiante al momento de resolver una prueba.

Hemos visto una solución en el uso de tecnologías digitales como apoyo a la educación que se va adaptando a las necesidades de las asignaturas y del curso. Sin embargo, en el caso particular de Colombia, la penetración de internet es baja y hay una alta desigualdad entre los diversos departamentos del país.

Colombia cuenta con 32 departamentos y el distrito capital los cuales corresponden al primer nivel de división administrativa del país. Encontramos una penetración media del internet de 9,8% mientras en Suramérica, de acuerdo con Internet World Stats (2020), es del 71,8% y en todas las Américas, del 77,2%. En la tabla 1 presentamos los valores correspondientes a cada departamento, un valor positivo significa que está por encima de la media, un valor negativo indica que está por debajo de esta.

**Tabla 1.**

*Penetración del internet en Colombia por departamentos. Elaboración propia a partir de Datos Abiertos (2020)*

Departamento	No. accesos fijos a internet	Población DANE	Índice	Porcentaje	Diferencia respecto a la media
Bogotá	2.023.726	7.743.955	0,2613	26,1%	16,3%
Antioquia	1.319.598	6.677.930	0,1976	19,8%	9,9%
Valle del Cauca	1.022.019	4.532.152	0,2255	22,6%	12,7%
Cundinamarca	453.422	3.242.999	0,1398	14,0%	4,2%
Atlántico	375.429	2.722.128	0,1379	13,8%	4,0%
Santander	350.401	2.280.908	0,1536	15,4%	5,5%
Bolívar	196.372	2.180.976	0,0900	9,0%	-0,8%
Córdoba	109.657	1.828.947	0,0600	6,0%	-3,8%
Nariño	104.489	1.627.589	0,0642	6,4%	-3,4%
Norte de Santander	171.906	1.620.318	0,1061	10,6%	0,8%
Cauca	87.867	1.491.937	0,0589	5,9%	-3,9%
Magdalena	88.868	1.427.026	0,0623	6,2%	-3,6%
Tolima	163.746	1.339.998	0,1222	12,2%	2,4%
Cesar	108.972	1.295.387	0,0841	8,4%	-1,4%
Boyacá	123.789	1.242.731	0,0996	10,0%	0,1%
Huila	117.575	1.122.622	0,1047	10,5%	0,6%
Meta	138.330	1.063.454	0,1301	13,0%	3,2%
Caldas	137.059	1.018.453	0,1346	13,5%	3,6%
La Guajira	50.967	965.718	0,0528	5,3%	-4,5%
Risaralda	194.415	961.055	0,2023	20,2%	10,4%
Sucre	54.935	949.252	0,0579	5,8%	-4,0%
Quindío	107.847	555.401	0,1942	19,4%	9,6%
Chocó	26.682	544.764	0,0490	4,9%	-4,9%
Casanare	45.948	435.195	0,1056	10,6%	0,7%
Caquetá	30.874	410.521	0,0752	7,5%	-2,3%
Putumayo	27.862	359.127	0,0776	7,8%	-2,1%
Arauca	15.718	294.206	0,0534	5,3%	-4,5%
Vichada	1.430	112.958	0,0127	1,3%	-8,6%
Guaviare	2.848	86.657	0,0329	3,3%	-6,5%
Amazonas	1.363	79.020	0,0172	1,7%	-8,1%

Departamento	No. accesos fijos a internet	Población DANE	Índice	Porcentaje	Diferencia respecto a la media
San Andrés y Providencia	2.910	63.692	0,0457	4,6%	-5,3%
Guainía	1.648	50.636	0,0325	3,3%	-6,6%
Vaupés	88	44.712	0,0020	0,2%	-9,6%
TOTAL	7.658.760	50.372.424	0,1520	15,2%	

De acuerdo con las cifras reportadas por el portal Datos Abiertos (2020) del Ministerio de Tecnologías de la Información y las Comunicaciones de Colombia, hay una baja cobertura, tan solo el 15,2% de los colombianos cuenta con una conexión a internet lo cual dificulta el desarrollo de procesos educativos de forma remota usando tecnologías digitales. Frente a este hecho, una parte de los docentes del país empezó a desarrollar guías impresas para que los estudiantes resolvieran en casa las cuales fueron complementadas con tutorías sincrónicas y asincrónicas.

Ante este panorama, se hace evidente la brecha de aprendizaje entre los distintos departamentos del país que, a su vez, pone de relieve la desventaja entre los estudiantes colombianos y sus pares en el resto del mundo, lo cual, según Willms, (2018) es un indicador de desigualdad. El punto de quiebre frente a la nueva normalidad, es la falta de formación docente en el diseño instruccional (Ricardo et al., 2020), esta deficiencia se constituye en un elemento crucial en la construcción de las guías didácticas que desarrollan los estudiantes y repercute en la calidad de la educación. No obstante, la superación del modelo educativo transmisionista constituye otro desafío en torno a los diseños instruccionales.

Los estudios sobre diseño instruccional apuntan hacia el desarrollo de cursos virtuales. Sin embargo, en la época de presencialidad asistida por medios digitales, o en nuestro caso en particular, donde las tecnologías digitales no han llegado de manera significativa a los departamentos del país, es necesario implementar algunos de los resultados de estas investigaciones al desarrollo de guías didácticas donde la interacción entre estudiantes y profesores junto con la mediación y construcción de zonas de desarrollo es casi nula.

Parte de la actividad docente incluye el desarrollo de talleres, guías de aprendizaje, evaluaciones e informes sobre el rendimiento académico de los estudiantes. Generalmente, los docentes se apoyan en libros de textos que no brindan orientaciones para sean ellos quienes construyan sus propias tareas. En ese sentido, es importante que los resultados teóricos de las investigaciones tengan aplicación en la planeación de los profesores como una herramienta para mejorar la práctica de aula y los aprendizajes. Para los propósitos de este estudio señalaremos algunos desafíos identificados en regiones con poca penetración de internet tratando de llamar la atención sobre la



importancia de formar a los docentes en la aplicación y mejora de diseños instruccionales que apoyen la construcción de las guías didácticas y el desarrollo del andamiaje necesario para la adquisición de conocimiento.

## **2. Metodología**

Se hizo situado en el paradigma cualitativo (Cohen et al., 2011) de naturaleza descriptiva que consistió en comparar mediante un análisis documental y de campo la situación del departamento del Chocó, en Colombia. Se revisaron las condiciones de las universidades que se encuentran allí. Nos valimos de un diario de campo. Se realizó un análisis del portal Datos Abiertos del Ministerio de Ciencia Tecnología e Innovación de Colombia que nos arrojó el estado actual del país. Posteriormente se hizo una revisión de las condiciones de las universidades de la región para analizar las diferencias e identificar los desafíos para el desarrollo de aprendizajes de forma remota.

## **3. Resultados**

### **El diseño instruccional y sus implicaciones**

El diseño instruccional hace parte de las estrategias de planeación de los cursos en educación superior y apoya el correcto desarrollo pedagógico, la coherencia y secuenciación de los contenidos (Moreira-Mora y Espinoza-Guzmán, 2016). La calidad de la instrucción es un factor decisivo en la experiencia de los estudiantes (Khlaisang, 2010), en consecuencia, debe ser bien planificada para alcanzar los objetivos educativos. De acuerdo con Sharif y Cho (2015) el diseño instruccional tiene como finalidad proporcionar las directrices o estructuras para secuenciar las actividades educativas, permitiéndole al diseñador usar varios modelos, siempre y cuando sean acordes al contexto y a la asignatura.

En ese sentido, el diseño instruccional pretende atender una diversidad de pensamientos en el aula, no solo física sino virtual. Una revisión de la literatura permite evidenciar que los estudios recientes apuntan al diseño de cursos en línea que pueden llegar a convertirse en MOOC's (Massive Open Online Course). Sin embargo, los resultados se pueden adaptar a entornos no virtuales. Un buen diseño puede apoyar el desarrollo de procesos de argumentación si atiende algunos aspectos tales como, la instrucción de los profesores, las reacciones de los estudiantes y aspectos relativos a la pragmática y la retórica del conocimiento que se pone en juego (Macêdo et al., 2020; Ríos-Cuesta, 2021a).

Por otro lado, Beltrán-Hernández y Ramírez-Montoya (2019) advierten que, en el caso de la enseñanza virtual, es importante combinar distintos componentes de la enseñanza y aprendizaje para lograr los objetivos de educación. Sobre este aspecto, Jordán y Díaz (2019) señalan la importancia de la eficiencia del rediseño de los cursos teniendo en cuenta las percepciones de los estudiantes y el instructor, dicho estudio pone de manifiesto la necesidad de evaluar el curso y el diseño instruccional. Por su parte, Lin y

Reigeluth (2020) mencionan el potencial del rediseño permanente de los métodos para refinar el diseño instruccional y trabajar con otros expertos que ayuden a la consecución de los objetivos.

Lo anterior es una invitación para que los docentes trabajen en comunidades de práctica en las que discutan sus diseños y reciban retroalimentación. A pesar de que ya existen este tipo de espacios en algunas universidades cuyo propósito es el desarrollo de investigaciones conjuntas, es importante que se lleven a otros escenarios para fortalecer el quehacer diario de los docentes. En un estudio realizado por Sharif y Cho (2015) se comenta que una forma de hacer frente al desarrollo profesional es mediante las comunidades de práctica de los diseñadores instruccionales en las instituciones educativas que les permitan el intercambio de ideas y la mejora de sus prácticas docentes.

Algunas de las fases del diseño instruccional contemplan los objetivos, contenidos curriculares, actividades de aprendizaje, recursos educativos y estrategias de evaluación (Zapata-Ros, 2015). Esta secuencia es posible llevarla a las guías didácticas que se desarrollan para la enseñanza remota, aunque requiere que se planee la interacción por medio de la retroalimentación de las guías que el estudiante va desarrollando. En este sentido, el profesor puede usar los errores comunes para el desarrollo de la siguiente guía, de este modo, se genera una interacción.

Tal como lo señalan Chimoni et al. (2020) hay una correlación positiva entre el tipo de tarea y el resultado del proceso, para ello compararon dos cursos de matemática en *early algebra* y encontraron que las tareas con exploraciones abiertas en contextos cotidianos obtienen mejores resultados que si se trabajan en contextos netamente matemáticos.

### **El diseño instruccional en el desarrollo de guías didácticas offline**

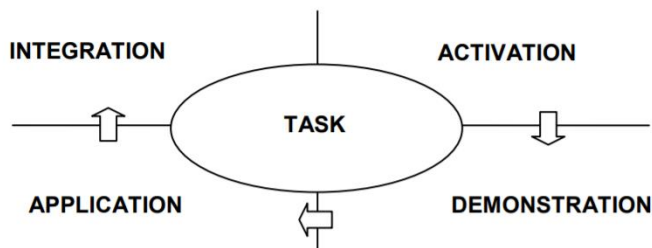
Si bien es cierto que el diseño instruccional se preocupa por la elaboración de cursos online, no podemos desconocer el potencial y sus limitantes en el desarrollo de guías didácticas para la enseñanza remota. Un ejemplo de ello son los trabajos en b-learning que combina elementos del aprendizaje presencial y el e-learning (Jiménez-Cruz, 2015). Esta propuesta se fundamenta en lo que Keegan (2005) llama la ley de la educación a distancia en la cual enuncia que no se debe poner el foco en las tecnologías que posean las cualidades pedagógicas para la educación a distancia sino en las que son usadas por los ciudadanos. Esta propuesta es retomada por Zapata-Ros (2012) al establecer la relación funcionalidad-actualidad y hablar de aprendizaje móvil o ubicuo.

Dada la situación actual, donde los estudiantes se encuentran en sus hogares, es importante que los profesores reconozcan el contexto cotidiano y lo usen como estrategia para generar oportunidades de aprendizaje mediante el desarrollo de las guías didácticas. Esto se logra mediante un diseño instruccional que no priorice los contenidos, sino en las competencias que deben desarrollar los estudiantes (Ríos-Cuesta, 2021b).

Según Jiménez-Cruz (2015) «El diseño instruccional (DI) se considera parte central de todo proceso de aprendizaje porque representa la planificación detallada de las actividades educativas sin importar la modalidad de enseñanza» (p. 4). En ese sentido, los profesores pueden adaptar los desarrollos de los estudios sobre diseño instruccional y mejorar su práctica.

Desde la perspectiva de Chimoni et al. (2020), las tareas son tan importantes que pueden definir el tipo de aprendizaje y, más aún, si se involucra el contexto de los estudiantes. En ese sentido, el aprendizaje basado en tareas ofrece a los estudiantes la oportunidad de explorar problemas del mundo real y que los compromete con un aprendizaje más profundo de los problemas de estudio (Jiménez-Cruz, 2015).

Merrill (2002; 2009) aporta cinco principios para el aprendizaje basado en tareas (TBL): tareas, activación de la experiencia previa, demostración de habilidades, aplicación de habilidades e integración de estas habilidades al mundo real (figura 1).



**Figura 1.** Principios del TBL

De acuerdo con Merrill (2009) la promoción del aprendizaje se debe hacer desde una tarea o proyecto con un nivel ascendente en la complejidad. La activación se da al momento de evocar los saberes y experiencias previas y que se articulan con el nuevo conocimiento. La demostración se hace evidente en la aplicación de los contenidos y habilidades que deben desarrollar.

Además de lo anterior, Merrill (2002) propone los primeros principios de la instrucción:

- (a) El aprendizaje se promueve cuando los alumnos se dedican a resolver problemas del mundo real.
- (b) El aprendizaje se promueve cuando se activan los conocimientos existentes como base para los nuevos conocimientos.
- (c) El aprendizaje se fomenta cuando se demuestran los nuevos conocimientos al alumno.
- (d) El aprendizaje se promueve cuando el alumno aplica los nuevos conocimientos.
- (e) El aprendizaje se promueve cuando el nuevo conocimiento se integra en el mundo del alumno. (p. 43)

Estos principios hacen parte de la planeación docente y son asimilables con la elaboración de las guías didácticas la cual debe apoyarse en las herramientas con las

que el profesor cuente y hacer uso del entorno de los estudiantes adecuándolo a las necesidades específicas y objetivos de aprendizaje.

Otro aporte importante son los estudios realizados por Dick et al. (2001) cuyo modelo consta de nueve pasos secuenciales del diseño instruccional y que son resumidas por Sharif y Cho (2015):

(1) evaluar las necesidades para identificar la meta o las metas, (2) realizar un análisis de instrucción y analizar a los estudiantes y su contexto, (3) redactar las actividades de desempeño, (4) desarrollar instrumentos de evaluación, (5) desarrollar la estrategia instruccional, (6) desarrollar y seleccionar materiales instruccionales, (7) diseñar y aplicar evaluaciones formativas, (8) revisar la instrucción y (9) diseñar y aplicar evaluaciones sumativas. (p. 76)

Morrison et al. (2019) proponen nueve etapas las cuales centran su atención en las características de los estudiantes: (1) identificar los problemas instruccionales, (2) identificar las características de los estudiantes, (3) analizar las tareas, (4) diseñar los objetivos instruccionales, (5) diseñar el contenido secuencial, (6) diseñar estrategias instruccionales, (7) diseñar el mensaje, (8) desarrollar la instrucción y (9) desarrollar instrumentos de evaluación.

Tal como se observa en los modelos anteriores, la planificación de las secuencias requiere que el profesor tenga una idea amplia de los aprendizajes que desea lograr, así como de los estudiantes que espera atender y su contexto. A lo largo de este documento hemos mencionado a la importancia de articular estos elementos para poder migrarlos al diseño de una secuencia de guías didácticas para atender las necesidades de los estudiantes en poblaciones de poca penetración del internet.

En ese sentido, queremos enfatizar en la evaluación lo cual no ha tenido la suficiente importancia en las regiones con baja penetración del internet y que recurren a prácticas tradicionales de enseñanza y aprendizaje. La elaboración de un diseño que parta desde la evaluación de los aprendizajes que se espera lograr, es decir, un diseño inverso, que ayude a trazar la ruta del diseño instruccional pone en evidencia las dificultades de los modelos tradicionales.

García y Cabero (2017) presentan un estudio donde elaboran un diseño inverso partiendo de los resultados de aprendizaje y finaliza con los contenidos. Su propuesta se basa en la elaboración de un proyecto en cada una de las seis secuencias didácticas que desarrollan los estudiantes. Su principal resultado es que lograron que los estudiantes desarrollaran habilidades de pensamiento de nivel superior cuando el currículo establecía habilidades a nivel de aplicación. Además, planear la secuencia en ese orden los llevo refinar las actividades para que los estudiantes alcanzaran las habilidades objeto del curso.

## Desafíos en las regiones con poca penetración del internet

Se han mencionado aspectos del diseño instruccional que podrían ayudar a la elaboración de las guías didácticas para que los estudiantes pertenecientes a regiones con poca penetración del internet puedan continuar con sus estudios. Sin embargo, encontramos algunos desafíos para llevar a cabo la propuesta, estos deben ser resueltos por la comunidad para aportar a la equidad en una sociedad que la reclama.

Tal como lo señala García-Peñalvo (2020) las universidades que más rápido adapten sus procesos a los nuevos cambios tendrán mayores oportunidades de mejora en el futuro próximo. Si las universidades no se adaptan a la nueva normalidad van a tener estudiantes que suspenden sus estudios y esto pone en riesgo la continuidad de su proceso de profesionalización.

Si queremos mantener la calidad de la educación y evitar la deserción de los estudiantes, se debe apoyar la formación de los docentes en el diseño de las guías didácticas y su transición del diseño instruccional para su elaboración. Es ahí donde se tiene un reto desde las universidades para proveer a los profesores de las herramientas conceptuales para hacer esta transición.

Al respecto, Amaya et al. (2021) comentan que un error que cometieron las instituciones de educación superior fue:

(...) pensar que los profesores más jóvenes nacidos en la Generación “Y”, también denominados “Millenials” (1981-1995) por el simple hecho de haber nacido en esta generación no necesitaban capacitarse en el manejo de las tecnologías, en comparación con los profesores no tan jóvenes nacidos en las Generación “X” (1966-1980) y Generación “Baby Boomers” (1945-1965). (p. 4)

Lo anterior nos muestra que el problema no es la generación a la cual pertenecen los profesores sino qué tan capacitados están para abordar la contingencia y responder a las nuevas dinámicas institucionales y educativas poniendo el énfasis en la atención, seguimiento, retroalimentación y evaluación de los aprendizajes en la educación a distancia (Amaya et al., 2021).

Sin embargo, la guía didáctica por sí sola no garantiza el aprendizaje a distancia, es necesario que los estudiantes desarrollen habilidades de estudio que favorezcan la adquisición de conocimiento. Desde la Teoría Antropológica de lo Didáctico -TAD- se alude al termino praxeologías para explicar la actividad humana a partir de la modelación de situaciones que apuntan al aprendizaje de las matemáticas. Dicha teoría presenta una distinción entre praxis y logoi, la primera hace énfasis en el *saber hacer* y la segunda en el *saber*.

Una de las herramientas analíticas que propone la TAD para analizar Los procesos institucionales son las distintas praxeologías, entre ellas las praxeologías didácticas que pone de relieve el proceso de estudio y que está determinado por seis momentos didácticos:

1) el momento del primer encuentro con un determinado tipo de tareas; 2) el momento exploratorio del tipo de tareas; 3) el momento de construcción de un entorno tecnológico-teórico (que explique y justifique las técnicas puestas en funcionamiento, así como que permita la construcción de nuevas técnicas); 4) el momento de trabajo de la técnica (que provoca la evolución de las técnicas existentes y la construcción de nuevas técnicas); 5) el momento de la institucionalización (que delimita y precisa aquellos elementos constituyentes de la organización matemática construida), y 6) el momento de la evaluación de la praxeología construida. (Bosch et al., 2006, p. 40)

Desde esa perspectiva, se debe articular el trabajo docente con la actividad de estudio de los estudiantes, diseñar actividades que favorezcan la activación de los saberes previos y acompañar la elaboración de las guías didácticas.

### **Oportunidades detectadas**

En un estudio reciente, Koch et al. (2020) muestran el potencial de los mapas digitales desde la perspectiva de tres proyectos de investigación, Math-Mapper 6-8, Dynamic Mathematics Curriculum Network y Cambridge Mathematics Framework, estos hacen énfasis en las herramientas para conectar ideas y experiencias en la escuela lo cual ayuda a la comprensión de las conexiones de las matemáticas y los diseñadores del currículo.

Teniendo en cuenta la dificultad para acceder a internet, los profesores pueden optar por usar aplicaciones en la Google Play y la App Store para que los estudiantes las usen de tal manera que puedan tomar notas y establecer conexiones entre los aprendizajes y las experiencias que obtienen al desarrollar las guías didácticas. Estas aplicaciones no reemplazan ni se acercan al potencial de los proyectos descritos por Koch et al. (2020), sino que son una alternativa que apoya la enseñanza remota en la formación de los estudiantes.

Para apoyar el desarrollo profesional docente se sugiere el trabajo articulado en comunidades de prácticas que permitan el intercambio de las ideas y la revisión de los diseños dentro del centro educativo. Se debe hacer un mapa general donde se evidencien los objetivos de enseñanza, aprendizajes a desarrollar y metodologías de evaluación. Al respecto, Balladares-Burgos (2018) sugiere que las universidades deben proporcionar a sus profesores herramientas y espacios físicos y virtuales que permitan la formación digital de los educadores es aspectos relacionados con su quehacer, tales como, diseño curricular, metodología, didáctica y evaluación, además de fomentar espacios de participación e investigación.

Este aspecto, en particular, lo consideramos relevante para poder afrontar la nueva normalidad en las Universidades que se ubican en regiones con poca penetración del internet dado que requiere inversión y la articulación con otros centros de formación para lograr que los profesores adquieran las competencias que les permitan usar los resultados de las investigaciones en sus diseños, mejorarlos y reutilizarlos.

Finalmente se debe hacer la transición hacia otros modelos de enseñanza de tipo híbrido o b-learning que permitan la interacción entre los estudiantes y el profesor lo cual favorece el desarrollo de otras competencias de tipo comunicativas que se relacionan con el razonamiento y la argumentación que deben ser usadas para formar un pensamiento crítico en los estudiantes para impactar la sociedad donde se insertan.

#### **4. Conclusión**

Son muchos los desafíos a los que se enfrentan las instituciones educativas y los profesores para sostener el sistema educativo en las condiciones adversas a las que se enfrentan los estudiantes. El diseño instruccional brinda elementos para el diseño de secuencias de aprendizaje offline que podrían impactar positivamente los aprendizajes de los estudiantes si se parte de situaciones contextualizadas que relacionen el conocimiento previo con lo que se espera construir. Para ello, es necesario que no se enfatice en el desarrollo de los contenidos sino de las competencias que hagan emerger dichos contenidos.

Es importante que las universidades apoyen la formación de sus maestros para aplicar los resultados de los estudios sobre diseño instruccional, así como la conformación y consolidación de comunidades de práctica que permitan el intercambio de conocimientos y experiencias que favorezcan la formación continua.

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## **Historical and translation discourse of Abay in the ethnopedagogic paradigm: features of Analy**

### **Discurso histórico y de traducción de Abay en el paradigma etnopedagógico: características de Analy**

**Bigaysha Z. Akhmetova**

Bigaysha@mail.ru

<https://orcid.org/0000-0001-6442-9293>

PhD of Philology, Associate Professor, Department of Kazakh and Russian languages, Saken Seifullin Kazakh Agrotechnical University, Nur-Sultan, Kazakhstan.

**Fatima B. Sautieva**

fbilan@mail.ru

<https://orcid.org/0000-0001-6998-9169>

PhD of Pedagogy, Associate Professor of the Department of Pedagogy and Methods of Primary Education, Ingush State University, Magas, Ingushetia.

**Zarema M. Mamieva**

Mamieva-1965@mail.ru

<https://orcid.org/0000-0002-3097-0046>

Senior Lecturer of the Department of Foreign languages, Ingush State University, Magas, Ingushetia.

**Aitbibi Sultanovna Orazbayeva**

aitbibi1970@mail.ru

<https://orcid.org/0000-0002-5091-4703>

PhD in Philology, Associate Professor, Akhmet Baitursynov Kostanay Regional University, Kazakhstan.

**Yulia V. Islamova**

Y\_Islamova@ugrasu.ru

<https://orcid.org/0000-0003-3752-8418>

Candidate of Philology Science, Associate Professor of Russian Language and Literature, Ugra Article University, Khanty-Mansiysk, Russia.

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### **Abstract**

The article is devoted to the study of Abay's creativity as a historical precedent personality in the context of his ethnopedagogical, historical and translation discourses. Purpose of the work: identifying the essence of Abay's main discourses, analyzing them, determining the contribution of the precedent personality to the historical process of the formation of

ethno-identity, as well as clarifying the degree of precedence of the personality and his texts. In the process of analysis, a complex method was used, based on the combination of discursive-historical, cognitive-discursive, and pragmatic-communicative approaches, the method of sociological survey. The results obtained include: description of Abay as a precedent historical personality, widely known for his legislative, social and political activities; a comprehensive analysis of the historical discourse of Abay, the discourse of biy (in Kazakh language), its extralinguistic, cognitive, pragmatic, linguo-stylistic components have been identified and described; the historical character of Abay's translation discourses is established, a comprehensive analysis of such a discourse is carried out, the precedent of the text of Abay's translations is noted. It is concluded that Abay Kunanbaev not only acted as an active historical person who managed to influence the actualization of historical events and their promotion, but also as a poet, translator, who created various discourses (historical, translation, literary). Abay's translation discourse acts as a kind of historical discourse - historical and literary discourse, since it has signs of historicity (created by a historical person, it reflects the features of the historical era). Therefore, these discourses can be analyzed based on a complex discursive-historical and cognitive-discursive approaches.

**Key words:** historical personality, historical discourse, translation discourse, ethno-identity, social and political activity.

## Resumen

El artículo está dedicado al estudio de la creatividad de Abay como personalidad precedente histórica en el contexto de sus discursos etnopedagógicos, históricos y de traducción. Objeto del trabajo: identificar la esencia de los principales discursos de Abay, analizarlos, determinar la contribución de la personalidad precedente al proceso histórico de formación de la etnoidentidad, así como aclarar el grado de precedencia de la personalidad y sus textos. En el proceso de análisis se utilizó un método complejo, basado en la combinación de enfoques discursivo-histórico, cognitivo-discursivo y pragmático-comunicativo, el método del relevamiento sociológico. Los resultados obtenidos incluyen: descripción de Abay como personalidad histórica precedente, ampliamente conocido por su actividad legislativa, social y política; se ha identificado y descrito un análisis exhaustivo del discurso histórico de Abay, el discurso de biy (en lengua kazaja), sus componentes extralingüísticos, cognitivos, pragmáticos, lingüístico-estilísticos; Se establece el carácter histórico de los discursos de traducción de Abay, se realiza un análisis exhaustivo de dicho discurso, se anota el precedente del texto de las traducciones de Abay. Se concluye que Abay Kunanbaev no solo actuó como un personaje histórico activo que logró incidir en la actualización de los hechos históricos y su promoción, sino también como poeta, traductor, que creó diversos discursos (histórico, traducción, literario). El discurso de la traducción de Abay actúa como una especie de discurso histórico: discurso histórico y literario, ya que tiene signos de historicidad (creado por un personaje histórico, refleja las características de la era

histórica). Por tanto, estos discursos pueden analizarse a partir de enfoques discursivo-histórico y cognitivo-discursivos complejos.

**Palabras clave:** personalidad histórica, discurso histórico, discurso de traducción, etnoidentidad, actividad social y política.

## 1. Introduction

Understanding the role of an individual in the historical process is one of the urgent problems of the country in the context of the formation of ethnoidentity. This is due, firstly, to the little-studied question of the importance of an individual in the history of the state. However, historical events are not predetermined, so the future has many alternatives and can change because of the activities of various groups and their leaders, it also depends on the actions of a variety of people, for example, scientists. Therefore, the problem of the role of the individual in history is relevant for each generation, especially in the age of globalization, when the influence of certain people on the whole world may increase.

Socio-cultural and ethnopedagogic matrices are mobile under the influence of aggressive external factors (Karabulatova et al., 2017), therefore, the growing interest in the problem of personality is explained by the formation of new paradigms of the functional and communicative direction in the XXI century (Sautieva et al., 2020; Vorozhbitova et al., 2019) of the anthropocentric paradigm of scientific knowledge (Savchuk et al., 2019).

To achieve the goal, it is assumed that the following tasks will be solved:

- 1) to consider the historical and translation discourse of Abay as a set of historical and translation texts, and to analyze their features in the aspect of the ethnopedagogic paradigm;
- 2) to find out the role of Abay in the history of the country and in the development of ethno-cultural pedagogical potential for Kazakhstan;
- 3) to find out the degree of precedent of the discursive personality of Abay and indicate the relationship with the cultures of other peoples with the definition of the layer of background knowledge marking the reference points of the formation of self-identification of Kazakhs.

In modern conditions, ethnoidentity determines the vitality of an ethnos and a state, which is especially relevant in connection with the aggression of external factors of globalization, migration, the priority of electronic and digital communication, the pressure of the virtual environment, geopolitical problems of the preservation of states, in this regard, ethnopedagogy becomes the leading principle of preserving human civilization.

Kazakh educator, writer, composer Abay Kunanbayev is a passionate personality for the Kazakh state and people in the context of understanding their own identity and the place of Kazakhstan on the geopolitical map of the world. His work has not lost its relevance to this day. The study of the role of the discursive personality of Abay Kunanbayev as a

precedent historical personality who made a significant contribution not only to literature, but also to the development of the historical process, as well as to the history of translation studies based on the study of his historical and literary discourse in the context of his historical epoch, is of considerable interest. Abay Kunanbayev, whose 175th anniversary was celebrated in 2020, acts as a precedent in the history of culture, whose works have become precedent, and his name itself is a symbol of Kazakh culture. The name "bai" as a key sign contains a huge, informational cultural and historical potential. The proper name "Abay" can express not only linguistic knowledge, but also cultural, representing a linguistic and cultural sign that gives, on the one hand, linguistic, on the other – cultural, historical, social information (Karabulatova, 2013). Almost every locality in Kazakhstan has a street or avenue named after Abay, universities also bear his name, sweets "Abay", "Songs of Abay", collectible coins with the image of Abay, money with his portrait, etc. All this speaks about the colossal ethno-cultural potential of Abay's personality for the Kazakh culture.

We consider the context as "a complex phenomenon, consisting of several levels: linguistic context, intertextual, interdiscursivity levels, extra-linguistic level, socio-political and historical levels" (Budayev, 2016: 13).

An important principle of this approach is the integration of textual and socio-contextual levels of analysis of Precedent texts such person also has a high potential historic-cultural cross-cultural value, which is the core ethno-cultural potential of education.

## **2. Materials and methods**

The purpose of our article is to identify the essence of the historical and literary (translation) discourses of Abay Kunanbayev, their analysis, to determine his contribution to the history of the country and the history of translation studies, to clarify the degree of precedent of the texts of the discursive personality, to determine the significance of A. Kunanbayev's creativity for the formation of positive ethnic identity of Kazakhs and the construction of Kazakh statehood.

Anthropocentrism is considered as such a methodological attitude, which is aimed at bringing to the fore the linguistic personality, studied in close connection with the language, the individual's consciousness, his thinking, spiritual and practical activity. The functional and communicative direction contributes to the study of human speech activity, focusing on the ways of expressing an assessment, a person's subjective attitude to what is being expressed.

The discursive paradigm promotes the study of discourse as a specific product of speech action with its inherent semantic uniformity, attachment to a certain context, genre, and ideological affiliation, as well as correlation with a whole layer of culture, social community and already with a specific historical period.

B. B. Faul and T. S. Demin (2015), following T. A. van Dijk (1989), point out that this approach makes it possible to analyze how people use language, communicate, form groups, communities, demonstrating the diversity of cultures.

The merit of T. A. van Dijk is the emphasis on extralinguistic and linguistic factors in the analysis of discourse. Describing the discourse, the scientist pointed out that the discourse is "a complex communicative phenomenon that includes a social context that gives an idea of both the participants of communication, their characteristics, and the processes of production and perception of messages" (Dijk, 1989).

The main method of research is a discursive-historical analysis, it requires considering extralinguistic information (political, economic, cultural information) related to social problems, and focuses on the influence of ideology. Using this approach allows us to consider Abay as a historical person, to determine his contribution to the historical process as an ethnopedagogic progressor, to consider his socio-political views and educational ideas.

Along with this, the historical discourse of Abay is analyzed, because his views and ideas are reflected in them. The analysis of discourse involves both the study of the historical epoch in which the communicant lived, and the study of his mentality. Van Dijk (1989), focusing on the egocentricity of discourse, notes its extralinguistic nature, giving it the following definition: "speech flow, language in its constant movement, absorbing all the diversity of the historical era, individual and social characteristics of both the communicant and the communicative situation in which communication takes place. The discourse reflects the mentality and culture, both national and individual, private. This aspect is important for understanding the linguistic paradigm of Abay, which had a dominant influence on the formation of pedagogical thought in the Kazakh steppe. (Dijk, 1989; Vorozhbitova et al, 2019).

The discursive-historical approach proposed by R. Wodak and N. Fairclough involves the use of a three-dimensional model of analysis. N. Fairclough suggests analyzing the text, discursive practice, social practice. R. Wodak believes that the discursive-historical approach is carried out over three stages: 1) definition of the content and subject of the statement; 2) analysis of the discursive strategy of the text under consideration; 3) description of the "formal characteristics" (Wodak, 2009). These stages help us to understand the mechanism of formation of the accumulative function of Abay's ethnopedagogic strategies, to realize his work in the context of integration with European culture, which opened the opportunity for subsequent international communication.

The discursive-historical approach also involves the corpus of linguistic means, types of cognitive structures (knowledge, models, etc.) for the analysis of discursive units of the text.

Abay is considered as a linguistic personality capable of generating discourses in different languages and translating from one language to another. Therefore, in the field of view of

the researcher is the characteristic of his ability to master different languages, as well as his translation discourse. For the analysis, the synergetic method is used, as well as its techniques (a method for determining the creativity of translations of a discursive personality based on the description of the reception of non-linearity of thinking, the reception of openness, cognitive development of the new). The method of transformational analysis is also used, a method of achieving the equivalence of the source and translated texts by using strategies of form and strategies of meaning.

### 3. Discussion

Ethno-pedagogical influence of Abay lies in the fact that he is not only the founder of the Kazakh literary language, but also created a methodology for teaching the Kazakh language. This activity of Abay became the starting point for further study of the Kazakh language and culture. Thanks to A. Kunanbayev, folk parables, tales, legends, proverbs, and sayings were included in textbooks on the Kazakh language and literature, history and culture of Kazakhstan. In addition, A. Kunanbayev contributed to the adaptation of the achievements of world literature in Kazakh society, creating transcriptions of Russian, German poets in the figurative system that was understandable for the common Kazakh people. Thanks to the literary and translation activities of A. Kunanbayev, the achievements of the world classics entered the linguistic consciousness of the Kazakhs. At the same time, A. Kunanbaev translated Kazakh folklore into Russian, promoting its popularization among ethnographers, folklorists, and teachers on the outskirts of the Russian Empire. Careful attitude to the monuments of folk art allowed A. Kunanbayev to become a symbol of Kazakh revival, a source of education of Kazakh ethnosocial and cultural self-awareness.

Abay's pedagogical views were formed under the conditions of the feudal-city system, distant from us by historical eras. However, the views of A. Kunanbaev are either very close or coincide with our views on very important aspects of pedagogical theories and practice: the relationship between labor moral, mental, aesthetic education, recognition of the leading role of education in the formation of personality, work as one of the main means of education and etc. Comprehension of his pedagogical views is impossible without studying the national origins of his work. Without understanding that he absorbed everything progressive that was in the life of the Kazakh people in their folk pedagogy and folk wisdom. This explains the fact that the national and international is relevant in the philosophical and pedagogical views of Abay (Zharikbaev, Kaliev, 1995). Problems affecting science and religion - he did not hesitate to take the side of science, i.e. I saw the future of the Kazakh people in mastering knowledge, developing education, science, enlightenment.

In accordance with his era and the requirements of life, Abay Kunanbayev called on Kazakhs who did not send their children to school, persistently advised to teach their children the Russian language "If you want your son to become a man, teach him, you will do the good for him and your people." ... He called on young people to learn, to master

Russian science. Various new crafts, advised to work honestly for the good of society. Abay Kunanbayev in his work "The Book of Words, the Twenty-fifth Word", devoted to the disclosure of the decisive role of Russian education for the progress of the Kazakh people. He told his people: "The main thing is to learn Russian science. Science, knowledge, prosperity, art - all this is in the hands of the Russians" (Abay, 2020).

Abay was not a professional teacher. However, the value of his statements in this regard is beyond doubt for us. Where did Abay get all this wisdom from? He himself studied all his life, which is why he was able to evaluate his knowledge and never remained satisfied with the knowledge. According to Abai's eyes, children are drawn to study, their knowledge is formed gradually, when they realize the benefits of studying. He attached great importance to the fact that a person himself should strive for this, it pushes his mind, to the consciousness of the need for knowledge. Abay, at the same time, emphasized the importance of schooling Kazakh children in their native language. According to Abay, a person must master the basics of knowledge in his native language and only then he must move on to learning other languages. Pointedly and broadly raised the issue of universal public education: "We need to create a school, we need the population to provide funds for these schools, we need everyone to study, even girls" (Abay, 2020: 118).

The attitude to ethno-oriented learning in the works of A. Kunanbayev is considered in the article by Asankulova and Kalymbetova (2014), in which the authors emphasize the importance of A. Kunanbayev's activities to popularize the promotion of the Kazakh language in the Steppe Territory.

Bold statements about the need for enlightenment were expressed by A. Kunanbaev, who creatively reworked all the valuable thoughts on the issues of training and education of the younger generation of thinkers of previous eras. Following Pythagoras and Aristotle, al-Farabi, Davani Abay strongly opposed corporal punishment of children. In his didactic instructions, he noted that the main principle of teaching is from simple to complex, while it is necessary to consider the age characteristics of children (Abay, 2020). He argued that teaching should be carried out in the native language of students, since the goal of ethno-oriented education is to develop students' ability to think independently, to constantly maintain an interest in learning (Saitkasimkhanova, 2008; Aipova et al., 2021). Inoculating young people to master the foundations of science, A. Kunanbaev shows the ways to solve this problem. And here the educator deals with the issues of self-education of the individual. Recognizing to love a person, to love beauty, Abay considers the aesthetic in an inextricable connection with the ethical (Uspanova, 2002). A person achieves happiness under the condition of the all-round and holistic development of his personality, combining the sharpness and depth of reason, nobility of heart and unyielding will. He was a passionate preacher and tireless champion of the moral education of youth, being one of the founders of Kazakh scientific thought in the field of education and upbringing.

Since the representatives of the tsarist administration did not speak the Kazakh language (Sturova, 2012), Abay published his enlightening thoughts not only in Kazakh, but also in



Russian, to help the local administration, understand the specifics of the ethnic self-knowledge of the Kazakhs. Comprehension of Abay's pedagogical views is impossible without studying the national origins of his work, without understanding that Abay absorbed everything progressive that was in the life of the Kazakh people themselves, in their folk pedagogy, folk wisdom (Sautieva et al., 2021). This explains the fact that in the philosophical and pedagogical views of Abay, the national and international are not opposed, but act in unity as interrelated and complementary ideas. The same can be said about his coverage of the issues of the relationship between the cultures of the Kazakh and other peoples.

It is known that Abay was not a person completely free from religious views. When the question arose - science or religion? - he took the side of science without hesitation. Apparently, this circumstance decisively influenced his assessment of religious education, which he resolutely rejected as reactionary. He advocated secular education and upbringing, liberating, and developing the mind, forming human dignity in the child.

Based on the study of the works of progressive teachers and the national experience of folk pedagogy, the pedagogical views of the thinker corresponded to the level of development of contemporary science, and in many cases even outstripped it (Abisheva et al., 2020).

The problem of studying a linguistic multilingual personality as a discursive one relates to the possibility of a personality to generate discourses of different types (Karabulatova et al, 2017). By a discursive personality, S. N. Plotnikova understands a linguistic personality, "which generates a certain discourse in the form of a message and is responsible for its content" (Plotnikova, 2008). We consider Abay as a multilingual person who can generate various types of discourses (historical and translation), who has a huge ethno-pedagogical potential of influence both during his life and at the present time. At the same time, we characterize him as a "people's diplomat" who ensured the entry of the Kazakh Steppe into the international cultural space by creating translated texts of classics of Russia and Europe. Therefore, we can say that Abay is also a precedent person, whose name and texts are widely known not only in Kazakhstan, but also abroad. Russian actively used the traditional background knowledge of Kazakhs to convey similar cultural meanings of Russians and Europeans, providing " an ethno-cultural dialogue between the Kazakh Steppe and the Russian Forest (Karabulatova, Koyshe, Gulyaev, 2013: 853).

The attribution of Abay to historical figures is because his activities had a significant impact on the course of history. According to the classification of S. Hook, there are: 1) historical figures who influence events; 2) people who create events (Hook, 1955). Abay can be attributed to people who both influence events and create events. The creation of historical events by him relates to his activities as a biy and a volost administrator. In the report of Major-General Galkin on August 25, 1903, addressed to the military governor, it was said about Abay that " he is a very developed and intelligent person, he served for 2 three years as a biy and 3 three years as a governor of the Chingiz

parish, then he served for one three-year as a governor of the Nukur parish by appointment from the government. Kunanbayev's service was distinguished by reasonable efficiency and energy, loyalty to the government and lack of fanaticism (Kunanbayev, 1995: 133).

Kazakhs got acquainted with the Russian classics, according to S. Abdrakhmanov's fair remark, thanks to Abay's translations. Abay considered the priority of oral transmission of knowledge and folklore in the Kazakh culture, so his translations were organically integrated into the traditional paradigm of Kazakh folklore, introducing the plot outline of the novel "Eugene Onegin". The ethnopedagogical potential of A. Kunanbayev also consisted in the use of the ethno-cultural component as a unified development system a multilingual personality: teaching, upbringing by means of native culture and the culture of the Russian language. The Russian language acted as a translator of European culture, through Kazakh translations of German romantics, Abay introduced the Kazakh steppe to the cultural achievements of poetic Europe. We understand that by forming a cultural environment, the potential of a creative, intellectually developed personality is being realized. Abay tried to bring to the heart of every ordinary Kazakh the main motives, the innovative spirit of Pushkin's novel, the most important for the Kazakh society of that historical period (Abdrakhmanov, 2008: 179). At the same time, Abay uses the background knowledge of the Kazakh culture. Russian and Kazakh culture share common ground with this knowledge, which made it possible to eliminate the ethnic and socio-cultural distance between Russians and Kazakhs in the future.

In the interpretation of A. Kodar (2008), the philosophical prose, or philosophical discourse of Abay has:

1. Direct analogs in the west -European philosophical tradition associated with the names of Montaigne, Schopenhauer, Kierkegaard, Marcus Aurelius, Blessed Augustine; before Abai, this tradition is Western -European philosophizing reached presumably through L.N. Tolstoy (Abdildin, Abdildina, 2015);
2. Abai, seized by progressive trends of the XIX century, it was closely within the framework of Muslim orthodoxy and, therefore, in in search of form, he turns to an essayistic manner of writing, free and uninhibited, where you can think about anything and in any direction (Fazilova, 2016).

The popularity of A. Kunanbayev's ideas lies in his mythopoetics, since they are based on Sufism and pagan views of the Kazakh people (Martazanov et al., 2021; Sautieva, 2003), therefore, the work of the enlightener is a conversation with himself and with God, that is, it is lonely thinking aloud , or monologues, as they are called in the Western European tradition; let us recall the "Monologues" of Augustine or "Reflections" of Marcus Aurelius, which appeared in a situation similar to Abay- a situation of self-exclusion from the crowd in order to strengthen one's faith and thought, which has become for them above all else.

Abay went down in history as the creator of Kazakh writing and the founder of Kazakh philosophy because he played the role of Socrates for nomadic Kazakhs, who shattered the canons of traditional thinking and put them on the path of thought and faith with an imperious hand. Simultaneously, in his works, Abay created a model of behavior, which is still a model for posterity; it is a model in which culture and civilization, religion and philosophy, people and humanity are created.

Noting the merits of the analysis of A. Kunanbayev's legacy, we can note that they do not give a holistic picture of the discursive space of Abay's personality. In addition, we would like to separately note that Abay's "Edifications" are actively used at the present time as a guide to create matrices of ethnosocial and civic identity (Lin et al., 2021; Karabulatova et al., 2021) in Kazakhstan, which indicates a high modeling ethnopedagogical potential (Savchuk et al., 2019) of a researcher, a scientist, and a poet.

As a result of the conducted research, we carried out a comprehensive analysis of the discourses of Abay as a powerful ethno-cultural personality, widely known as a historical, as well as literary and translation personality. During the analysis, it was proved that Abay is a historical figure who made an important contribution to the formation of the ethnic consciousness of the Kazakh people, thanks to his legislative, socio-political, and literary activities. It was established that Abay is the author of the Code of Laws of the Kazakh Customary Law, in which there were 94 provisions. Abay has repeatedly served as a judge, took part in socio-political and educational work. Abay tirelessly fought against the bureaucratic authorities, with local basis who oppressed the people. For this, he was persecuted for 9 years. His letter to the Governing Senate is known.

Abay's ideas are characterized as humanistic. All his ideas, socio-political views were reflected in his historical discourse. The signs of historical discourse are revealed, the Biysk discourse of Abay is considered and its discursive analysis is carried out based on complex discursive-historical and cognitive-discursive approaches. The results of our article are obtained while studying historical discourses of different types (biy's discourse and the translation discourse of the same person). In contrast to the results of other authors we carried out a discourse analysis of different statements of one historical person because of an integrated approach. The obtained results can be explained by the fact that during the analysis of different types of discourses, methods of analyzing historical discourse were used (the method of considering the typology of historical discourses, the method of considering the features of historical discourse). The translation discourse was considered as historical, considering the time of translation (1888), considering the presence of signs of a historical epoch in the translation text.

The results of the conducted research can be applied during the analysis of discourses of different types based on an integrated approach (a combination of discursive-historical and cognitive-discursive approaches).

Thus, the analysis of Abay's discourses shows that they can be characterized as historical and historical-literary (translation). The author of them is characterized as a historical person who has made a certain contribution to the history of the country: the development of the provisions of the legal code, the occupation of the biy and volost for several years, socio-political activities (the fight against the bay, the authorities, the protection of the common people). The analysis of his biy discourse contains such features of historical discourse as: 1) taking into account the social context, i.e. a brief description of the historical era of the implementation of this discourse; the national features of the Kazakh court under customary law are considered; 2) discursive means (linguistic lexical units, grammatical means characteristic of the language of the second half of the XIX century-legal terms (sheshim, baylau, zhesir dauy, kun) figurative means (metaphors, epithets) are analyzed; knowledge concerning the girl's kalym, the custom of matchmaking, the custom of amangery, knowledge about kalym, barymty); 4) a pragmatic-discursive approach has also been implemented, which allows us to present the discourse of biy as a set of speech acts: representatives, declaratives, verdictives. Such a discourse of biy gives an idea of the historical epoch, the mentality and customs of that period, the peculiarities of the Kazakh court, the specifics of lexical and grammatical means of historical time.

Abay's ethno-cultural competence, the ability to see his own ethnosociostereotypes are professionally important qualities of him as a teacher, educator in the Kazakh Steppe at the stage of forming his own statehood and awareness of his own identity.

#### **4. Results**

The ethnopedagogic potential of Abay for the formation of the entire Kazakh nation lies in the fact that Abai developed one of the first legal documents in the Kazakh language. Abay was one of the first to introduce the Kazakh language into the official business sphere of the administrative policy of imperial Russia, thereby initiating the creation of a full-fledged literary Kazakh language. This document has been preserved in the archives (Kunanbayev, 1995: 62-63). S. F. Udartsev claimed that it was Abay who developed the document submitted to the congress. The document was drawn up so competently and clearly that this prepared normative act, consisting of 93 articles (paragraphs), which was unanimously approved by those present (Udartsev, 2007). This document was also called in another way "The Code of Ordinary Kazakhs". The original document was kept for 134 years in Kazan, in the museum of the Kazan Lobachevsky University (Internet-magazin Zona-KZ, 2019).

According to A. N. Taukelev, "The Trial of Karamol" was an attempt to bring together the laws of the steppe and the laws of the Russian Empire. Abai was the first in Kazakh jurisprudence to introduce punishment for contempt of court. It was in 1885 that the concept of an oath for giving false testimony appeared. Abai also considered the procedure for electing biys. The concept of a statement of challenge to a judge, etc., is introduced (Taukelev, 1960).

The cognitive approach in Abai's speeches demonstrated knowledge about the folk customs of the historical period when a girl was paid for *kalym*, about the ancient custom of marrying a girl whose fiancé died for her close relative, about fines paid by the opposing party to the injured party, about the custom of *barymty*-cattle theft, etc.

The discourse of Abay as a *biy* (judge) gives an idea of his personality, views, knowledge, historical epoch, as well as the lexical, grammatical, and stylistic means used to promote the expressiveness of his speech.

The attribution of Abay's translations to the historical and translation discourse is due, firstly, to their belonging to a certain historical epoch; secondly, to the fact that Abay's translation texts note innovative traditions that contributed to the development of translation studies in Kazakhstan. The empirical basis in this study is the translations of the poems of M. Yu. Lermontov, A. S. Pushkin "The Letter of Tatiana", "The Letter of Onegin", etc. Historical and discursive translation analysis of them allows us to reveal both information about the views and mentality of the heroes, as well as the conditions for translating the Russian text into the Kazakh language, information about the innovative strategies of Abay-translator. This approach is combined with a cognitive-discursive analysis of the translation text, which helps to identify knowledge about the national characters of the heroes of the source text and the translation text, methods of equivalent transmission of the original text.

In the eighties of the XIX century, Abay closely communicated with exiles resettled in Kazakhstan. They were E. G. Michaelis, S. S. Gross, A. A. Leontiev, N. Dolgoplov. The exiles helped Abay to get acquainted with Russian literature. Abay himself at this time engaged in literary activities and translations. He is actively engaged in socio-political activities (preparing Heresy, working as a full member of the Semipalatinsk statistical committee, conducting research on the history of Kazakh clans, on the history of ordinary Kazakh law). Abay, when translating "Tatiana's Letter", tried first of all to bring to the Kazakh reader the image of Tatiana in the interpretation of the image of a Kazakh girl, i.e. instead of the Russian Tatiana in the translation, we see the image of a Kazakh girl, tender, passionately loving, devoted to her feelings.

Abay transmitted "Eugene Onegin" in the form of letters in verse. The fact is that in the era of Kunanbayev, love correspondence between boys and girls became a tradition in the Kazakh aul. Moreover, these letters, as a rule, were written in poetry, and all this had a peculiar romantic character. Thus, Abay correctly groped the request of his reader.

And here's another touch of the Kazakh genius's talent for translation. Remember from Pushkin, Tatyana asks Eugene:

Though rarely, even once a week  
In our village to see you.

For his people, Abay translates as follows: "Shydar eem kuyip men zhanyp, / Aiyina berer kursem de" ("Even burning with impatience, I would have endured everything / If I had to see you at least once a month"). Why more than once a week, ask? But because the poet addresses his work to the youth of the Kazakh aul. The steppe is not a village. In the Russian countryside, people get together at least once a week to pray in church. In the vast steppe space, people are also happy when they meet at least once a month. And a guy and a girl see each other very rarely, for fear of unwanted rumors and misinterpretations. It is also appropriate to mention here that the Kazakhs, when they met in the steppe, asked each other in detail about life and life, about the health of family members and relatives, about the safety of livestock, and so on, apparently knowing in advance that the next meeting would not be soon ... At least until the advent of the mobile phone, this was the case.

The artistic scale of the poetic translation of Abay Kunanbayev is clearly manifested in the translations of poems by Mikhail Lermontov. And here again we see how the Kazakh poet literally lives the images of the Russian poet. Let us recall the lines familiar from childhood:

Mountain peaks  
Sleep in the darkness of the night  
Quiet valleys  
Full of fresh haze.

The Abay's genius reduces Lermontov's "mountain peaks" to the designation of ordinary "mountains" (approximately to the Chinggis mountains, which do not have transcendental peaks), and transforms the "valleys" into wide "steppes" (like, say, Karaul), so Goethe's picture easily moved to Kazakh land. Comparing the three options at the same time, we can note that the night, which makes the steppe not only quiet, but also indifferently exhausted, occurs only on these wide-open spaces, only on the Kazakh land. We must say that Abay the translator felt his closeness to the work of M. Lermontov. Abay translated into the Kazakh language such famous masterpieces of M. Lermontov as "Borodino", "I go out on the road alone", "Duma", "Dagger", "Prayer", "Gifts of Terek" and much more. Abay treated Lermontov's poetry with special trepidation, feeling a spiritual kinship with him. It would not be an exaggeration to say that, imbued with sympathy for Russian poetry, Abay found the greatest spiritual consonance in Lermontov. By that time, Abay was already at the level of a comprehensive understanding of the intellectual world, the needs, the fate of not only the great poet, but the entire Russian society. Therefore, he perfectly understood the poetry of this people. I felt perfectly well that Lermontov's indignation, sadness, and anger expressed indignation, anger and sadness of the Russian people, the exploited society. Abay transposed most of Lermontov's poems in the form of a clean translation, and when he dealt with Pushkin, he allowed more freedom, allowed himself to interpret the details in his own way, to change the characters, moral traits of the characters in his own way. In other words, if Abay speaks with Pushkin in competition, then with Lermontov - in agreement.

According to M. M. Myrzakhmetuly, at one time Abay set a goal – to teach Kazakh youth to evaluate the depth and weight of this feeling of love through the image of Tatiana (Myrzakhmetuly, 1997: 155). In the process of translation, Abay subtly considers the nature of the Kazakh worldview. In her translation, Tatiana's words "At least rarely, at least once a week // In our village to see you" Abay says that Kazakh guys and girls rarely see each other, months pass while the villages roam nearby, so people are always happy to meet. And a guy and a girl rarely meet, for fear of gossip, gossip.

It can be argued that before the appearance of translated samples, the Kazakhs were alien to the fable as a separate literary genre (note that before Krylov, the fable was not widespread in Russian literature either). In the 19th century, Kazakh children did not want to read fables, if they did, they laughed at them, and their parents were completely offended that, they say, they were teaching their children such nonsense, as if a magpie and a crow were talking among themselves. Translation of fables by Ivan Krylov was one of the important milestones in the development of not only the Kazakh translation art, but in general the entire Kazakh literature, as well as ethno-oriented pedagogy.

The fact is that Abai translated the Krylov's fables with such a national flavor that it is incorrect to consider them as a simple rhymed version of the translation. Let's be frank: after all, for example, Krylov's fable "The Dragonfly and the Ant" is not considered a translation from the French of the great Jean de La Fontaine (and even deeper - from the ancient Greek language in which Aesop wrote)? Why should the Abaevsky fable be considered Krylov's translation? A scrupulous analysis of this fable proves that we can quite put this work on a par with Abai's own works. The sound writing of the verse is striking, everything flows like that, the rhythm, rhyme, intonation, musicality of speech is impeccable. When we talk about the evolutionary path in translations of Krylov's fables, we first of all mean their non-nativeness for the Kazakh ear, comprehensibility, transmission in a figurative and juicy language, then - adaptation to steppe life.

Let's give just one example. In Abay, the heroine of the fable is not the Dragonfly, but the Grasshopper (Shegirtke), and therefore. Dragonfly - in Kazakh "inelik", from the word "ine" - a needle, thinness (in modern Kazakh language there is even an expression used for thin people - "ineliktey ilmiip"). Every Kazakh in the steppe knows that the dragonfly is thin and voiceless, which means that in the fable the phrase "Red Summer sang" in relation to the Dragonfly would sound out of tune. But the grasshopper can sing as much and quite loudly. It is curious that La Fontaine's fable is called "The Cicada and the Ant," and the cicada, as you know, is a distant relative of the grasshopper. But Krylov refused from Cicada, because at that time the Russian reader did not know this insect, and from Grasshopper, because this word is masculine, and in that case the fable would have consisted of a conversation between two "men" - Grasshopper and Ant. And Ivan Krylov needed a conversation between a neighbor and a neighbor. Abay, "correcting" Krylov, changing the Dragonfly to the Grasshopper (fortunately, the Kazakh language is not constrained by the generic framework) and transferring events from the forest to the steppe, thereby ultimately creating a real Kazakh fable. The fable left a special mark on

the Kazakh national consciousness. The instructive translations that came out from the pen of Abay Kunanbayev over time had a positive impact on the process of writing their own Kazakh fables. It was through the fable that the written literature of the Kazakh people first met the best examples of world verbal art.

Identify the precedent of Abay's personality and his texts, a sociological survey was conducted based on questionnaires sent by e-mail. The questionnaire consists of four blocks:

- 1) appeal. It contains the motivation that encourages the respondent to cooperate;
- 2) demographic block: year of birth, gender, marital status, length of service, profession;
- 3) the main part is devoted to collecting and obtaining information about the precedent personality.

It includes twenty questions devoted to identifying respondents' knowledge about Abay, his personality, knowledge about his texts, value-ideas, for example:

1. Do you consider Abay a historical figure?
2. What episodes, historical events relate to Abay's participation in the historical process?
3. Why does Abay act as a symbol of Kazakh culture?
4. What is the precedent of the proper name "Abay"?
5. What texts of Abay do you know?
6. What statements of Abay can you remember?
7. What value-concepts of Abay are important for culture?
8. Which poet did Abay translate the most?
9. What translations of it were widely known in the steppe in the second half of the XIX century?
10. What contribution did Abay make to the history of Kazakh and world culture? Etc.

The analysis of the questionnaires was carried out by applying the method of quantitative analysis. It was found that 80% of the subjects have an idea of Abay's personality, know his texts and can quote Abay's statements, excerpts from his works. All this contributed to the assertion of the position that Abay is a well-known precedent name, which is a compressed image that gives an idea of the values of a person, the culture of his people, the texts of a person remembered by the plot, characters, situations.

## 5. Conclusion

Creative approach to translation allowed Abay also use the strategy of associative thinking, when new images, associations, secondary associative connections of words began to appear on the basis of any word in the original. These new associative connections began to combine reality and create a kind of myth about it by emphasizing any knowledge about the properties of realities and dispositions.



A. Kunanbayev used this non-standard approach both in translation and literature, and in pedagogy, jurisprudence and law, organically combining the constants of folk culture with the requirements of the time.

Based on the above, it is important to note that the mechanism of A. Kunanbayev's historical and translation discourse is to bring to the fore the individual characteristics of the concepts that convey information that is relevant in a particular ethnosociety. However, the analysis of the discursive practices of A. Kunanbayev makes it possible to restore the missing aspects for the formation of the concept by referring to the cognitive areas, such as: the mental space of the Kazakh language picture of the world, the conceptual structure of the Kazakh language. Consequently, the analyzed discourse of Abay can be presented as a conglomerate of linguistic and cognitive structures and as a cognitive mechanism.

Abay's discourse is subordinated to the cognitive organization, it can be characterized through the concept of mental space, understood as a collection of concepts; the way of structuring the concept determines the selection of linguistic means expressing the position of A. Kunanbayev.

Here the basic, constructive cognitive the unit of discourse is the concept as a mental formation, the nature of which is determined by the peculiarities of speech-thinking practice, focused on the social context.

Humanitarian forms of knowledge, understanding and criticism are in demand in a society where, according to forecasts, the human dimension can turn into a new form of luxury: against the background of the massive introduction of algorithms and artificial intelligence systems in various spheres of life, it is human assessment, human interaction, and human communication that may turn out to be a valuable resource in demand in the modern world.

Abay used the principles of folk pedagogy, in which there is a fairly clear differentiation of the main functions of ethno-didactic means: proverbs are used mainly for ethnic education, riddles for mental development, games for physical education, etc. Of course, each of the means, along with the main teaching function, it also has other functions. For example, there is a lot of logic and poetry in proverbs, beauty in riddles, intellectual and emotional charge in games, etc. A. Kunanbayev strengthened the ethnopedagogical element in school didactics, adding world and Russian classics in his own translations into Kazakh, adapting to Kazakh language picture of the world.

Abay understood that the poetic form of knowledge transfer, which dominated in Kazakh culture, has a multifunctional ethno-didactic character, the importance of which can hardly be overestimated not only in pedagogy, but also in human life. Folk oral transmission of knowledge exists in three dimensions: past, present, and future. The centuries-old experience of the people absorbed into the game belongs to the past; in the present -

meeting the needs of a developing child; to the future - consolidation of the skills and abilities necessary for its formation as a person in order to prepare for life.

Songs, parables, fairy tales and fables are one of the richest treasures of the linguistic culture of the people. They combine both logical thought and poetic image. These genres teach and develop and educate. The simplicity of the language, its proximity to colloquial speech, the richness of images, the fascination of the plot allowed A. Kunanbayev to use these genres as a wonderful ethno-didactic tool.

To achieve success in the full development of a creative, spiritually rich humanistic personality, without which the construction of a civil society, a legal state is impossible, it is necessary to solve the problems of morality, spiritual culture of society, transfer to the young generation of creative experience, spirituality, religious culture, experience of an emotional-value attitude to the world.

The reason for many negative phenomena in recent years in the field of education was the violation of the three fundamental principles of pedagogy: continuity, nationality, and conformity to nature. A way out of this contradiction is possible in the use of ethnopedagogical principles in the education system, aimed at restoring the connection between times, revival, and creative use of the historical and pedagogical experience of peoples.

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## **Students as a subject of the e-learning environment**

### **Los estudiantes como asignatura del entorno de e-learning**

**Nadija Figol**

figol\_nadija@ukr.net

<https://orcid.org/0000-0002-2503-7243>

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute".

**Vasyl Teremko**

v.teremko@ukr.net

<https://orcid.org/0000-0002-9045-7674>

Taras Shevchenko National University of Kyiv, Ukraine.

**Iryna Pobidash**

nazarira@email.ua

<https://orcid.org/0000-0001-9876-2203>

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute".

**Aelita Lytvyn**

a-elita@ukr.net

<https://orcid.org/0000-0003-3897-6175>

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

**Tetiana Skorokhod**

skorokhod.tetiana@gmail.com

<https://orcid.org/0000-0003-1585-700X>

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute".

**Ruslan Trishchuk**

3182233@ukr.net

<https://orcid.org/0000-0002-6286-8345>

National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute".

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### **Abstract**

The article is devoted to the subjective role of the student community in the e-learning environment. The basic personal attributes of a modern student required for successful learning in the electronic learning environment were defined, including proactive attitude, motivation, creativity, independence, persistence. The tasks that should be overcome by students to achieve the goal of successful learning were outlined as follows: to take personal responsibility for the process and the final result of learning, to increase their motivation and interest in a positive outcome, to be able to develop communication with

other students and the lecturer, to associate the acquired theoretical knowledge with their experience and practical skills. Distant learners were outlined to face a variety of challenges from technical issues and lack of guidance materials to communication difficulties, which are just as important.

The conclusion to be drawn is that the functions and competencies of both students and teachers are changing in the e-learning environment. Communication moves to a different level and starts to be from a peer to peer perspective. The e-learning environment requires students to be more self-organized, goal-oriented, self-conscious in the process of education, to realize the purpose of their cognitive activity, to be inquisitive and passionate.

**Key words:** electronic learning environment, communication, students, competencies.

## Resumen

El artículo está dedicado al papel subjetivo de la comunidad de estudiantes en el entorno del e-learning. Se definieron los atributos personales básicos de un estudiante moderno requeridos para un aprendizaje exitoso en el entorno de aprendizaje electrónico, incluida la actitud proactiva, la motivación, la creatividad, la independencia y la perseverancia. Las tareas que deben superar los estudiantes para lograr el objetivo de un aprendizaje exitoso se delinearon de la siguiente manera: asumir la responsabilidad personal del proceso y el resultado final del aprendizaje, aumentar su motivación e interés en un resultado positivo, poder desarrollar comunicación con otros estudiantes y con el profesor, para asociar los conocimientos teóricos adquiridos con su experiencia y habilidades prácticas. Se describió a los estudiantes a distancia para enfrentar una variedad de desafíos, desde problemas técnicos y falta de materiales de orientación hasta dificultades de comunicación, que son igualmente importantes.

La conclusión a extraer es que las funciones y competencias tanto de estudiantes como de profesores están cambiando en el entorno del e-learning. La comunicación se mueve a un nivel diferente y comienza a ser desde una perspectiva de igual a igual. El entorno de e-learning requiere que los estudiantes sean más autoorganizados, orientados a objetivos, conscientes de sí mismos en el proceso de educación, que se den cuenta del propósito de su actividad cognitiva, que sean curiosos y apasionados.

**Palabras clave:** entorno de aprendizaje electrónico, comunicación, estudiantes, competencias.

## 1. Introduction

In the modern era of active informatization of society, the spread of distance learning has increased interest in learning in an e-learning environment. Distance learning was especially relevant during the Kovid 19 pandemic, when most educational institutions in many countries were forced to switch to distance learning. During such training, both methods, forms of educational activities and the role of subjects in electronic

communication change, so it is important to find out new competencies and functions that should be acquired by its main subject - students, which determines the relevance of our study.

Therefore, the aim of the article is to identify new competencies of students in the e-learning environment, its functions in the era of global informatization of society and the transition to online learning. After all, the success of communication in the form of distance learning will depend on the acquisition of these new competencies, which will testify to the success of educational activities in general, and hence the achievement of the ultimate goal - the acquisition of new knowledge. Solving this problem will make it possible to identify new competencies of students needed for distance learning, which will help to form these new competencies in them for successful further study, will make communication in the e-learning environment productive and successful. To date, researchers have mainly studied the peculiarities of students' perception of e-learning publications, the effect of these e-learning publications on students and their cognitive activity, but the subjective role of students as a subject of communication in e-learning environment researchers did not touch, so we were interested to focus on this issue and highlight the competency characteristics of students that will help in educational and cognitive activities. We accept as a hypothesis the statement that in the period of distance learning students must acquire new competency characteristics for successful communication in the e-learning environment.

## **2. Methodology**

The methods used in the study include general scientific methods of analysis and synthesis, which allowed to identify specific characteristics of modern students, to establish its inherent competencies, to determine the necessary advantages in the e-learning environment.

A descriptive method, in particular a typology method focused on finding a stable feature and property of an object, was also used in the study. This method allowed to determine the characteristics of modern students in the e-learning environment. The method of typological analysis allowed to analyze and compare the effectiveness and efficiency of the latest competencies of modern students, identifying general trends and prospects for development.

The article uses Case Study - a method of qualitative research in the social sciences, which consists in the study of a single social object (situation, event) in order to understand a wider class of similar cases (class of events). In the context of this article, it is a study of the characteristics of students in order to generalize the phenomenon of this phenomenon in the era of informatization of society.



### 3. Literature review

The e-learning environment and distance education are currently being actively studied by both foreign and Ukrainian scientists.

Among the domestic research should be noted the following aspects: interactive technologies of adult learning (Sysoeva, 2011), the theory and practice of blended learning (Kukhareno, Berezenskaya, & all, 2016), Distance learning (Kukhareno, & Sirotenko, 2016), the formation of critical student thinking (Oliynyk, 2016), gamification in blended learning (Stolyarevska, 2016), features and possibilities of using blended learning (Rybalko, & Syrotenko, 2016), etc.

Among foreign studies should be noted works: Christopher Pappas. "The best statistics and facts of e-learning for 2015 that you need to know" (Pappas, 2015); Bernie Trilling "Towards Learning Societies and Global Challenges of ICT Learning" (Trilling, 2007); Sharon Boller "E-learning trends that disappoint, impress or prolong in 2014" (Boller, 2014); Catherine Davis "The most popular trends and prospects for educational design in 2014" (Davis, 2014); Justin Ferriman "The future of e-learning in 2014" (Ferriman, 2014); Lewis Carr "10 predicted e-learning trends for 2014/15" (Carr, 2014).

### 4. Results and Discussion

The electronic learning environment has modified the communicative status and recipients of information, namely pupils and students, who turn from passive participants into active co-creators of the communication process. This is facilitated by the availability of interactive elements in the electronic textbooks, when the recipient is able, first, to choose an acceptable level of learning the material, and secondly, to share their wishes with the authors and developers. At times, pupils and students are also involved in creating additional supporting materials, such as relevant cases, tasks, exercises, gamification elements which significantly improve the efficiency of the learning process due to their interest and so-called involvement in the process. The pro-active role of the pupil or student in the communication process in the electronic learning environment involves acquiring new skills and performing unusual functions.

First and foremost, the **pro-active attitude** should be singled out as one of the essential skills. The pupil or student should first of all demonstrate their interest in the learning process, be active instead of being passive in absorbing dogmas, truths, and knowledge, which may become obsolete over time.

In addition, the modern student should be aimed at obtaining a positive effect from learning, and therefore be **motivated to** the educational process. The prerequisites of motivation can be established both in the educational institution and, above all, in the family.

Nowadays, an essential competence for students is their **imagination and creativity**, which will help them to apply non-standard solutions and go beyond clearly defined boundaries if required. A student in the electronic learning environment actually becomes the creator of his cognitive reality, being able to move to other information resources via hyperlinks, finding additional interesting information on other platforms. For this reason, the creative component, which will help both solve non-typical challenges and construct the electronic reality in the e-learning environment, becomes such a necessary competence for the modern student. If the student of the previous century could be characterized as a good performer who was diligently absorbing the amount of knowledge selected for him, the modern student can be called a creator who is developing his own electronic learning environment.

A summarized profile of a modern student implies the existence of such communicative competencies as independence, persistence in acquiring new knowledge, sociability, courage in decision-making and the ability to organize and manage time that is known as time-management.

**Time management** is currently a very significant communicative competence, since learning in the electronic environment, in a distance mode, on the one hand, provides favorable conditions and saves time, as a student becomes independent and free to choose the time and space boundaries of his education. On the other hand, it is a huge challenge for individuals who are unable to organize their free time and establish an appropriate schedule for absorbing and processing new information. Therefore, the learning process in the e-learning environment is freer and more democratic, but not everyone can self-organize and cope with the given freedom of choice. Thus, the next equally important competence for the modern student is **self-organization** that determines a significant percentage of success in learning.

Important communicative features of the modern student include **independence** and **persistence** in acquiring knowledge, as time and space limits for obtaining new knowledge disappear or get erased: there is no need to go to the classroom at a strictly defined time, and so on. After getting specific guidelines in the form of video-conferences, handouts – presentations, the student remains alone, and it is only up to him, to his independence, perseverance and motivation, whether he can efficiently use the obtained materials, what he can find and apply independently to solve complex non-standard problems, in other words there is a basis (received from the tutor), while the entire superstructure (acquired knowledge, skills) depends on each individual student, which will actually form his personal electronic learning environment.

Modern educators have created a summarized profile of “distance learners who are successful in studying: they are proactive in creating new projects; they are married; they are not afraid of difficulties; their desire for success in learning outweighs their lack of experience; they do not require support for difficult tasks and do not consider it important to discuss the term paper with other students; they have a high educational level; they consider themselves to be highly organized in time management; they

strongly appreciate formal and informal learning for getting a degree; the female students achieve the most successful results” (Kucharenko, Berezenskaya, & all, 2016).

The fundamental skill for the modern student should be the ability to learn: the ability to find the right information, to organize the material, to be self-organized and self-disciplined, and all this cannot be achieved without a high degree of motivation, which we have focused on at the very beginning. That is why it is important to develop these competencies from childhood, and they will be useful later in life, because the well-known saying “It is never too late to learn” is especially relevant in the period of globalization and informatization of society, as well as the rapid development of information technologies.

It's worth taking a closer look at the notion of “being able to learn” - that is, being able to search out, identify, and filter information above all. Obviously, the tutor, who is supposed to instill these skills in the students, learners-beginners, especially in the first years of their studies, comes to the fore here. Another no less important skill among the learning abilities is the competence to manage your time, because unlimited and uncontrolled access to information carries another threat of getting bogged down and carried away with the details, moving away from the main and essential things. An essential competence of the student in the information age is the ability to ask questions and not be afraid to communicate, because it determines whether the learning process goes in the proper direction, whether the student understands both the tasks and the received information.

The democratic style of communication in the electronic learning environment implies the ability of students to think critically. Over the past decade, higher and secondary educational institutions have introduced the corresponding subject called “Fundamentals of Critical Thinking”, which is aimed at providing students with the skills to think independently, to call everything into question, to argue and prove their point of view. According to E. Polat, this type of thinking is a consistent, well-reasoned, goal-oriented cognitive process that is characterized by the desire to planning of mental activity, persistence and consistency in achieving the goal, self-correction (Polat, 2000). All these factors indicate the cognitive maturity of students, their understanding of the learning process, readiness and motivation to absorb new material that greatly depends on the attitudes and highly skilled work of the tutor.

Meanwhile, the information age and e-learning environment, in particular, put a number of requirements on the modern pupil or student. First of all, the modern recipient should have computer skills at a high level in order to easily use the software and electronic editions provided as part of distance learning. Secondly, it is necessary simply to have technical means, such as a laptop, tablet, smartphone, and access to the World Wide Web, since we cannot even talk about an informatized society and distance learning if we do not have technical support. In other words, another competence of a modern successful student can be described as the ability to use technical means at a high level.

There is also the related ability to use the World Wide Web freely and safely, so many educational institutions at different levels provide courses like “Internet Security”, “Web Safety”, etc. After all, unlimited access to the Web imposes no less responsibility and can sometimes carry serious threats to the younger generation, which again should be guarded by the experienced tutor, who will steer the juvenile ardour and enthusiasm on the right course.

Another essential attribute of a modern student or pupil should be the ability to think critically, the ability to subject everything to a healthy criticism and analysis, since unlimited access to the Web makes it possible to find unfair resources and receive false information. The only way out of this situation is constant analysis and verification of information on several reliable sources that will prevent the distribution of fake information to students. In this regard, the role of the tutors is also indispensable, as they should provide the necessary literature, have an in-depth knowledge of the issue, and, if required, refute false facts.

In addition to the competencies that modern students should have in the e-learning environment, we should also take a look at the objective difficulties they may face. Communication in the e-learning environment should be organized at a high level, as it will influence the entire successful effect of learning. Certainly, the biggest communicative problems occur at the first stages of communication when it is necessary to establish the connection with the audience and set up the learning process itself. This can be achieved due to the organizational and managerial competences of the lecturer or tutor, who should clearly structure the course as regards both the presentation of information and the temporal and spatial plane. To prevent students from being confused and demotivated at the beginning of their studies, it is necessary to keep a constant dialogue in the chat, inform them in advance about all the organizational moments and meetings, clearly outline the procedure for further studying and communicating; it is also useful to make information sheets and schedules indicating what should be done and when it should be handed in.

An important point for successful and easy communication is the availability and publication of supporting methodological materials on the site, which students can refer to at a convenient time and repeat or renew the information they have received.

Another communication problem that students face during distance learning is a feedback from the lecturer, and since most of these students are learning at their off-work time, they want to get answers and assistance right away, when it is convenient for them. In this case, at the initial stage of studying there should be clearly specified time limits when it is possible to ask for help, as well as certain hours of consultations, and it is important to carry out some final conversations after each stage of communication. For the purpose of identifying misunderstandings, problem points, and discussing important issues, a skilled tutor can continue chatting during the learning period and in unlimited access. At the same time, students, especially at the initial stage, may be hesitant to ask questions or express their concerns, so the tutor should

anticipate possible difficulties in a certain way and explain them in the methodological guidelines posted on the site.

Another significant problem in distance learning involves the technical difficulties that students face. In order to avoid them, the distance learning course should be well tested and organized with the least number of technical points difficult to pass, and it is also important that the tutor can immediately give explanations and help the students, so as not to demotivate them. This problem is particularly emphasized by educators V. Kuharenko and others: "Lack of access to technical assistance brings about maximum inner tensions among students. Organizational issues related to feedback take the second place here. In terms of course content and the tutor's activities to ensure communication with all students, the feeling of confusion, anxiety, and frustration was the strongest when students did not receive prompt feedback from the tutor, found inconsistencies in the interpretation of online and email directions" (Kuharenko, Berezenskaya & all 2016).

Distance learning has a number of challenges that students have to overcome in order to achieve the goal:

1. Taking personal responsibility. A strong motivation is required to complete a distance learning course, so tutors should enhance it by providing interactivity, namely feedback, that is, by establishing successful communication.
2. Increasing motivation. The student should realize the goals and objectives of learning, and the educator should determine the student's abilities and help make learning more motivating.
3. Maintaining and enhancing self-esteem. Distance learning students may have doubts about their abilities. The educator should boost self-esteem by giving feedback, commenting, explaining difficult points of tasks, i.e. by establishing successful communication.
4. Communicating with other students. Learning is the most efficient in a group when there is an opportunity to discuss tasks and share experiences. The tutor should encourage such contacts and joint solution of academic tasks.
5. Clarifying and realizing the level of knowledge. The students should be able to express what they are studying, explore their own electronic learning information environment, as it will change when new information is introduced. It is useful to submit a report to the tutor on the work done and the role of the learned material in the studying process.
6. Connecting acquired knowledge with one's own experience. It is necessary to take into account that personal backgrounds and attitudes are also important achievements of students. The tutor's role in distance learning is to help the students realize the value of their experiences and their importance in the further learning process.

It can be claimed that the success of studying in the electronic learning environment will greatly depend on the successful interaction of all participants in the communication process. From the very beginning of communicative learning activity it is necessary to establish clear conditions, the rules of the game, to agree on the stages and ways of communication, so that students are informed when they can contact the tutor, in what form communication will occur, what communication links and systems will be applied, so that the recipient is not left helpless alone with his difficulties and does not lose interest in cognitive activity. It is also necessary to set clear time limits, deadlines for performing and handing in certain forms of control and assignments.

To sum up, students face a number of problems in the e-learning environment, including:

- Lack of clear methodological resources, guidelines for learning the material and performing tasks;
- Shortcomings of communication channels and conditions of interaction with the tutor;
- Communicative ignorance of all participants in the communication process;
- Failure of tutors to realize the need for constant communication with students;
- Lack of preparatory stage to mastering a distance learning course in the e-learning environment.

As you can see, most of these problems belong to the communication field and can be easily solved if there is enough awareness and willingness to eliminate them.

Let's discuss the ways and techniques for establishing successful communication for students in the e-learning environment. The first thing to do is to create communication channels that are convenient and available to students, and let them know about these channels. These can be online channels that take place during communication (webinar, zoom, etc.), i.e. chats, which are the most convenient and so-called instant channel of communication, which allows you to immediately put a question and quickly get an answer. In this case, it is necessary to determine the time frame when you can communicate in the chat (at the end of the presentation of theoretical material, after the lecture, etc.), so that questions are not left without answers and do not give the impression of being irrelevant.

Another equally efficient communication channels are email and social media (Telegram, Instagram, etc.), where important information about the start of the course, deadline for completing tasks, submitting forms of control, passing tests, etc., can be posted. By using these communication channels, students can ask questions and find out what they cannot understand. The tutor should be sympathetic to the fact that most distance learners will be studying in their off-work time, so they will learn in the evenings and at the weekend – and that is when they may have questions and require answers. However, the tutor cannot stay in front of a monitor or smartphone round the clock without days off, so for the purpose of comfortable communication it is worth setting

clear time limits and so called personal boundaries, so that interaction was positive and brought pleasure to all participants of the communication process.

For effective communication, the form of delivering information plays an important role, so the skillful tutor should also pay special attention to it, because the mood and tone of the conversation greatly influence the results. In chatting and emailing, you should keep a good-natured, positive tone without dogmas or directives, so as to set the student up to perceive you as a person and information in general. The wording should be clear and unambiguous, so that the recipient could get a clear algorithm for action and not be distracted or confused. For example, the following organizational wording can be offered: “Read, please!”, “Important information”, “Algorithm of task performance”, “Test evaluation”, “System of assignment evaluation” and others.

The tutor should preferably start the conversation in the chat or other social network to set the students up for further communication with a friendly conversation. In this case it is necessary both to present organizational issues and to influence the emotions of the recipients – this can be a story of own success, the stories of those who have already completed online training and achieved success, having received the necessary knowledge. This is very motivating, and the impact on emotions captures a positive attitude to communication and steers it in the right direction.

In other words, everything that could happen in a good-natured conversation should occur in online communication with the help of technical means and technologies, namely it is necessary to set up, organize, at certain stages to encourage the student to achieve a positive result in learning; only then the communication goal of successful learning will be achieved in the electronic learning environment.

## 5. Conclusions

Thus, we are once again convinced that properly tuned, successful communication is the key to effective training in the e-learning environment. Otherwise, when there is no clear plan of action, the rules of the game are not outlined, it is unknown which algorithm to follow, a distant student may face disorientation, anxiety and even panic, which will negate all efforts in acquiring the learning material, become an insuperable block, will not allow to complete learning and obtain a positive result.

Consequently, the functions and competencies of both students and educators are changing in the e-learning environment. Communication moves to a different level and starts to be from a peer-to-peer perspective. The tension, bias, and arrogance disappear, though they might have taken place in the traditional educational process that often depended on the mastery and professional skills of a particular educator.

The electronic learning environment requires students to be more self-organized, goal-oriented, self-conscious in the learning process, to understand the goals and objectives

of their cognitive activity, not to rely on someone or trust to chance, to be inquisitive and passionate.

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## Evaluating the Effectiveness of Distance Learning Physical Education for Disabled Students

### Evaluación de la eficacia de la educación física a distancia para estudiantes discapacitados

**Natalia Yu. Tarabrina**

nata-tarabrina\_mai@mail.ru

<https://www.scopus.com/authid/detail.uri?authorId=57195302795>

[https://elibrary.ru/author\\_profile.asp?id=805530](https://elibrary.ru/author_profile.asp?id=805530)

<https://orcid.org/0000-0003-1469-5010>

PhD in Biological Sciences, Associate Professor, Moscow Aviation Institute (National Research University), Moscow, Russian Federation.

**Tomasz Wilczewski**

akademiaeps@gmail.com

<https://orcid.org/0000-0002-8575-3751>

Senior Lecturer, Academy of Physical Education in Katowice, Katowice, Poland.

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#### Abstract

The article discusses the effectiveness of the application of the distance learning program at the level of the functional state and reserve capacities of the organism of students with disabilities: for 12 students of 17-19 years old with idiopathic structural scoliosis of II and III degrees of S-shaped type, engaged in a full-time program (stage I) and for the same students studying remotely (stage II), it was studied the functional indicators of the cardiovascular and autonomic nervous system, the function of external respiration, the tone of the paravertebral muscles of the back and neck, as well as indicators of strength and endurance. Then a comparison was made of the studied indicators of stages I and II. It is shown that distance learning has a negative impact on the health of students: hypertonicity of the muscles of the back and neck significantly increases almost twice (the most sensitive is the cervicothoracic region), there is a shift of autonomic tone by 10.73% towards sympathicotonia: heart rate blood pressure increased by 19.06% by 7.9%, respiratory rate by 7.92%, tidal and minute volumes by 17.8-20%, respectively. At the same time, strength endurance and the level of performance decrease by 11.7%. Such changes contribute to the tension of neurohumoral mechanisms of self-regulation, which leads to a decrease in the stock of functional reserves and significantly narrows the range of possible adaptive responses. It is shown that the informatization of the educational

system in the educational process of students with disabilities should be of a mixed type, where the traditional form of classes remains the leading one.

**Keywords:** discipline "Physical Education", distance learning, special medical group, cardiovascular system, respiratory system.

## Resumen

El artículo discute la efectividad de la aplicación del programa de educación a distancia a nivel del estado funcional y reservas de capacidades del organismo de estudiantes con discapacidad: para 12 estudiantes de 17-19 años con escoliosis estructural idiopática de II y III grados de Tipo en forma de S, participando en un programa de tiempo completo (etapa I) y para los mismos estudiantes que estudian de forma remota (etapa II), se estudiaron los indicadores funcionales del sistema nervioso cardiovascular y autónomo, la función de la respiración externa, el tono de los músculos paravertebrales de la espalda y el cuello, así como indicadores de fuerza y resistencia. Luego se realizó una comparación de los indicadores estudiados de las etapas I y II. Se demuestra que la educación a distancia tiene un impacto negativo en la salud de los estudiantes: la hipertonicidad de los músculos de la espalda y el cuello aumenta significativamente casi el doble (la más sensible es la región cervicotorácica), hay un cambio de tono autonómico en un 10.73% hacia simpaticotonía: frecuencia cardíaca, la presión arterial aumentó en un 19,06% en un 7,9%, la frecuencia respiratoria en un 7,92%, los volúmenes tidal y minuto en un 17,8-20%, respectivamente. Al mismo tiempo, la resistencia a la fuerza y el nivel de rendimiento disminuye en un 11,7%. Tales cambios contribuyen a la tensión de los mecanismos neurohumorales de autorregulación, lo que conduce a una disminución en el stock de reservas funcionales y reduce significativamente el rango de posibles respuestas adaptativas. Se muestra que la informatización del sistema educativo en el proceso educativo de los estudiantes con discapacidad debe ser de tipo mixto, donde la forma tradicional de clases sigue siendo la protagonista.

**Palabras clave:** disciplina "Educación Física", educación a distancia, grupo médico especial, sistema cardiovascular, sistema respiratorio.

## 1. Introduction

Distance education (DE) "is provided using mix of educational technologies, in which mediated interaction of the student and the teacher is made independently from their location on the basis of pedagogically organized information technologies, firstly with the usage of telecommunication tools" (Andreev, 2012) is regulated by Federal Law of the Russian Federation "On Education in the Russian Federation" (Law of the Russian Federation N 273-FZ, 2012), by order of the Ministry of Education and Science of Russia "On the implementation of additional professional programs and with the usage of DE programs, electronic education and in online form" (Ministry of education and science of the Russian Federation, 2014) and also by GOST R 52653-2006 "Information and

communication technologies in education. Terms and definitions” (National Standard of the Russian Federation, 2008).

Under distance educational technologies (DET) we understand “educational technologies, realized with the usage of informational and telecommunication technologies (ITT) with mediated (at distance) or not completely mediated interaction of the student and the teacher” (Andreev, 2012). The materially technical base for providing electronical education and DET is a telecommunication network, educational website and electronical librarian system.

As a rule, institutions of higher education make possibilities of DE mostly by using one of such platforms as MOODLE and/or Microsoft Teams (MT) (Terentieva, 2019). These platforms are functional and intuitively are easy for understanding, they allow listening to lectures online or in recording, receive and give tasks, take part in “live” seminars and practical tasks. Teachers and students of Moscow Aviation Institute (National Research University) (MAI) also interact on two platforms: LMS MAI (“learning management system”), development and support of which is controlled by electronical education management of MAI and Microsoft Teams (MT). LMS MAI was developed in 2006 and up to nowadays it has been through 6 modernizations, received intuitively understandable navigation, enriched actual content in connection with what it received the biggest spread. From the 2014–2015 academic year, a number of disciplines, including lecture course and practical exercises, were partially implemented in the form of DE, and from March 17, 2020 they were completely transferred to a distance format. However, implementation of DET in educational process, despite its actuality, still has not received proper development. The experience of DE successful usage in terms of teaching linguistics, economics and law is undoubtedly useful, however, it cannot be mechanically transferred into the educational process in all subjects without exception, especially for students with disabilities and disabled people.

Thus, there is the contradiction between the necessity of developing new educational models, integrating distance and traditional technologies and the lack of scientifically methodical base and technologies practical realization, which will allow moving to a new level of training that meets the requirements of modern society. The existence of these contradictions convinces us of given research problem.

Article’s goal is to study the features of the implementation of information and communication technologies in the environment of DE in aviation university for students with disabilities.

## **2. Methodology**

Research was made on 12 students (6 boys and 6 girls) from MAI, with disabilities, in the age of 17-19. All these students have a diagnosis: idiopathic structural scoliosis of II and III degrees of S-shaped type (I, II type according to King) (King et al., 1983).

Surveys were made in three stages. At the first stage, the functional indicators of the cardiovascular system and the function of external respiration, changes in the tone of the paravertebral muscles of the back and neck, as well as power indicators, endurance and general physical performance of students with disabilities were studied. On the second stage we studied DE program impact on the same students, using ITT program. On the third stage there was made a comparison of studied indicators of the first and second stages.

In the research there were used methods of anthropometry (height meter, scales), dynamometry (hand-held dynamometer DRP-120, Russia), spirometry (dry portable spirometer SSP, Russia), pulsometry and tonometry (tonometer Omron M2 Basic (HEM 7121-RU), Japan), myotonometry (myotonometer NOVOTEST, Russia). Physical performance was estimated with the usage of a modification of the classic PWC170 test (Romanenko, 1999). The main endurance and maximum oxygen consumption (VO<sub>2</sub> max) were defined, using Cuper test (Romanenko, 1999). The changes in the vegetative tone were judged by KerDE index (Romanenko, 1999).

Myotonometric examination was carried out in eight symmetrical paravertebral points: PC 29 - "hsin-shi" localized at the level of the C3 segment, V14 - "jue-yin-shu" located on the broadest muscle of the back (m. latissimus dorsi) at the level of the Th4 segment, V24 - "qi-hai-shu", localized 5 cm lateral to the spinous process of the III lumbar vertebra and V29 - "chzhong-lui-shu", located at the level of paired holes on the anterior surface of the sacrum, the place where the anterior branches of the sacral spinal nerves exit (sacral foramina) (Luvsan, 1990). The tone was assessed by the resistance that the muscle has when the myotonometer probe is immersed in it according to the standard method (Ivlijeva et al., 2005). The magnitude of the tone is expressed in conventional units according to Shore (Ivlijeva et al., 2005). To measure the static endurance of the muscular groups of the trunk (back, abs, oblique muscles of the abdomen, etc.), the time of maintaining the posture in the supine position with fixation of the limbs was recorded (Romanenko, 1999). Dynamic strength was assessed by the number of understandings of the body from the supine position: on the back, abdomen and on the side with the partner fixing the legs (Romanenko, 1999). The calculations and graphic design of the data obtained in the work were carried out using the "STATISTICA - 10.0" software package and Microsoft Excel. The choice of a criterion for testing statistical hypotheses and measures of central tendencies was carried out using the Shapiro-Wilk test. Then, a pairwise comparison of the groups was performed using the parametric Student's test.

### 3. Results

The results of the conducted research indicate that classes with the use of ITT for students with disabilities in full-time and distance programs have a number of fundamental differences in most of the studied functional indicators of the body.

For studying changes' dynamics, we consider every stage separately. On the first stage, anthropometric data (body weight (BW)), its length and body mass index (BMI) in students

did not change significantly, however, functional indicators of the cardiovascular system (CVS) and respiratory function (RF) had a truly positive change.

**Table 1.**

*Changes in indicators of anthropometry, cardio-respiratory system and physical working capacity of students with disabilities, students in full-time and distance learning programs.*

Indicators (unit)	Full-time form			Distance form		
	Before	After	Δ%	Before	After	Δ%
<i>Anthropometric indicators</i>						
Body length (cm)	1.76±0.5	1.76±0.5	–	1.76±0.5	1.76±0.5	–
BW (kg)	64.08±3.2	65.25±2.1	1.82	64.08±3.2	66.41±3.2	3.63**
	2	2		2	0	
BMI (g/cm)	20.56±1.2	21.11±1.1	2.67	20.56±1.2	21.33±1.3	3.74
	3	4		3	8	
<i>Cardiovascular system</i>						
HR (min <sup>-1</sup> )	85.15±2.3	74.32±2.6	-	81.25±3.8	86.41±3.6	6.35
	6	5	12.71*	6	1	
VIK (conventional units)	1.09±0.06	1.04±0.05	-4.08*	1.08±0.06	1.24±0.05	14.81**
DPs (mmHg)	125.38±1.09	120.26±1.20	-4.58**	122.58±1.29	126.66±1.21	3.32**
BPd (mmHg)	78.00±2.3	71.25±2.2	-8.65**	76.00±2.5	69.91±2.0	-8.01***
	2	6	*	8	6	
PP (mmHg)	47.38±2.2	49.01±1.9	5.21	46.58±2.3	56.75±1.9	21.83**
	2	9		4	5	
<i>Respiratory system</i>						
RR (index/min)	18.95±1.3	18.23±1.2	-3.79	17.75±1.5	19.83±1.4	11.71**
	0	2		0	2	
TV (ml)	260.60±30.12	330.35±26.17	26.76*	247.50±30.12	230.25±28.27	-6.96**
			*			
MBV (ml/min)	4938.37±564.26	6022.28±535.69	21.94*	4418.33±575.76	4601.25±592.59	4.14
VCL(ml)	2860.33±25.98	2990.16±25.41	4.53*	2900.83±26.98	2790.16±25.41	-4.01**
PV (l/min)	4.23±0.15	4.80±0.35	13.47*	4.13±0.17	4.60±0.59	11.38**
			*			
HI (%)	4.49±0.35	4.07±0.46	-9.35	5.06±0.58	4.67±0.46	-7.70

PWC170 (kgm/min)	457.33±10 .61	549.35±10 .23	20.12* *	469.93±10 .71	509.53±11 .33	8.42**
MOC (l/min)	32.15±1.6 9	42.5±1.10	32.19*	36.13±1.5 7	34.03±2.1 0	-5.81*
Cuper test (m)	1728.65±9 3.30	2350.15±9 2.34	35.95* *	1958.83±9 5.33	1763.75±9 9.94	-9.95**

Note: HR is the heart rate; VIK is the vegetative index KerDE; DPs is the systolic blood pressure; BPd is the diastolic blood pressure; PP is the pulse pressure; RR is the respiratory rate; TV is the tidal volume; MBV is the minute breathing volume; VCL is the vital capacity of the lungs; PV is the pulmonary ventilation; HI is the Hildebrandt index; PWC170 is the physical performance; MOC is the maximum oxygen consumption; \* -  $p \leq 0.05$ ; \*\* -  $p \leq 0.01$ ; \*\*\* -  $p \leq 0.001$  reliability of differences Student's t-test

As it is shown in the Table 1, DE format does not show the following significant changes: BMI and BM increased, DPs increased by 3.32% ( $p \leq 0.01$ ), and BPd decreased by 8.01% ( $p \leq 0.01$ ), at the same time, the sympathetic influence of the autonomic nervous system - VIK - is traced:  $1.24 \pm 0.05$  conventional units.

Before starting the experiment all students were dominated by the sympathetic circuit of regulation of the autonomic nervous system: vegetative index Kerdo - 1.09 conventional units. By the end of the first stage, the tone of the nervous system shifts by 4.08% ( $p \leq 0.05$ ) towards the normotonicity of 1.04 conventional units. It has been shown that systematic physical training exercises significantly reduce HR by 12.71% ( $p < 0.05$ ), DPs and BPd by 4.58 and 8.65% ( $p \leq 0.05-0.01$ ), respectively. RR decreases slightly, TV increases by 4.53% ( $p \leq 0.05$ ), MBV and PV increase significantly by 21.94% ( $p \leq 0.05$ ) and 13.47% ( $p \leq 0.01$ ), respectively.

There should be paid attention to the fact that in intact condition of all examined had indicators of respiratory function (RF) are much lower than normal people, because it is known that the presence of a costal-vertebral hump and deformation of the chest in idiopathic scoliosis lead to a weakening and asymmetric dysfunction of the muscles of the trunk, a decrease in the volume of the chest cavity, and the appearance of respiratory failure (Parkhomenko et al., 2013).

Comparison of relative changes (%) of indicators of cardio-respiratory system and physical working capacity of SMG students, working in full-time and distance programs shows that the most significant differences are found on the indicators of HR, TV, MBV, physical performance and endurance.

In the result of research of the muscle tonus there was found that differences, which were received on the I and II stages in points are valuable ( $p \leq 0.05-0.001$ ). There was fixed that classes in full-time form truly decreases muscle tonus in cervical spine from 10.01% to 16.38% ( $p \leq 0.001$ ), in the thoracic spine from 22.81% to 25.84% ( $p \leq 0.001$ ), in the lumbar spine symmetrically by 28% ( $p \leq 0.001$ ), in sacral from 16.62% ( $p \leq 0.05$ ) to 22.80% ( $p \leq 0.001$ ) (Table 2).

**Table 2.**

*Changes in the tone of the muscles of the back and neck in students with disabilities enrolled in full-time and distance learning.*

Indicators	Full-time form			Distance form		
	Before	After	Δ%	Before	After	Δ%
PC 29 sinister unit	6.19±1.21	5.57±1.1	-	8.95±0.9	14.62±0.	63.35***
		8	10.01***	1	97	
PC 29 dexter unit	6.53±1.56	5.46±1.1	-	9.04±1.0	18.12±0.	100.44**
		4	16.38***	4	41	*
V14 sinister unit	10.96±2.2	8.46±1..2	-	12.25±1.	18.50±0.	51.02***
	7	3	22.81***	07	92	
V14 dexter unit	11.57±2.3	8.58±1.1	-	11.04±1.	19.41±1.	75.81***
	8	4	25.84***	04	49	
V24 sinister unit	17.07±2.8	12.26±2.	-	9.37±0.8	20.29±1.	116.52**
	0	12	28.17***	4	37	*
V24 dexter unit	17.88±2.9	12.86±2.	-	8.62±0.7	16.45±5.	90.83***
	6	12	28.07***	6	79	
V29 sinister unit	4.15±1.21	3.46±1.2	-16.62*	9.04±0.8	15.20±0.	68.14***
		3		3	55	
V29 dexter unit	5.57±1.71	4.30±1.1	-	7.16±0.4	15.00±0.	109.49**
		82	22.80***	6	68	*

Note: \* –  $p \leq 0.05$ ; \*\*\* –  $p \leq 0.001$  reliability of differences Student's t-test

While analyzing data of the II stage, there was found that DE does not reduce muscle tonus, but in contradiction, increases it: in the cervical spine from 63.35% to 100.44% ( $p \leq 0.001$ ), in the thoracic spine from 51.02% to 75.81% ( $p \leq 0.001$ ), in the lumbar spine almost twice, and in the sacral spine from 68.14% to 109.49% ( $p \leq 0.001$ ) (Table 2). Such an increase in tone, in our opinion, is caused by insufficient motor activity, prolonged sitting at a computer desk in an uncomfortable position.

Comparison of relative changes (%) indicators of muscle tone has shown that the most sensitive to changes were muscles of cervicothoracic and lumbar spine.

Analyzing changes of students' muscles strength endurance, we point out that on the I stage strength of both hands' wrists muscles has increased by 10% ( $p \leq 0.01$ ), static endurance of the back and abdominal muscles by 15.26% ( $p \leq 0.01$ ) and dynamic endurance of these muscles did not change significantly. The power endurance of the oblique muscles of the abdomen on the right (static and dynamic) did not have a significant increase, but on the left it increased by 7.86% and 22.55% ( $p \leq 0.01$ ), respectively (Table 3).

**Table 3.**

*Changes in the indicators of static and dynamic strength endurance of the muscles of students with disabilities in full-time and distance learning programs.*

Indicators	Full-time form			Distance form		
	Before	After	Δ%	Before	After	Δ%
Strenght of right hand (kgf)	20.22±1. 59	22.39±1 .30	10.73 **	19.91±2 .49	17.58±2 .30	- 11.70* *
Strength of left hand (kgf)	18.31±1. 24	20.39±1 .01	11.35 **	17.41±2 .24	14.66±2 .01	- 15.79* *
Static SE of back muscles (s)	35.25±4. 36	40.63±4 .25	15.26 **	33.70±5 .03	27.78±4 .52	- 17.56* *
Dynamic SE of back muscles (number of times)	16.56±3. 34	15.01±4 .39	-9.35	16.83±1 .48	14.08±1 .31	- 16.33* *
Static SE of abdominal muscles (s)	25.40±2. 90	29.36±2 .15	15.59 **	22.39±2 .92	17.23±3 .11	- 23.04* *
Dynamic SE of abdominal muscles (number of times)	9.00±1.1 5	15.35±1 .25	70.55	8.58±1. 17	7.33±1. 09	- 14.56* *
Static SE of oblique abdominal muscles (dexter) (s)	7.00±1.6 2	6.77±1. 54	-3.28	7.35±1. 57	5.77±1. 44	- 21.49* *
Dynamic SE of oblique abdominal muscles (dexter) (number of times)	6.35±1.2 0	7.08±1. 00	11.49	5.58±1. 19	6.08±1. 00	8.96
Static SE of oblique abdominal muscles (sinister) (s)	2.35±0.2 6	2.88±0. 70	22.55 **	3.86±0. 60	3.96±0. 58	2.59**
Dynamic SE of oblique abdominal muscles (sinister) (number of times)	4.96±2.8 2	5.35±2. 01	7.86**	5.41±1. 01	3.91±0. 82	- 27.72* *

Note: SE is the strength endurance, \* –  $p \leq 0.05$ ; \*\* –  $p \leq 0.01$ ;

\*\*\* –  $p \leq 0.001$  reliability of differences Student's t-test

Data, which was received on the II stage, indicate the lack of classes' effectiveness in distance form, because by some indicators there is no growth. So SLH and SRH decreased by 11.7 and 15.79%, respectively ( $p \leq 0.01$ ), SSEb and SSEa decreased by 15% ( $p \leq 0.01$ ), and DSEb and DSEa by 20% ( $p \leq 0.01$ ). A similar decrease was found in



relation to the endurance of the oblique muscles of the abdomen: the gain was from 2 to 8% ( $p \leq 0.01$ ) (Table 3).

#### 4. Discussion

Advantages and logic of creating DET for providing it to students of different directions of preparation and specialties are the way of researching scientifically methodical character of different spheres: sociological, technological, humanitarian, medical, etc. (Tikhonov and Konovalova, 2020).

For the last five years' profile publications and collections of conference were shown as multiple scientific works in this problem. However, works, which prove the effectiveness of impact of DE on the students' health, is really small, and opinions of scientists are arguable.

More and more in foreign publications there is mentioned term "rethink education". In the work of Professor Andy Hargreaves there is a serious concern of the youth and teachers' physical health, who are on the stage of DE (Hargreaves, 2020).

Organization of economic cooperation and development (OECD) carefully estimates education technologies' advantages. The education sphere leader of OECD Andreas Schleicher pointed out the opinion that "educational systems have to pay attention the fact that technologies should not make the existing inequality in access and quality of education" (Schleicher, 2018).

Russian authors E.V. Lukina and N.E. Zhitnikova (Lukina and Zhitnikova, 2017) suppose that DE significantly makes the process of non-personal communication easier and get rid of many problems of psychological character, if the student has chronic diseases and/or disabilities. V.I. Yarmolinsky points on the possibility of distance monitoring of health condition of students with disabilities with the usage of "portable tools" of medical microelectronics for pulse control, blood pressure, heart rate variability, respiratory parameters, blood glucose concentration, blood oxygen saturation, etc. These tools are becoming more compact, handy and cheaper. There are developing mobile applications, providing reception and primary analysis of parameters, which are estimated by instruments and their transportation to distance server. Use of such instruments and applications completes the same educational function, increasing the knowledge circle and skills in questions of self-control of students with disabilities and teachers (Yarmolinsky, 2016).

The received data is agreed with previous researches and quite understandable from the point of view of muscular neurodynamics. A decrease in the tone of the paravertebral muscles of the cervicothoracic and lumbosacral spine, the elimination of local muscle hypertonia leads to the normalization of afferentations from the muscles in the chains of myocardial, myovascular and miorespiratory reflexes. The result of the harmonization of

reciprocal relations of the muscles of the arms, chest and shoulder girdle is the improvement of their coordination and strength capabilities (Tarabrina, 2010; Polevoy and Strelnikowa, 2020).

Authors show that the distance course in organizationally contestable providing of educational process of students with disabilities must be based on the necessity of the students' activity and act on the principle of return connection with the following correction, when the teacher analyzes and methodically corrects, making teacher impact, in connection with the received data (Meinert et al., 2020; Polevoy, 2019).

We suppose that accent on theoretical and methodically practical information, formed on DE course, fostered student self-participation in organizing of the educational process, which had a positive but insufficient effect on the functional state and reserve capabilities of the body, and the level of health in general.

## 5. Conclusion

We suppose that DE, in professional preparation of students with disabilities of different specialties with the usage of any platform, also platforms Moodle and LMS, are not able to provide equal change to full-time classes. That is why traditional form of classes stays the leading one for students with deviations in the state of health. It is shown that students with disabilities studying distance learning have worse performance indicators of the cardiovascular system and function of external respiration decreases, increase in muscle tone causes spasm and edema of the periarticular tissues in the region of the back and neck, oxygen supply to the brain is disrupted, and the venous outflow of blood containing non-oxidized decay products decreases, muscles "acidify" and, consequently, decreased mental and physical performance. However, there should be pointed out that distance (inclusive) classes is not interchangeable for students with disabilities and disabled people, especially in the presence of complex, multiple diseases. The curriculum of MAI provides for the study of many course in a distance format with an emphasis on the theoretical and methodological block, therefore, we consider it logical to further develop and place programs for this category of students precisely on distance learning platforms.

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## Research of social expectations of university students in the dimensions of psychological well-being

### Investigación de las expectativas sociales de los estudiantes universitarios en dimensiones del bienestar psicológico

**Oleksandr Semenov**

o\_semen@yahoo.com

<https://orcid.org/0000-0002-3839-4725>

Doctor of Pedagogical Sciences, Full Professor of the Department of General Pedagogy and Preschool Education, Volyn National University named after Lesia Ukrainka, Lutsk, Ukraine.

**Petro Oleshko**

oleshko.ippo@gmail.com

<https://orcid.org/0000-0002-9599-6052>

Candidate of Historical Sciences, Director of the Volyn Institute of Postgraduate Pedagogical Education, Lutsk, Ukraine.

**Svitlana Tsymbal**

tsymbal\_s.v@nubip.edu.ua

<https://orcid.org/0000-0003-0652-369X>

Doctor of Psychological Sciences, Associate Professor of the Department of English for Technical and Agrobiological Specialities, National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine.

**Vera Liashko**

vvlyashko@gmail.com

<https://orcid.org/0000-0003-3717-7240>

Candidate of Psychological Sciences, Associate Professor of the Department of Special Education, Kherson State University, Kherson, Ukraine.

**Alyona Shevchenko**

kalanchak27@gmail.com

<https://orcid.org/0000-0002-6581-6938>

Bachelor of Psychology, Department of Psychology, Kherson State University, Kherson, Ukraine.

**Ihor Popovych**

ihorpopovych999@gmail.com

<https://orcid.org/0000-0002-1663-111X>

Doctor of Psychological Sciences, Full Professor of the Department of Psychology, Kherson State University, Kherson, Ukraine.

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## Abstract

The aim of the article is to argue theoretically and empirically study the relationship between social expectations and psychological well-being of university students. Methodological starting points of empirical research are outlined. Valid and reliable test methods are used to study the psychological content parameters of social expectations and psychological well-being. The results determined that the psychological features of social expectations and psychological well-being of student's youth are theoretically substantiated. It was found that the respondents have an average level of parameters of psychological well-being and social expectations, which indicates moderate life satisfaction and the presence of adequate orientation in the socio-psychological reality. The most formed components of psychological well-being are the balance of affect and meaningfulness, which indicates the awareness of their own lives by student's youth. It is recorded that the respondents have the least formed - self-acceptance, positive attitude and autonomy.

**Key words:** hope, institution of higher education, subjective well-being, autonomy, life satisfaction.

## Resumen

El objetivo del artículo es argumentar teóricamente y estudiar empíricamente la relación entre las expectativas sociales y el bienestar psicológico de estudiantes universitarios. Se describen los puntos de partida metodológicos de la investigación empírica. Se utilizan métodos de prueba válidos y fiables para estudiar los parámetros de contenido psicológico de las expectativas sociales y el bienestar psicológico. Los resultados determinaron que las características psicológicas de las expectativas sociales y el bienestar psicológico de la juventud del estudiante están fundamentadas teóricamente. Se encontró que los encuestados tienen un nivel promedio de parámetros de bienestar psicológico y expectativas sociales, lo que indica una satisfacción vital moderada y la presencia de una adecuada orientación en la realidad socio-psicológica. Los componentes más formados del bienestar psicológico son el equilibrio del afecto y la significación, lo que indica la conciencia de sus propias vidas por parte de los jóvenes de los estudiantes. Se registra que los encuestados son los menos formados: autoaceptación, actitud positiva y autonomía.

**Palabras clave:** esperanza, institución de educación superior, bienestar subjetivo, autonomía, satisfacción con la vida.

## 1. Introduction

In recent years, society has undergone many changes: social, economic, natural, political and epidemiological. Any transformation of the world affects the personality of each man, thereby changing the man himself. (Arbeláez-Campillo et al., 2020).

During the progression of the global pandemic COVID-19, the individual adapts to changes in modern realities by modifying their own social expectations of the near future to adequately perceive psychological reality and function effectively in society (Khmiliar et al., 2020). Individual expectations are regulatory in nature, i. e. they affect human behavior, its relationship with the environment and society in general (Popovych et al., 2021b).

Important for positive functioning in the socio-psychological space is the psychological well-being of the individual, which is an indicator of mental health. According to the World Health Organization, mental health is a state of well-being in which everyone can realize their own potential, cope with life's stresses, work productively and productively, and contribute to the life of their community. Psychological well-being is a multicomponent phenomenon, which is influenced by various factors that reduce or increase its level, thereby affecting the general condition of the individual.

A special age group that is sensitive to any changes in the surrounding reality is the student youth, because during this period there is a formation of stable personality structures, which can still be exposed to certain influences. It is important to know about the psychological well-being and social expectations of young people, because they are the variable that will affect the future. Therefore, the study of the psychological well-being and social expectations of student's youth, even during the progression of the COVID-19 pandemic, is extremely relevant and significant in the global dimension.

Psychological science distinguishes a number of approaches for understanding the concept of "psychological well-being", including: hedonistic and eudemonic, integrative and an approach that considers psychological well-being within the concept of mental health. However, it should be noted that there is no generally accepted definition of "psychological well-being".

- I. Hedonistic approach, which is based on the idea of achieving satisfaction and avoiding dissatisfaction, the balance between positive and negative effects.
- II. The eudemonic approach considers psychological well-being as self-realization and individualization of the person, and also aspiration of the person to full realization of own potential which is traced in positive functioning of the person in all spheres of life.
- III. The integration approach combines hedonistic and eudemonistic approaches and interprets psychological well-being as a multidimensional phenomenon that includes in its structure life satisfaction, positive affect, realization of one's own potential.
- IV. Psychophysiological approach, in which psychological well-being acts as an element of psychological health of the individual and aims to fully preserve the psychophysiological functions of man.

The structure of psychological well-being is multicomponent and is represented by the following components: emotional component is responsible for the reaction and

perception of their own emotions in relation to themselves and the environment, behavioral component is realized in actions, deeds and manifests itself in regulation behavior, the cognitive component is traced in the assessment and understanding of situations and volitional - the management of actions and decisions (Ma et al., 2020). The structure also includes the value component, which is responsible for the value orientations of the individual in relation to life and the motivational component, which affects human life.

Psychological well-being is defined (Shiryayeva, 2008) as a set of necessary personal resources that ensures the subjective and objective success of the individual in the system of "subject-space". The following five components are defined as components of psychological well-being: affective (balance of positive and negative affective experiences); component related to meta-needs (personal growth, measure of self-realization); worldview (presence of goals in life); intrareflexive (self-acceptance); interreflexive (competence in relations with the environment) (Shiryayeva, 2008).

The functioning of the individual takes place in the social space, which is why a person is included in a diverse outline of expected and unexpected events (Shevchenko, 2019). An element of expectation can be any object of the surrounding reality, subject, object, event, etc. The structure of expectations has three components: cognitive – knowledge of the element, phenomenon, person to whom expectations are directed, affective – attitude and assessment of the object / subject of expectations and behavioral component responsible for actions, actions in relation to subject of expectations (Popovych et al., 2020b; 2020c). For adequate orientation in psychological reality, a person must learn certain rules, norms, values of society, so that they become certain internal regulators, which he can rely on in predicting the near future. It is social expectations that play this role.

Social expectations, like any psychological phenomenon, perform a number of functions: regulatory, mediation, corrective, orientation, prognostic, evaluative, stabilization, transformational, control (Popovych et al., 2021c). Each of these functions helps an individual to construct, implement their own predictions according to certain elements of reality.

Social expectations are a temporal phenomenon aimed at the future, because constructing and placing expectations on results in the past is absurd, the main essence of this phenomenon is forecasting, which is why social expectations help to construct the future, based on certain knowledge, facts of the present, to build certain plans, goals, choosing the strategy of behavior that will achieve the desired result.

Social expectations acquire the status of objective subjectivity, due to radical changes and conditions of variability. Having autonomy and freedom of behavior in the space of individual social and behavioral actions, social self-esteem, choice of life trajectories, the individual aligns his behavior with the expectations of loved ones and their own expectations of the social world (Popovych et al., 2020a; 2021a). Mental states of

expectation are a kind of mental states that integrate mental processes and properties of the individual and regulate its activities.

By social expectations we mean prognostic expectations about the subject, object or a certain course of events in the possible future, which helps to navigate the socio-psychological reality, and are based on cognitive, emotional and behavioral elements and are regulators of social behavior. Structure, interdependence of factors of mental states of expectations and psychological well-being are important components of educational and professional activity of students. Establishing these relationships will help to better organize the educational space of higher education students.

### ***Hypothesis***

We believe that psychological structure and interdependence of factors of psychological well-being and social expectations of student's youth are important components of the organization of process of educational and profile preparation.

#### ***The aim***

Investigate the psychological structure and interdependence of factors of psychological well-being and social expectations of university students.

## **2. Methodology of research**

The methodological basis of the empirical study of social expectations of university students in the measurement of psychological well-being was relevant to the research problem scientific principles, paradigms and concepts. We were guided by starting points that interpret social expectations as subjective orientations of any participant in the university educational space in relation to how he evaluates and how he is evaluated by other participants in the interaction and to which, in connection with this, he expects behavior from others and others expect from him. Expectations and psychological well-being are complex psychological phenomena, the content of which depends on the level of respondents' development, individual psychological characteristics, self-esteem, demands, reflexivity, the formation of the image of Self and Self-concept (Popovych et al., 2021c).

When developing the methodology of empirical research, a number of tested empirical models are taken into account, which measure the semantic features of interpersonal interaction of participants in educational space (Blynova et al., 2020b; Halian et al., 2020) adaptation potential (Blynova et al., 2020a; 2020c; Villasmil Espinoza et al., 2021), semantic parameters of training (Griban et al., 2019; Shkola et al., 2019) and educational work (Tsymbal, 2017; 2019) are similar or relevant to our scientific problem (Nosov et al., 2020a; 2020b; Shevchenko et al., 2020; Zinchenko et al., 2019; 2020). These studies are relevant in the context of establishing patterns of social expectations of students in the measurement of psychological well-being.



## ***Participants***

Students from Volyn National University named after Lesia Ukrainka (Lutsk, Ukraine), National University of Life and Environmental Sciences of Ukraine (Kyiv, Ukraine), Kherson State University (Kherson, Ukraine) took part in our empirical study. The sample consisted of 100 people. The mean age of the sample was 19.8 years (range 18-21 years). There were 62.0% girls and 38.0% boys in the sample.

## ***Organization of research***

Ascertainment stage was made during February-March 2021. Students from these higher education institutions, representing different faculties, were randomly selected. The general university sample is formed according to all the requirements for this kind of empirical research and proportionally represents all regions of Ukraine. The study was agreed with the University administration. Students were informed in advance and volunteered to participate in the study. The study was performed in compliance with all ethical principles.

## ***Procedures and instruments***

At the stage of selection of psychodiagnostic tools, the complexity of the phenomena of psychological well-being and social expectations is taken into account, methods with questions or statements that require agreement or disagreement are applied. Selected techniques relevantly reflect the psychological content parameters. At the initial stage, valid and reliable test psychodiagnostic tools were used.

The questionnaire “The scales of psychological well-being” was used (Ryff, 1989). The questionnaire is designed to determine the level of such a multicomponent construct as the psychological well-being of the individual, as well as its parameters. This questionnaire consists of 84 items and includes six main scales: “Positive Relations with Others”, “Autonomy”, “Environmental Mastery”, “Self-Acceptance”, “Personal Growth”, “Purpose in Life” and three additional ones: “Balance of affect”, “Meaningfulness of life”, “Human as an open system” and the integrated indicator “Psychological well-being”.

The next method is the test MLO (Meaning of life orientations), which is an adapted version of the Purpose-in-Life Test (PIL), (Leontyev, 2006). The MLO test reveals a general indicator of life consciousness, as well as five subscales that reflect three specific content orientations (goals in life, life saturation and satisfaction with self-realization) and two aspects of the locus of control – locus of self-control and locus of life control).

The “Life Satisfaction Index A” (“LSIA”) questionnaire (Neugarten, 1961) is designed to determine the general psychological state of a person, the degree of his psychological comfort and socio-psychological adaptation. The test consists of twenty statements and five scales: “Interest in life”, “Consistency in achieving life goals”, “Consistency between

set and actually achieved goals”, “Positive assessment of their qualities” and “General mood background”.

The “Level of Social Expectations” questionnaire (“LSE”), (Popovych, 2017) was used to determine the level of social expectations of an individual. The questionnaire contains fourteen statements and four scales: “Awareness of the expected course of events”, “Attitude to the participants of interpersonal interaction”, “Level of expected results of activity”, “Level of social expectations”.

### **Statistical analysis**

The received empirical data were processed and the results were graphically presented with the help of computer programs “SPSS” v. 24.0. Significant correlations are established by the Pearson correlation coefficient (*r*). Arithmetic mean value of parameters (M) and mean-square deviation (SD) were calculated. Differences between values of parameters at level  $p \leq 0.05$  considered statistically significant.

### **3. Results and discussion**

The set of studied parameters of social expectations in the dimensions of psychological well-being is relevant and methodologically sound. The choice of psychodiagnostic tools takes into account the output conceptual provisions of the phenomenon of psychological well-being and social expectations.

We present descriptive frequency characteristics of the semantic parameters of the arithmetic mean (M) and standard deviation (SD) in Tabl. 1.

**Table 1.**

*Values of scales of semantic parameters according to research methods (n=100)*

<b>Scale</b>	<b>M</b>	<b>SD</b>
<b>“The scales of psychological well-being”</b>		
Positive Relations with Others	58.28	9.66
Autonomy	58.5	9.04
Environmental Mastery	59.48	10.04
Self-Acceptance	53.54	10.27
Personal Growth	61.64	9.03
Purpose in Life	59.7	9.26
Balance of affect	100.71	14.53
Meaningfulness of life	94.42	12.02
Human as an open system	63.79	7.01
Psychological well-being	351.21	50.16
<b>“Purpose-in-Life Test”</b>		
Purpose in Life	27.93	7.26

The process of life	26.93	6.04
The result of life	22.42	4.5
Locus of control – Self.	19.83	4.38
Locus of control – Life	27.93	6.67
“Life Satisfaction Index A”		
Interest in life	4.67	1.99
Consistency in achieving life goals	5.11	1.76
The consistency between the goals set and achieved	4.36	2.02
Positive assessment of their qualities	4.54	1.99
General mood background	4.79	2.00
Life Satisfaction Index	23.48	6.94
“LSE”		
“Awareness of the expected course of events”	22.0	3.4
“Expected attitude towards the participants of interpersonal interaction”	19.0	2.12
“Level of expected results of activities”	42.0	5.67
“Level of social expectations”	78.0	9.54

Note: M – arithmetic mean; SD – mean-square deviation.

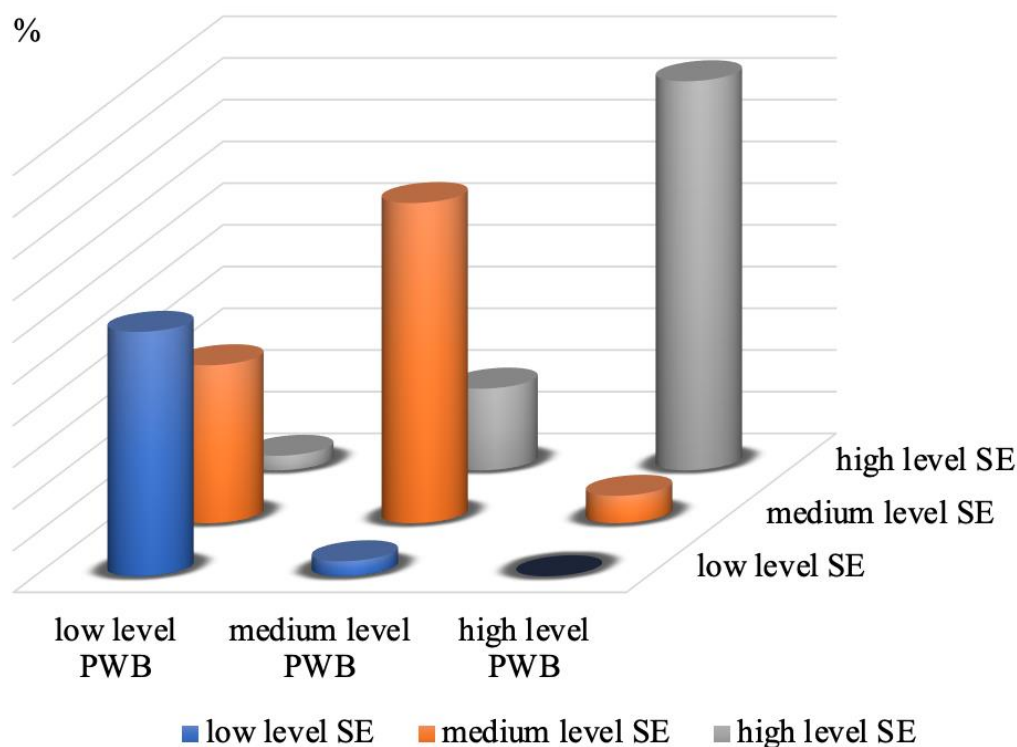
In the sample of respondents, the most formed are several components of psychological well-being - the balance of affect (M=100.71) and meaningfulness of life (M=94.42). This may indicate the awareness of their own lives by student's youth, present and past are perceived by them meaningfully. However, there is a certain dissatisfaction with the circumstances of their own lives, but there is a desire for its content and emotional saturation. The least formed components are self-acceptance (M=53.54), positive relations with others (M=58.28) and autonomy (M=58.5). The student sample is characterized by secrecy in social interaction with other participants in the socio-psychological reality, a certain lack of independence and to some extent depending on the opinions and influence of others. We can attribute this to the unstable situation in the world, to the progression of COVID-19 and the impact of self-isolation on the components of student well-being.

According to the method of “Life Satisfaction Index A” it is determined that the student's youth is characterized by consistency in achieving life goals (M=5.11), which indicates determination, focus on achieving goals, but the consistency between set and achieved goals is the least pronounced (M=4.36), which may indicate that young students are focused on achieving goals, but may not complete what has been started. The general index of life satisfaction is at the average level.

According to the method of “Purpose-in-Life Test” it was found that the most developed in student's youth is the goal indicator (M=27.93), which indicates that student's youth have goals in the future, which give life meaningfulness and focus, as well as developed

is the indicator Locus of control – life, which indicates the presence of beliefs that a person is given control over his life, free to make decisions and implement them. The least developed component is the Locus of Control-Self (M=19.83), which may indicate disbelief in their own ability to control the events of their lives. That is, modern student's youth, having certain life plans and goals, knowing that they can control their lives, do not believe in themselves and in their own strength and ability to change something. That is, young people can make plans that will not be backed by personal responsibility for their implementation.

According to the levels of psychological well-being, groups of students with different levels of this phenomenon were distinguished: low level of psychological well-being is 29.0%, medium level 56.0%, high level 15.0%. We also identified three groups of students that differ in the levels of social expectations – low – 19.0%, medium – 55.0%, high – 26.0%. (Fig. 1)



Note: PWB – psychological well-being, SE – social expectations

**Figure 1.** Groups of respondents with different levels of social expectations.

The logical conclusion is that a low level of psychological well-being corresponds to a low level of social expectations, an average level of psychological well-being corresponds to an average level of social expectations, a high level of psychological well-being corresponds to a high level of social expectations. It is established that the level of social expectations corresponds to the level of psychological well-being.

Establishing correlations between indicators of low level of psychological well-being and social expectations of student's youth gave the following results: anticipating a certain course of events, a person builds certain plans-goals (.571;  $p \leq .01$ ), but they have unstable ideas about their implementation, mainly a person relies on his character traits and qualities (.386;  $p \leq .05$ ) and interest (.397;  $p \leq .05$ ); having life goals (.451;  $p \leq .05$ ) such a person transfers some responsibility to others and is not independent (-.417;  $p \leq .05$ ), because he does not believe in his own strengths and abilities (.402;  $p \leq .05$ ) and this will affect the general well-being (.368;  $p \leq .05$ ); trying to implement their plans, they try to construct a plan and consistently implement it (.423;  $p \leq .05$ ), but will not get pleasure (.413;  $p \leq .05$ ).

Establishing correlations between the indicators of the average level of psychological well-being and social expectations of student's youth gave the following results: such individuals, setting certain goals, consistently achieve it (.276;  $p \leq .05$ ) and get pleasure and joy from it (.364;  $p \leq .01$ ). Unlike people with a low level of psychological well-being and social expectations, individuals with a medium level are independent and autonomous (.357;  $p \leq .01$ ), based on this there is personal growth (.269;  $p \leq .05$ ) and the level of psychological well-being (.365;  $p \leq .01$ ). Interaction with the outside world and people is easy and satisfying (.354;  $p \leq .01$ ), such a person knows his strengths (.354;  $p \leq .01$ ) and accepts his shortcomings (.442;  $p \leq .01$ ).

Realizing his life goals (.298;  $p \leq .05$ ) a person positively interacts with other participants in psychological reality (.282;  $p \leq .05$ ) and seeks to expand their own social connections (.322;  $p \leq .05$ ), seeks to develop himself personally (.395;  $p \leq .01$ ), understanding and comprehending features of the way of life and itself (.449;  $p \leq .01$ ) the person accepts himself as he is (.273;  $p \leq .05$ ) thereby feeling internal balance (.288;  $p \leq .05$ ) and psychological well-being (.410;  $p \leq .01$ ).

Establishing correlations between indicators of a high level of psychological well-being and social expectations of student's youth gave the following results: important life goals (.518;  $p \leq .05$ ) a person sets and achieves in a clear sequence and consistency with their own ideas and expectations (.592;  $p \leq .05$ ) and enjoys the process of life (.564;  $p \leq .05$ ), feeling it to the fullest. Such a person builds positive and trusting relationships with other people (.586;  $p \leq .05$ ), expanding the field of acquaintances (.768;  $p \leq .01$ ), he is independent of social influences (.749;  $p \leq .01$ ). Strives to realize one's potential (.620;  $p \leq .05$ ), integrating one's shortcomings and advantages into life experience (.572;  $p \leq .01$ ). Realizing his plans, such a person effectively uses all opportunities for this (.712;  $p \leq .01$ ). Can influence the environment (.558;  $p \leq .05$ ) by expanding their social contacts (.519;  $p \leq .05$ ). Such a person is able to successfully regulate and control the events of his own life, expectations and feels mental balance and psychological well-being (.621;  $p \leq .01$ ). Such a person perceives himself as a strong, purposeful person, able to achieve the best results, accepting his experience as a value and foundation for personal development. Student's youth is characterized by an average level of psychological well-being and social expectations, which indicates a normal distribution and trend at present. It is

determined that the level of psychological well-being corresponds to the level of social expectations, also identified the most formed components of psychological well-being: the balance of affect and meaningfulness of life. The least formed are self-acceptance, positive attitudes and autonomy.

In the scientific literature there is a large number of studies of the relationship of students' psychological well-being with different psychological phenomena: the relationship with vitality (Ma et al., 2020), personal self-realization (Chikhantsova, 2020), with personal and social identity and many others, including young people. Scientific works on the topic of social expectations (Popovych, 2017; Popovych et al., 2020a; 2021a). However, we do not find a study of the relationship between social expectations and psychological well-being. At present, it can be argued about the impact on the social reality of the COVID-19 pandemic (Khmiliar et al., 2020). This is especially true in times of uncertainty, when psychological well-being is affected by a large number of factors, and as a result, its level decreases and thus deteriorates the state of mental health.

Psychological well-being is understood as a resource of the individual, which contributes to the successful adaptation of man to the world around him and the practical mastery of it. In this regard, research of is quite interesting, which found that predictors that positively affect the psychological well-being of students are primary and secondary abilities: fidelity, punctuality, time, hope, diligence, cleanliness (Chikhantsova, 2020).

As a person is included in society, his individual expectations are largely social, i. e. socially conditioned, which are shared with other individuals and therefore are collective (Pirozhkova, 2020). Social expectations are important as a characteristic of social consciousness and social behavior. The phenomenon of social expectations reflects the role of the subjective factor, when the individual not only influences the world around him, but also takes an active part in its construction and construction of the future (Popovych, 2021b).

Depending on the place and role of the individual in society, his self-realization, the fullness of life with meaning can be traced. The fullness of life with meaning is realized through the construction of social expectations, which are projections of its future. At the same time, the psychological semantic features of a person's social expectations are able to outline and determine his psychological well-being.

In our research, for the first time, psychological portraits of people with different levels of psychological well-being and social expectations are indicated. Student's youth with a high level of psychological well-being and social expectations is best oriented in the socio-psychological reality, is able to properly build positive relationships with other participants in social interaction, has broad social connections. They fully accept themselves as a person endowed with both positive and negative qualities and knows how to use them. Such a person is self-confident, strives for self-realization, sets far-sighted goals, and consistently achieves them. Life is perceived from the prism of positivity and well-being, joy and well-being.

For people with an average level of psychological well-being and social expectations is characterized by objective orientation in the socio-psychological reality, based on cognitive, affective and conative components, are able to properly build their actions, predict the results of expected events. Well-developed social interaction, a person seeks to expand the circle of new acquaintances. In achieving their plans are meticulous, able to use the experience and knowledge to navigate in the surrounding space. Various things are treated with enthusiasm and curiosity. I perceive myself as a person, strives to develop and realize my potential. Perceive life in accordance with life circumstances and mood background with a predominant positive.

Student's youth with a low level of psychological well-being and social expectations, not well versed in the socio-psychological reality, difficult to integrate into it. They are not independent and dependent on the influence of others. When planning their goals have a certain sequence, but they do not have a clear idea of their implementation. Such people usually do not believe in themselves and their abilities, do not consider themselves able to overcome various difficulties in life. There are certain difficulties in social interaction, it is difficult for them to build relationships with people. They see life through the prism of incomprehensibility, dissatisfaction.

#### **4. Conclusions**

We summarize that the received empirical results and theoretical substantiation of psychological well-being and social expectations of the individual will contribute to the operationalization of the educational process of training and profile training; the application of research results will contribute to the construction of quality educational space in higher education institutions. Of course, it is interesting in scientific terms to study the semantic field of social expectations of university students and their impact on the components of psychological well-being.

The psychological structure and interdependence of factors of psychological well-being and social expectations of students are studied. The author's definition of the term "social expectations" is given. The psychological portrait of people with different levels of psychological well-being and social expectations is described. It was found that the respondents have an average level of parameters of psychological well-being and social expectations, which indicates moderate life satisfaction and adequate orientation in the socio-psychological reality. The most formed components of psychological well-being are the balance of affect and meaningfulness, which indicates the awareness of students' own lives, as well as the desire for its content, emotional saturation, the least formed – self-acceptance, positive attitudes and autonomy. The peculiarities of the relationship between the components of psychological well-being and social expectations at low, medium and high levels are identified.

The proposed hypotheses are confirmed. The implemented theoretical and empirical complex has significant scientific facts, the application of which will promote preventive

and corrective and developmental work, increase the level of psychological well-being, social expectations and life satisfaction.

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## Digital instruments in educational activities

### Instrumentos digitales en actividades educativas

**Oksana A. Dubrova**

okdubrova@yandex.ru

<https://orcid.org/0000-0002-0295-9704>

Moscow State Institute of Culture, Moscow, Russia.

**Inna K. Kirillova**

innes\_05-81@mail.ru

<https://orcid.org/0000-0002-8506-0744>

Moscow State University of Civil Engineering, Moscow, Russia.

**Anna I. Orlova**

annasamurina@mail.ru

<https://orcid.org/0000-0001-8708-6537>

Nizhny Novgorod State Engineering and Economic University, Nizhny Novgorod, Russia.

**Anna A. Stryapikhina**

anna-stryapikhina@rambler.ru

<https://orcid.org/0000-0001-5837-8565>

Nizhny Novgorod State Engineering and Economic University, Nizhny Novgorod, Russia.

**Sergey V. Semenov**

svsemenov@gmail.com

<https://orcid.org/0000-0001-5443-3600>

Nizhny Novgorod State Engineering and Economic University, Nizhny Novgorod, Russia.

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#### Abstract

The objective of this article is analysis of the experience of implementing digital tools in educational activities and identifying the possibilities of modern digital tools in educational activities. Among the participants are students of higher educational institutions. The results allowed determining that Digital tools introduced and used in educational activities contribute to the training of a highly qualified specialist in demand in the labor market.

**Key Words:** gamification, educational process, higher educational institution, competencies, gaming technologies.

## Resumen

El objetivo de este artículo es un análisis de la experiencia de implementar herramientas digitales en las actividades educativas e identificar las posibilidades de las herramientas digitales modernas en las actividades educativas. Entre los participantes se encuentran estudiantes de instituciones de educación superior. Los resultados permitieron determinar que Las herramientas digitales introducidas y utilizadas en las actividades educativas contribuyen a la formación de un especialista altamente cualificado en la demanda del mercado laboral.

**Palabras clave:** gamificación, proceso educativo, institución de educación superior, competencias, tecnologías de juego.

## 1. Introduction

The modern educational environment is full of various electronic instruments. Many of them are rapidly becoming obsolete with the development of scientific and technological progress. At the same time, the task of professional educational institutions is to use the most relevant electronic tools that contribute to the training of a highly qualified specialist.

Tools that allow organizing joint activities for the implementation of various projects are in particular demand (Rudenko et al., 2021). The collective activity allows students to independently solve problematic issues, situations close to real professional conditions (Vaganova et al., 2019).

The joint processing of a large amount of information allows students to master the skill of communication and effective solutions of professional problems (Tsarapkina et al., 2021). Therefore, today visual collaboration is gaining special relevance (Aleshchanova et al., 2017).

Visual collaboration as a form of joint visual processing of a large amount of information in the form of drawings and pictures for subsequent decision making organizes interaction between the subjects to the educational process, which has great potential in achieving common goals (Yarygin et al., 2019). Students actively discuss issues, ideas, and share information with each other (Aniskin et al., 2020).

The management of many companies is based on the use of tools that facilitate active interaction (Pinkovetskaia et al., 2020). Therefore, in vocational training, for the best training of highly qualified specialists who can easily adapt to various professional conditions, visual collaborations are used (Nagovitsyn et al., 2020).

Considering electronic tools, it is necessary to pay attention to their basic functionality (Shashlo et al., 2018).

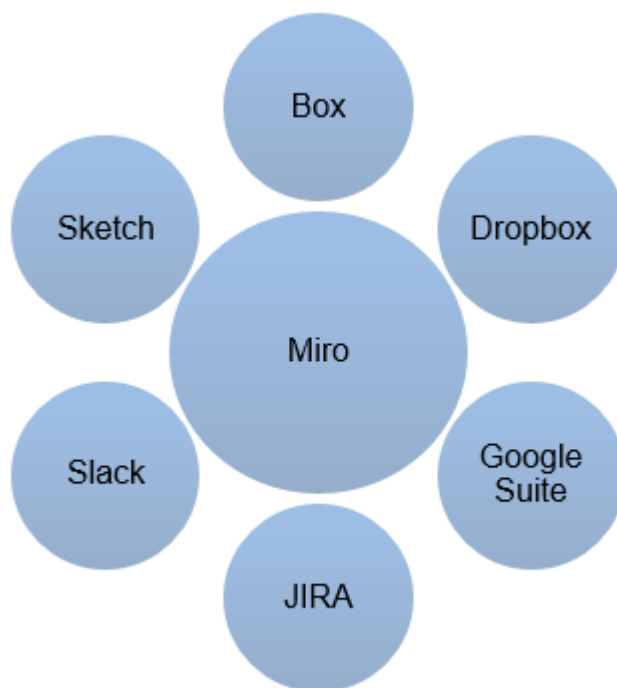
Among the innovative digital tools, the Miro service should be noted. It is one of the most used tools both in the professional activities of various companies and in the professional training of students (Dobudko et al., 2019).

With corporate security and advanced administration tools, Miro can be deployed on a large scale.

## 2. Theoretical framework

The Miro service is visually an endless canvas. At the same time, it ensures that students remain motivated to complete tasks (Klimov et al., 2019). Miro has an intuitive interface (Vaganova et al., 2020). The interactive whiteboard can be used both in real time and in asynchronous mode (Shcherbakova & Shcherbakova, 2019).

Miro integrates easily with the most popular tools (Pichugina & Bondarchuk, 2019).



**Fig. 1.** Integration of Miro with various instruments

The picture shows an incomplete list of services that Miro can easily integrate with.

The Miro online platform allows you to maintain your privacy and security. At the same time, it is possible to add advanced security and compliance controls (Kharytonov et al., 2019).

Miro allows you to organize remote work. Suitable for creating various projects, brainstorming. The uploaded files and documents are added to the board. Miro lets you draw, take notes and add different stickers (Ponachugin & Lapygin, 2019).

Design is an integral part of the professional training of students (Misakov et al., 2019). The experience of implementing Miro's project activities shows that the activity becomes more effective, since the open flexibility of the service opens up new possibilities for creating any boards (Demidov et al., 2016b).

Mentimeter is worth noting among the popular digital tools used by universities to organize the educational process (Demidov et al., 2016a). This is an online service with which you can organize work with the audience using interactive forms online. Mentimeter provides ample opportunities:

- conducting surveys;
- holding a vote (Kiseleva et al., 2019);
- conducting quizzes;
- ask questions and receive feedback (Ivanova & Korostelev, 2019).

The mentimeter is also used when presenting material in order to diversify the educational process (Bulaeva, et al., 2018).

The service is popular with students, including due to the lack of the need to use additional funds. To work, you need a computer, an output device (projector, monitor, screen) to broadcast the presentation.

For group projects, the Kahoot service is also used. It is a complete platform for educational games that allows you to create a game that meets the goals of a specific audience (Demidov et al., 2016b). The platform can be used without any special programming skills (Smirnova et al., 2020).

Kahoot includes a series of questions with a choice of the correct answer. Each Kahoot can be diversified by adding interactive elements (video clips, images, diagrams, etc.).

At the same time, it is possible to connect an unlimited number of participants to the game, who can use the service from a mobile phone, tablet or computer (Kidina, 2020).

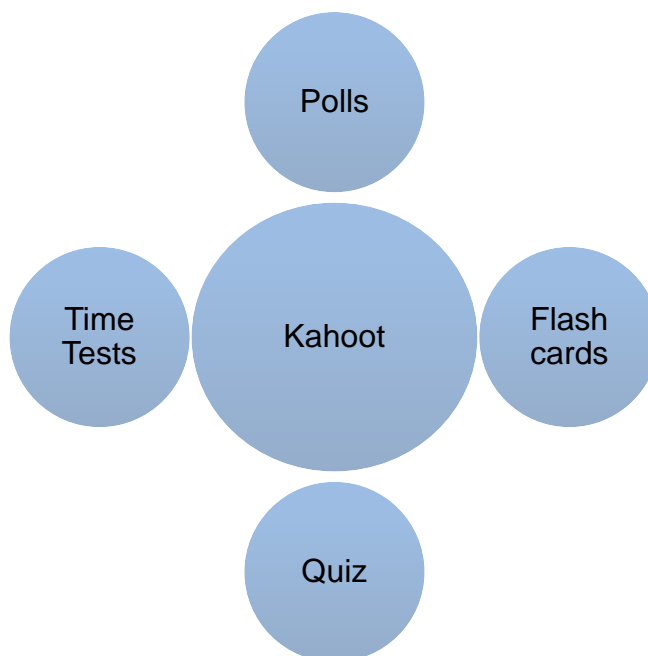
E.N. Dronova reveals the technical side of the implementation of Kahoot properties (Dronova, 2020). The service includes several blocks that contain all the items necessary for the implementation of the game:

- home;
- discover;
- Kahoots;

- Reports;
- Upgrade now;
- Create and others.

Each of the points is easy to use and allows students to quickly understand how to use the Kahoot service.

Kahoot includes many elements, the most commonly used ones are shown in the picture.



**Fig. 2.** Opportunities provided by the Kahoot service

Each of the services presented has ample opportunities for students to complete various tasks and organize the educational process in general.

### 3. Methodology

The study involved 355 students of higher educational institutions, including Moscow State Institute of Culture, Nizhny Novgorod State Engineering and Economic University.

The research is aimed at identifying the capabilities of the digital tools Miro, Mentimeter and Kahoot, adapted to work with large audiences of students. For this, control and experimental groups were allocated.

The study was conducted in several stages. At the first stage, students independently studied the capabilities of Kahoot and Miro services. We created surveys with the addition

of pictures, photos and videos. The demonstration of the created surveys was carried out with the display on the screen in the classroom. In addition, students who do not have the possibility of full-time presence in the classroom entered a virtual room in which the task was reflected and a countdown was conducted for its solution. After completion, the results are displayed on the screen.

At the next stage, group work was organized, creating a quiz with developers of up to 30 people in one group.

The third stage involved the selection of the most relevant quizzes, which were accepted as official elements of the control of students' knowledge. At the end of the study of the topic, the selected quizzes were sent via mail to the participants of the educational process for its passage.

In the experimental groups, when preparing design work, students used the capabilities of the presented digital tools. Subsequent statistical processing of the data after the projects were defended made it possible to reveal the percentage of students who passed the project most successfully.

Research period: the academic year.

#### **4. Results and discussion**

Each of the subjects of the educational process using the Miro service has academic access to it, an academic account.

In the field of vocational education, project activities are very popular, which makes it possible to immerse the student to a greater extent in real professional conditions.

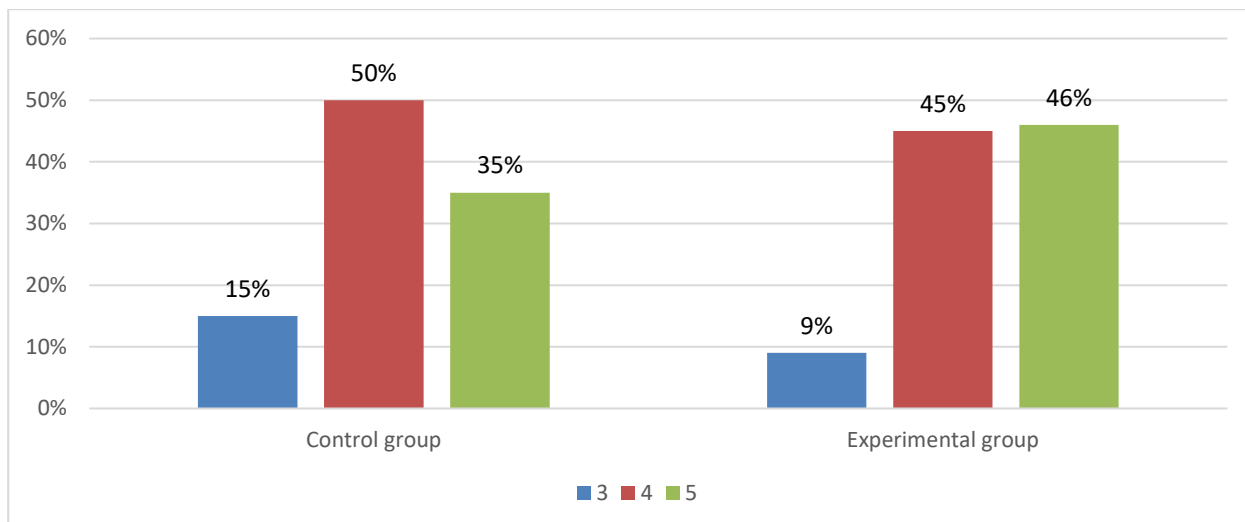
Therefore, the students carried out exactly the projects using various services.

The students interacted both remotely and directly in the classroom. We have identified two groups: control and experimental. Design in the control group took place without using the Miro service.

The research among students was carried out throughout the year.

The design was carried out using various electronic means of group interaction. The first figure shows the design results using the Miro service.



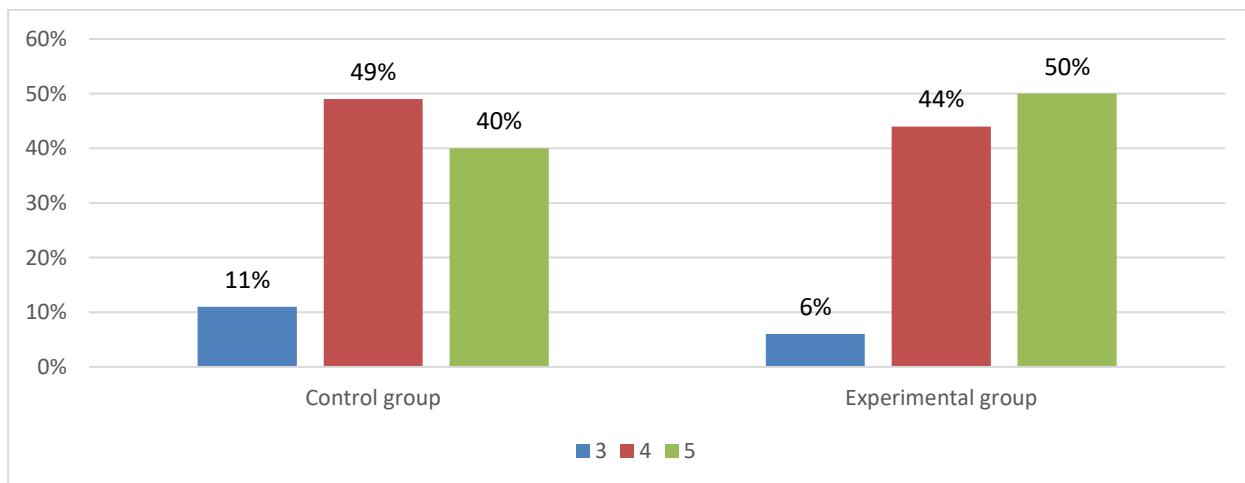


**Fig. 3.** Results of the control and experimental groups on the implementation of project activities using Miro.

We can observe that the results of the experimental group are higher than the control. Students completed the assignment faster. They were able to organize a high-quality independent process and active interaction.

The highest scores are observed in the experimental group.

Also, a service for conducting surveys in real time Mentimeter was introduced into the educational process. It has also been used by students during projects. The figure shows the results of the control and experimental groups.

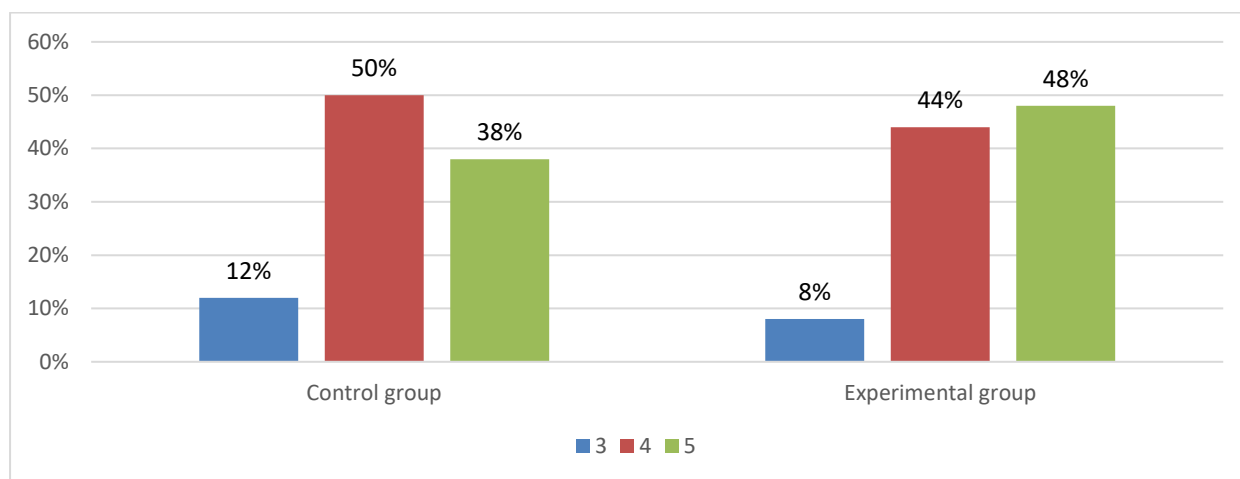


**Fig. 4.** Results of the control and experimental groups on the implementation of project activities using the Mentimeter.

In the experimental group, using the Mentimeter service, the number of students with a high score is higher than in the control group.

Thanks to the use of the service, students have the opportunity to include a large number of respondents in their projects and work with large samples.

The results of using the Kahoot service are shown in the figure.



**Fig. 5.** Results of the control and experimental groups on the execution of project activities using Kahoot.

Games in real time or in the format of video conferencing in the Kahoot service, as the students themselves note, allow them to study the material deeper, motivate them to prepare for classes on their own and contribute to better problem solving.

Most of the students in the experimental group show high educational results. They easily solve various problems in a non-standard way and are ready for further professional self-improvement.

In chat mode, students can exchange messages while using Miro. Collaboration cards in age format are a real tool. The teacher formulates the Problem. If it is large, then on the cards it is divided into subtasks, which are displayed on the board. The cards move around the board and reflect the stages of the progress of the work. Each of the teams participating in the project can make their own changes.

The Kahoot and Miro services used in the study contribute to a better organization of the educational process for both remote and full-time learning. The experience of using these services as modern electronic tools shows the effectiveness of their application.

## 5. Conclusions

The digital tools used in the educational process of higher educational institutions are aimed at increasing the effectiveness of training and training competent highly qualified specialists.

Through the implementation of collective project activities through the services under consideration, students learn to independently interact and create the conditions necessary for themselves and their team to achieve the planned results.

The study made it possible to identify an increase in the effectiveness of the educational process through the use of electronic services. The participants in the experimental groups show better results compared to the control groups.

Among the results of the implementation of electronic tools, it is worth highlighting a high level of independence, active discussion of issues, activation of the cognitive and creative position of students, strengthening of the practical orientation of the educational process and the formation of experience in solving professional problems.

Experience with innovative electronic technologies during training allows students to increase their competitiveness in the labor market. Most modern enterprises use services that allow organizing the work of a large number of people with large amounts of information, services that automatically process results, and others. Experts who are fluent in the skills of using modern means of interaction can easily adapt to their professional activities.

Digital tools introduced and used in educational activities contribute to the training of a highly qualified specialist in demand in the labor market.

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## Electronic visualization tools in education

### Herramientas de visualización electrónica en educación

**Yana V. Zubkova**

ZubkovaYaV@mgpu.ru

<https://orcid.org/0000-0002-2484-7316>

Moscow City University, Moscow, Russia.

**Julia O. Baikina**

<https://orcid.org/0000-0002-3874-3665>

Federal State Budget Educational Institution of Higher Education «Industrial University of Tyumen», Tyumen, Russia.

**Svetlana V. Sergeeva**

sergeeva@penzgtu.ru

<https://orcid.org/0000-0002-3612-3112>

Penza State Technological University, Penza, Russia.

**Irina Y. Burkhanova**

irina2692007@yandex.ru

<https://orcid.org/0000-0002-7954-2341>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Margarita I. Koldina**

ritius@mail.ru

<https://orcid.org/0000-0002-3368-7297>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

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#### Abstract

Purpose of the article is to analyze the influence of electronic visualization tools on the growth of students' cognitive activity. En el estudio participaron 108 estudiantes de 17 a 21 años. Los estudiantes fueron solicitados a participar en una encuesta que les permitió identificar recursos electrónicos populares que proporcionan visualización en la educación. La encuesta se realizó con el método C. D. Spielberg para estudiar el nivel de actividad cognitiva antes del uso de herramientas de visualización electrónica y durante su uso. El estudio demostró que el uso de herramientas de visualización electrónica ayuda a aumentar la atención, la actividad cognitiva de los estudiantes y reduce la fatiga. Las herramientas modernas de visualización electrónica contribuyen al desarrollo de la memoria emocional de los estudiantes y a la formación de competencias profesionales.

**Key Words:** high education, online learning, visualization, interaction, cognitive abilities.

## Resumen

El objetivo del artículo es analizar la influencia de las herramientas de visualización electrónica en el crecimiento de la actividad cognitiva de los estudiantes. En el estudio participaron 108 estudiantes de entre 17 y 21 años. Se solicitó a los estudiantes que participaran en una encuesta que les permitió identificar los recursos electrónicos populares que brindan visualización en la educación. La encuesta se realizó con el método C. D. Spielberger para estudiar el nivel de actividad cognitiva antes del uso de herramientas de visualización electrónica y en el proceso de su uso. El estudio mostró que el uso de herramientas de visualización electrónica ayuda a aumentar la atención, la actividad cognitiva de los estudiantes y reduce la fatiga. Las herramientas modernas de visualización electrónica contribuyen al desarrollo de la memoria emocional de los estudiantes y forman competencias profesionales.

**Palabras clave:** educación superior, aprendizaje en línea, visualización, interacción, habilidades cognitivas.

## 1. Introduction

The current changes in the course of scientific and technological progress require certain skills from students (Voronkova et al., 2020). They need to understand each unit of educational material to determine the interaction between structural and informational blocks to be flexible using them in a dynamically changing world. Here you can see the connection between the analysis of education material patterns in the process of knowledge acquisition and in the development of students' skills and abilities.

Organizing educational process, the teacher should draw students' attention to the material being studied. Students' attention activation is one of the important conditions for an effective learning process (Dobudko et al., 2019). Students with a high level of motivation are set up to memorize educational information, but they can be distracted. The low level of motivation among students shows a low interest in the learning process, which creates a problem when presenting the material. In this case, it is important to find the ways to attract students' attention, aimed at increasing interest in the disciplines study. Within the framework of the "Education" National Project, the education system development is held through the material and technical base renewal and educational organizations are provided with modern equipment. The federal project "Digital Educational Environment" is focused on the digital transformation of the education system. Digital services and content development within educational organizations will improve students' professional competencies, increase their cognitive activity and independence.

A modern person, who has digital way of thinking, receives a large amount of information from various sources and some information is perceived superficially. In this case, data

visualization can increase the efficiency of meaningful reading. High-quality visualization simplifies and accelerates the understanding of complex information.

Active use of electronic learning tools has become a natural element of the educational process (Akvazba et al., 2019). Computer modeling programs have the ability to visualize the material that is difficult for students to understand. Simulation programs allow you to conduct virtual experiments, and educational computer games increase the level of knowledge assimilation. Information technologies allow students to immerse themselves in their future professional activity. Electronic visualization tools change the educational space, updating and expanding the information flow. Students learn to assimilate information independently in the process of interaction with technical means.

Visualization allows you to diversify the learning process, including in professional education, where the emphasis is on verbal interaction. Visualization in education has a positive impact on the participants' interaction in the learning process and promotes rational and emotional enrichment (Aniskin et al., 2020).

The use of electronic visualization tools is aimed at improving training effectiveness due to the educational process automation; it helps to create an individual educational trajectory and provides a verbal and figurative way of transmitting information.

The positive effect of the electronic visualization tools usage is associated with the growth of students' cognitive activity due to obtaining information through sensory perception channels (Ponachugin & Lapygin, 2019). Students are involved directly in the learning process and use visualization to solve practical learning problems. Electronic visualization tools allow students to recall the required educational material blocks for correcting their educational trajectory (Braslavska & Rozhi, 2020). The effect is also associated with the teacher's role change; it transforms from the "transmitting information" category to the independent discipline study organization assistant category.

## **2. Theoretical framework**

Educational environment elements change using various visualization tools. S. V. Aranova claims that the competencies necessary for a successful life are expanded due to the spread of visual activity products. The author is convinced that at present there is a need to develop a pedagogical concept of educational material visualization as a XXI century phenomenon. This phenomenon is associated with competencies related to visual literacy, skills of creating and understanding information in a visual form. Aranova raises the question of a special information visualization culture formation among students (Aranova, 2019). Mastering this culture will allow students to solve communication problems and to develop their personality as a whole.

A. Skulmovsky, G. D. Ray in their visualization studies express the opinion that educational material which is more difficult to perceive holds the students' attention better. Students are focused on understanding the information and make more effort to



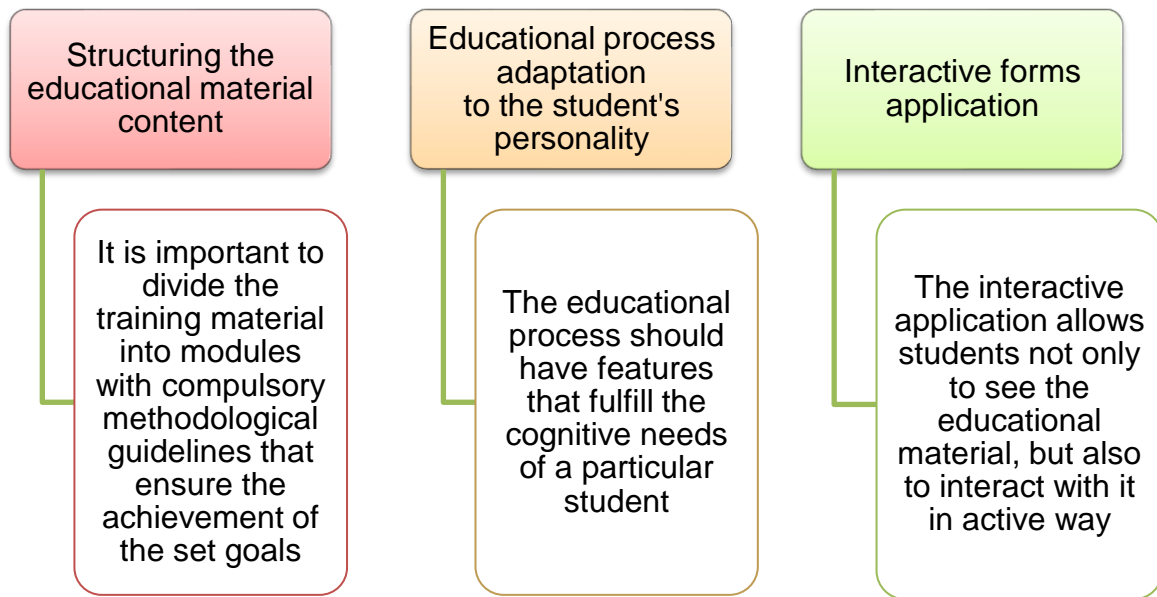
comprehend it. However, the other studies made by these scientists have shown low efficiency of using realistic details. The authors consider them unnecessary mental workload. Comparing two contradictory results, they came to the conclusion that highly detailed visualization provides high storage performance under the color coding condition. Low detail reduces the effectiveness of training, even in case of color coding. The results of the study indicate that realistic visualization requires appropriate visual aids in order to be effective (Skulmowski & Rey, 2018).

M. Netel, S. Griffith, O. Delaney, T. Sanders, F. Parker, B. Cruz, K. Lonsdale analyzed the influence of video on the educational process in high educational institutions. They found various studies that measured the videos learning effects among students. After checking all the studies, they came to the conclusion that the replacement of existing teaching methods with video led to small improvements in student learning ( $g = 0.28$ ). Adding video to existing training resulted in significant learning benefits ( $g = 0.80$ ) (Noetel et al., 2021).

C. Chen, M. Wang, P. Kirshner, C. Tsai in their meta-analysis summarized the results of research on the impact of computer-based collaborative learning (CSCL) based on its three main elements: collaboration, computers usage and the use of additional learning environments or tools or auxiliary strategies in CSCL. In the study the authors found that cooperation has a positive effect on the knowledge acquisition (ES [effect size] = 0.42), the skills mastering (ES = 0.64) and students' perception (ES = 0.38) in computer learning. Secondly, the use of a computer led to a positive impact on the knowledge acquisition (ES = 0.45), the skills mastering (ES = 0.53), the students' perception (ES = 0.51), the group tasks performance (ES = 0.89) and social interaction (ES = 0.57) in the context of co-education. Third, the use of additional learning tools gave an average effect for gaining knowledge (ES = 0.55) (Chen et al., 2018).

F. Stebner, T. Kuhl, T. N. Hoeffler, J. Wirth, A. Ayres consider the role of animated information and static images in their research. The students were divided into two educational environments, characterized by a combination of visualization. The results showed that visualization is necessary for deep information understanding. Moreover, the experiment showed the superiority of animated material over static images (Stebner et al., 2017).

A.V. Kalinichenko considers electronic visualization tools development issue in his research. Designing electronic tools, she took into account the principles indicated in Figure 1.



**Fig. 1.** Principles of electronic visualization tools design (The drawing was developed by the author and is based on the analysis of the works of A.V. Kalinichenko)

Structuring the content of the training material assumes that the training material should be divided into modules. These modules should be completed blocks of educational material. They should contain methodological guidelines that ensure the achievement of didactic goals. The modular approach to the electronic tools design provides flexibility in the educational material content, provides students with favorable conditions for the implementation of independent activities at an individual pace for each. When choosing an electronic service, it is important to take into account students' motivation to interact with educational materials.

The educational process adaptation to the student's personality is reflected in the fact that the learning process must have features that meet the cognitive needs of a particular student.

The use of interactive forms with students should be aimed at the development of personality cognitive structures (Kalinichenko, 2017). The interactive application provides cognitive activity through action. The student not only sees the information, but also acquires a new experience.

Electronic visualization tools ensure the active students' involvement in the learning process not only for obtaining information, but also for the subsequent knowledge use. When you choose specific visual tools it is important to take into account some aspects (Kiseleva et al., 2019). Firstly, the educational process effectiveness increases if the visibility in the learning process performs not only an illustrative, but also a cognitive function. Secondly, the development of didactic tools taking into account the individual characteristics provides the most successful personal visual capabilities usage.

### 3. Methodology

The study was conducted in 2020-2021. The participants were 108 students aged from 17 to 21. Students were asked to participate in a survey that allows them to identify popular electronic resources that provide visualization in education. Electronic visualization tools were presented as a choice: time line, cluster, word cloud, crossens, interactive poster, intelligence map, scribing, infographics.

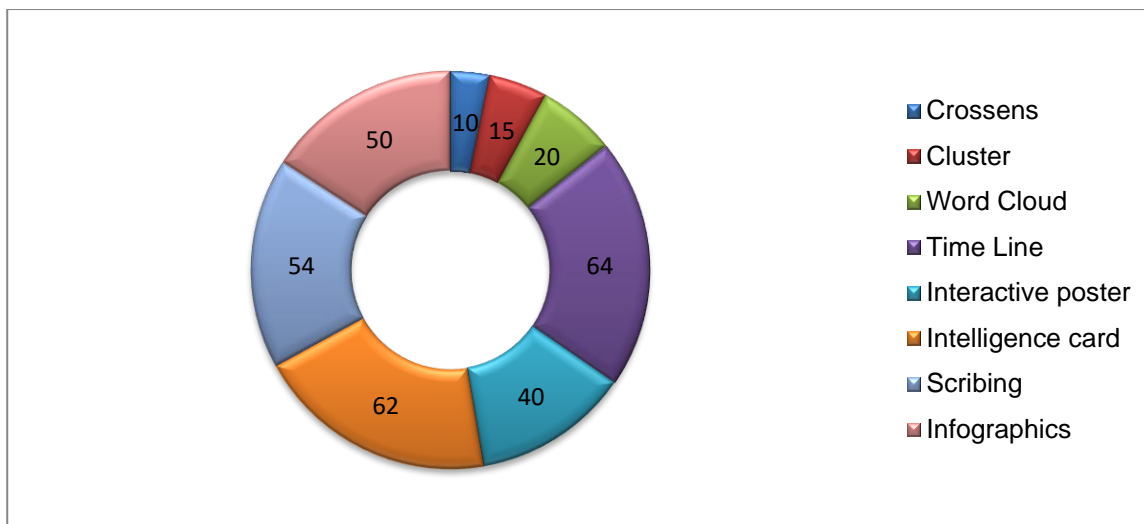
In order to study the level of cognitive activity before the use of electronic visualization tools and in the process of their use, a survey was conducted among students using C. D. Spielberger method. Students were offered statements that people use when telling about themselves. They had to mark the number from 1 to 4, depending on their condition in the learning process. The following statements were proposed: "I want to learn, understand, get to the heart of it", "I am curious", "I feel like a researcher", "I feel that my mind is working well".

Throughout the study, the subjects were under the supervision of experts who recorded the cognitive activity features and student's independence.

### 4. Results and discussion

Visualization is an intermediate link between the educational material and the results of educational activities (Gilyazova, 2020). It is a kind of mechanism that allows you to optimize the learning process. Electronic visualization tools allow students to organize and quickly analyze the information received (Yarygin et al., 2019). Students have the opportunity to see the information in its entirety. Electronic visualization tools help to cover a large amount of information quickly and present the material in a memorable form.

During the study, students were asked to choose electronic visualization tools based on the following characteristics: the ability to add audio and video materials, the convenience of using an application or service, a wide selection of components for converting information. The results of the students' survey are shown in Figure 2.



**Fig. 2.** Results of a students' survey on the electronic visualization tools choice (The drawing was developed by the author)\*\*

The results obtained lead to the conclusion that students have the most interest in using the following electronic visualization tools in online learning: time line (64%), intelligence map (62%), scribing (54%), infographics (50%), interactive poster (40%). The low respondents' results on the use of crossens (10%), clusters (15%), word clouds (20%) in the educational process indicates that these tools do not meet the stated requirements.

The time line is a visual image of how a particular event developed in the sequence. Modern online resources allow students to use not only text, but also audio and video materials on the time line (Gorbunova et al., 2020). The Sutori service allows you to string information on a vertical axis, along which the reader moves down. The electronic service allows you to tell various stories, but visually everything looks like a chronological project. Intelligence maps are a graphical way of describing ideas and concepts in the form of a map consisting of key and secondary topics. This electronic tool allows you to work with large amounts of information, conduct brainstorming sessions (Kharytonov et al., 2019).

Online service Draw.io allows you to choose the most suitable one from the available templates (Malakhova & Bokova, 2020). You can change shapes, text color and background. The intelligence card can be shared with anyone (Tareva & Tarev, 2020).

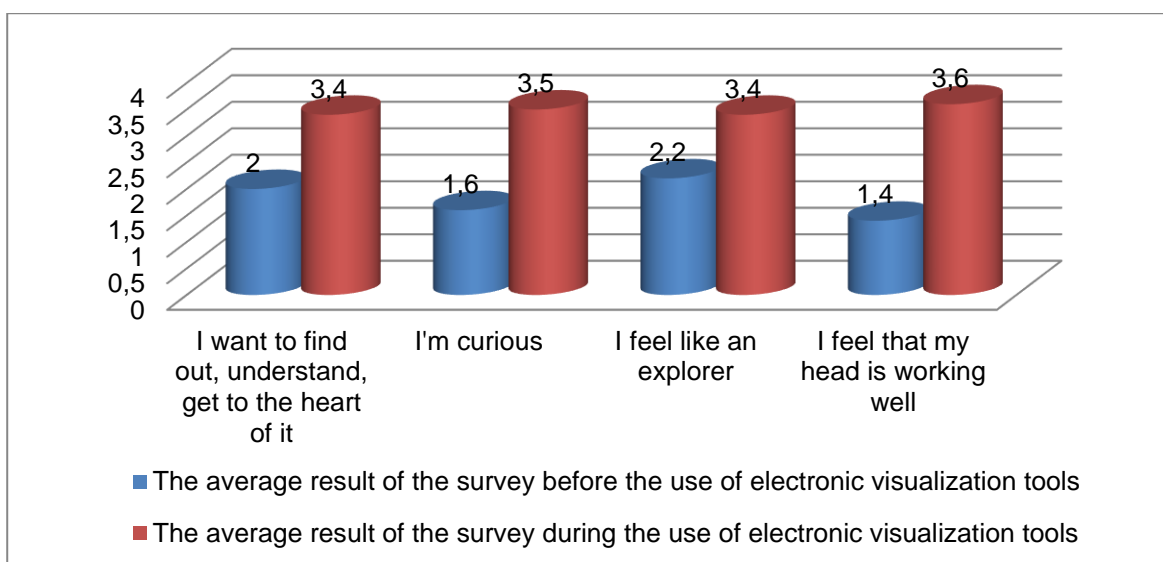
Scribing implements the effect of parallel passage, when both auditory and visual receptors are fixed on the provided material (Kirillova et al., 2021). The creation of vivid images causes the listener to have visual associations with the spoken speech, which ensures a high percentage of information assimilation. The PowToon service will help you create animated videos. In the process of preparing materials, you can use text animation, use infographic elements (Samerhanova, 2019).

Infographics is the way of presenting information. The principles of infographics are content, lightness, imagery. The Canva service is one of the most convenient infographic designers. On the site you can find many different infographic templates for various purposes. Special images and animations, fonts, transparent backgrounds attract and hold the students' attention to the material study (Tsarapkina et al., 2021).

An interactive poster contains interactive elements that implement navigation. It allows you to display the necessary information in text and audio form (Shcherbakova & Shcherbakova, 2019). Online service Genial.ly will help you create beautiful interactive content to achieve high educational results (Popov et al, 2020). When creating an interactive poster, you can attach web resources, text, video, audio materials. Its advantage over other services is the ability to create multi-page posters.

All electronic visualization tools were analyzed in the study and we found out that the use of electronic tools set will have a positive impact. The integrated use of electronic tools will allow diversifying the educational process and focusing students' attention on the information being studied.

A survey was conducted among students using C. D. Spielberger method to study the level of cognitive activity before the electronic visualization tools use and in the process of their use. Students were offered statements that people use when telling about themselves. They had to mark the number from 1 to 4, depending on their condition in the learning process. The following statements were proposed: "I want to learn, understand, get to the heart of it", "I am curious", "I feel like a researcher", "I feel that my mind is working well". The results are shown in Figure 3.



**Fig. 3.** The results of the students' survey using C. D. Spielberger method (The drawing was developed by the author)

Students observation in the process of using electronic visualization tools has shown that the educational process contributes to increasing students' attention and activity and reduces fatigue. There is a noticeable increase in cognitive activity. The use of electronic visualization tools helps to learn the material and to solve educational tasks in creative manner.

## 5. Conclusion

The modern education system modernization is carried out on the basis of the widespread use of information and communication technologies. They represent innovative perspectives and opportunities for organizing an effective educational process. An important direction of using electronic tools is the use of learning visualization capabilities by increasing visibility and combining logical and imaginative ways of mastering educational material.

Modern electronic visualization tools contribute to the development of students' emotional memory and form professional competencies. It is possible to achieve educational goals not by obtaining information, but by using various methods of working with it. This includes getting information, its systematization, processing, data exchange, aesthetic design, and results presentation. Electronic visualization tools help to cope with these requirements easy enough.

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## **Electronic services in development a personal educational route**

### **Servicios electrónicos en la construcción de una ruta educativa personal**

**Olga N. Soluyanova**

<https://orcid.org/0000-0003-4085-1347>

Moscow State University of Civil Engineering, Moscow, Russia.

**Rustam I. Zapparov**

[rustam1981@yandex.ru](mailto:rustam1981@yandex.ru)

<https://orcid.org/0000-0002-9302-9739>

Plekhanov Russian University of Economics, Moscow, Russia.

**Galina G. Sechkareva**

[sechkareva@yandex.ru](mailto:sechkareva@yandex.ru)

<https://orcid.org/0000-0002-3764-055X>

Armavir State Pedagogical University, Armavir, Russia.

**Nina A. Tkacheva**

<https://orcid.org/0000-0002-7545-6358>

Federal State Budget Educational Institution of Higher Education «Industrial University of Tyumen», Tyumen, Russia.

**Margarita I. Koldina**

[ritius@mail.ru](mailto:ritius@mail.ru)

<https://orcid.org/0000-0002-3368-7297>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

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#### **Abstract**

The purpose of the article is the analysis of the experience of creating individual educational routes using electronic services. A survey was conducted among teachers of higher education institutions on the use of the most effective electronic services. The study involved teachers from 1 to 4 grades and the age range of 18 to 22 years. The results determined that electronic services play an important role in the creation of an individual educational path, expand the training opportunities of students and contribute to the development of skills and competencies that are important for a competitive specialist.

**Keywords:** electronic services, soft skills, personal educational path, electronic technologies, competencies.

## Resumen

El propósito del artículo es el análisis de la experiencia de creación de rutas educativas individuales utilizando servicios electrónicos. Se realizó una encuesta entre docentes de instituciones de educación superior sobre el uso de los servicios electrónicos más efectivos. El estudio involucró a profesores de 1 a 4 cursos y el rango de edad de 18 a 22 años. Los resultados determinaron que los servicios electrónicos juegan un papel importante en la creación de una ruta educativa individual, amplían las oportunidades de formación de los estudiantes y utilizan al desarrollo de habilidades y competencias que son importantes para un especialista competitivo.

**Palabras clave:** servicios electrónicos, habilidades blandas, ruta educativa personal, tecnologías electrónicas, competencias.

## 1. Introduction

With the development of scientific and technological progress, the processes of globalization and informatization, the primary need in the field of vocational education is to improve the quality of students' training, the development of professional competence, taking into account the needs of the modern labor market.

The demand for a specialist in the labor market is determined not only by his professional competencies, but also by soft, flexible universal skills (Kiseleva et al., 2019). The search for the most effective ways to form professional competencies and soft skills is one of the primary tasks solved in vocational education (Dobudko et al., 2019).

A personal educational route is a solution that allows, focusing on the needs, abilities and dispositions of the student, to prepare a highly qualified specialist (Smirnova et al., 2020).

Person-centered learning, popular for a long time, focusing on the individual needs of the student, remains relevant today (Aniskin et al., 2020). The most effective mastering of educational material and the development of competence through the construction of an individual educational route (Kharytonov et al., 2019).

An individual educational route allows the student to systematize their activities for the assigned tasks. Electronic services contribute to solving these problems (Shashlo et al., 2018).

The effectiveness of developing a personal educational route using electronic services depends on the timely monitoring of the educational process.

## 2. Theoretical framework

An individual educational route is considered as an individual program of a student's educational activities, compiled on the basis of his interests and educational needs, which creates conditions for the disclosure of his abilities and the development of skills and competencies.

Regulations on an individual educational route are developed on the basis of the Federal Law "On Education in the Russian Federation" dated December 29, 2012 N 273-FZ, which guarantee the implementation of personal educational needs. (Law N 273-FZ, 2012)

The preparation of a student, including within the framework of an individual educational route, implies the development of soft skills, which occupy one of the most important places in the development of a modern competent specialist (Ivanova & Korostelev, 2019). Therefore, we consider the development of soft skills as one of the indicators of the effectiveness of an individual educational route (Ponachugin & Lapygin, 2019).

Soft skills are a tool to improve the competitiveness of a specialist in the labor market (Mazanyuk et al., 2020). The development of soft skills gives the student the opportunity to better adapt to professional activities (Demidov et al., 2020).

The development of a competent specialist with the necessary set of flexible skills is carried out using various electronic services.

Google is the most popular services both for the educational process in general and for development an individual educational route. This is a range of applications that make the educational process more lively and include a large number of students (Vaganova et al., 2019). Moreover, each student has the right to choose the most suitable tool for him (Klinkov, 2020).

Digital libraries provide access to a wide literature base on any topic of interest (Savka et al., 2020).

Interactive museums on online platforms allow virtual guided tours (Pinkovetskaia et al., 2020).

Electronic educational platforms include all the courses a student needs. The teacher can remotely enroll him in a specific course, and the student will have 24-hour access to it (Yarygin et al., 2019). The student solves problems, performs tests and watches the necessary lectures (Zulpukarova, 2019).

Zoom consults with the instructor. Each of the students asks the person of interest to him. The consultation is carried out both collectively and individually (Samerhanova, 2019).

The service provides an opportunity for a student to work at the pace and mode in which it is convenient for him (Akvazba et al., 2019).

Despite the fact that e-mail has been around for a long time compared to other services, its popularity does not decrease (Bulaeva, et al., 2018). File sharing via email remains in demand. Here, both advisory assistance in solving individual issues and file exchange can be carried out (Shcherbakova & Shcherbakova, 2019).

Time management applications have been actively used relatively recently (Vaganova et al., 2020). However, they are popular with students (Kidina, 2020). They allow you to focus on completing tasks, not to be distracted by phone calls and SMS messages (Pichugina et al., 2019). Teachers highlight this tool as one of the essential tools to maintain self-discipline in development a personal educational route (Vaganova et al., 2019).

Teachers also highlight the importance of cloud services, which allow storing large amounts of data and using them at any time for both students and teachers (Tsarapkina et al., 2021).

In electronic laboratories, in the absence of appropriate equipment or for organizing remote interaction to perform work, it is possible to create several unique tasks for the needs of each student (Nagovitsyn et al., 2020).

Kahoot and other services for creating educational projects, with the help of which tests, quizzes, educational games and marathons are created, expand the possibilities of individualizing the educational space (Rudenko & Sarkisova, 2021). The student can take part in projects of interest to him.

### **3. Methodology**

The paper presents a study on the process of development an individual educational route using electronic services.

A survey was conducted among teachers of higher educational institutions on the topic of the most effective, in their opinion, electronic services in the educational process in general and the construction of an individual educational route in particular. The article presents the most common answer options.

The level of development of soft skills within the framework of an individual educational route for students from 1 to 4 courses in the age range from 18 to 22 years was revealed.

The characteristics of the most common and demanded soft skills are revealed in the table.

**Table 1.**  
*Characteristics of soft skills.*

<b>Skill</b>	<b>Characteristic</b>
Working in a team	Maintaining connections to solve common problems, making decisions to avoid conflicts, conducting discussions, using electronic resources for remote teamwork, sharing files
Critical thinking	Understanding the available in development, evaluating it based on well-founded arguments, criteria, and using the data obtained to resolve further issues
Time management	Organization of your own time to complete specific tasks, compliance with deadlines, the degree of use of electronic tools in organizing your own learning process
Creativity	Taking the initiative, making unconventional decisions, generating new ideas, creatively solving problems, and engaging new tools in your own activities to achieve better results
Flexible thinking	Prompt response to emerging changes, resolution of complex situations, thinking through several ideas, unconventional thinking, readiness to use innovative tools in solving current issues

Various electronic services were included in the construction of the routes.

The ability to apply soft skills was differentiated by level. The characteristics of the levels are presented in the table.

**Table 2.**  
*Characteristics of the levels of soft skills development in the process of development an individual educational route using electronic services.*

<b>Level</b>	<b>Characteristic</b>
Creative	The student easily works in a team, shows leadership qualities. When development an individual educational route, it is included in the collective project activity. Actively uses electronic technologies to solve its tasks, achieving operational results. Responds quickly to changes that occur. Complies with deadlines. Solves problems in several ways.
Average	The student easily works in a team, knows how to negotiate and, if necessary, prevent a conflict. Actively uses electronic technologies. When development an individual educational route, it is included in the collective

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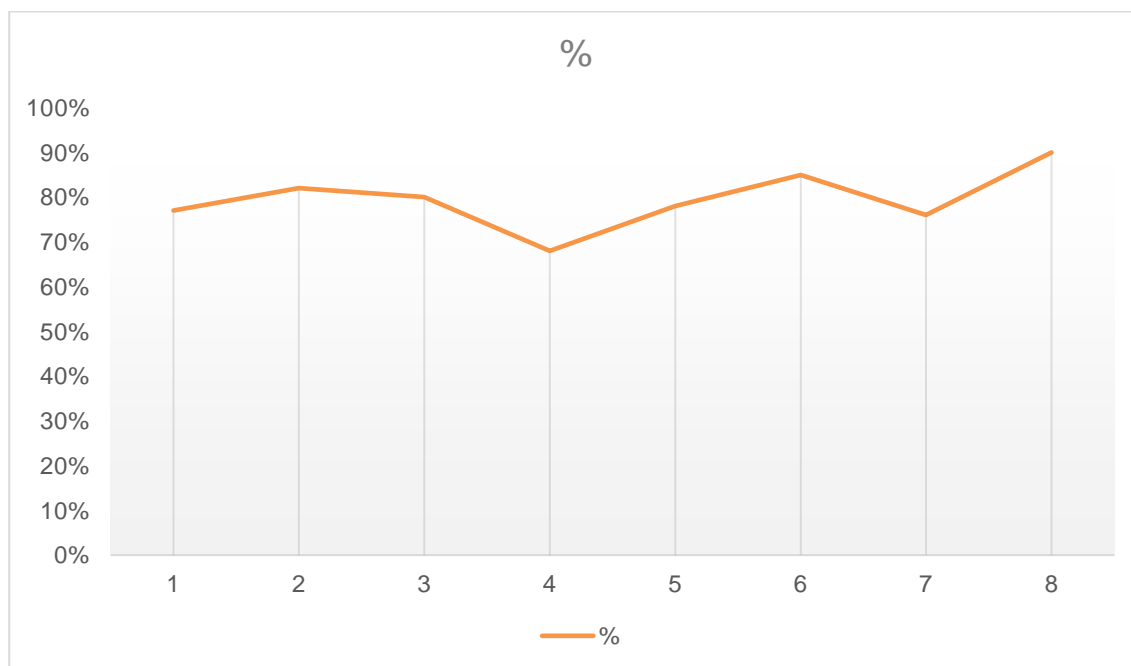
	project activity. Responds to changes that occur. Tries to act within the established deadlines. If necessary, it can offer several options for solving problems.
Acceptable	The student works in a team. When development an individual educational route, it is difficult for them to get involved in collective project activities. Applies electronic technologies. Responds to changes that occur. Sometimes it goes beyond the set deadlines. If necessary, it can offer several options for solving problems.

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The development of soft skills is one of the most important factors reflecting the effectiveness of an individual educational route and electronic tools used for this.

#### 4. Results and discussion

A survey was conducted among teachers to choose the most effective, in their opinion, electronic tools in development a personal educational route.



**Fig. 1.** Results of a survey of university teachers.

According to the results of the survey, the most demanded were:

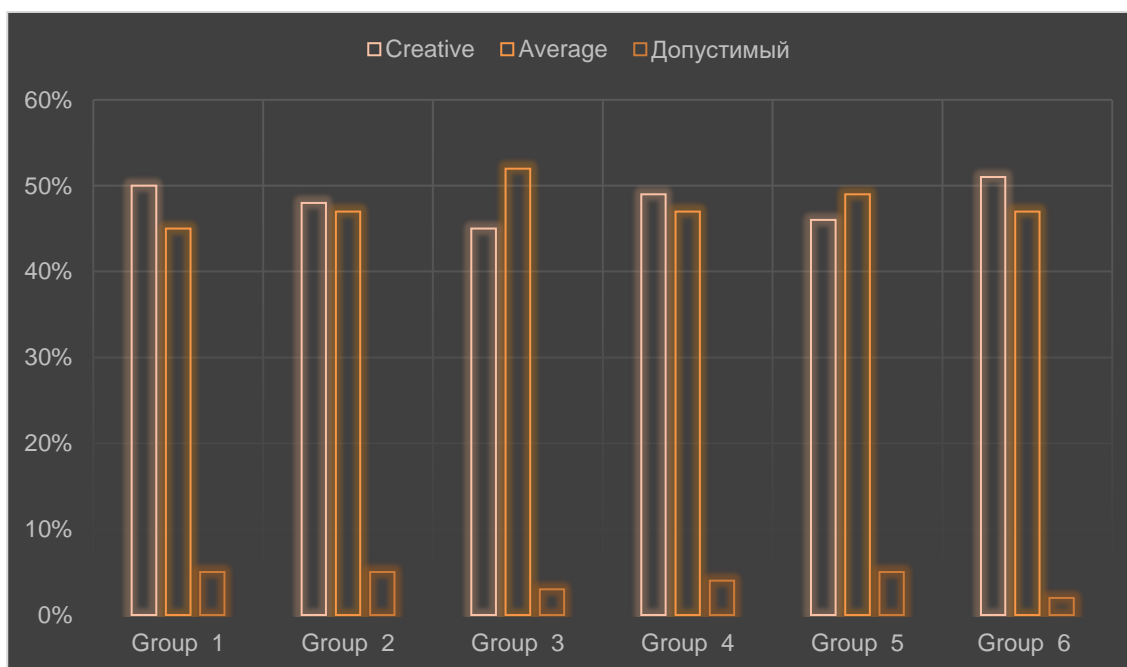
1. Electronic educational platform;
2. Zoom;
3. Email;
4. Application time managers;

5. Cloud storage;
6. Electronic laboratories;
7. Kahoot and services that allow you to create electronic quizzes and presentations;
8. Google services.

Each of the services presented is of great importance for students, since these tools are used by students both in learning and in everyday life. They communicate, carry out projects, solve problems creatively, that is, develop their flexible skills and are ready for further training.

Students of higher educational institutions also took part in the study. (6 groups of students). They were all categorized according to their age. In the learning process, teachers helped students to build an individual educational route using technical means.

The figure shows the results of checking the development of soft skills within the framework of an individual educational route.



**Fig. 2.** The level of soft skills development within the individual educational route.

Each group of students who used electronic services in development an individual educational route in most cases has a creative and average level of soft skills development. Each of the students freely builds a dialogue with their fellow students, participates in projects, is able to critically assess the situation and is ready to creatively solve it.

## 5. Conclusions

An analysis of the experience of development an individual educational route using electronic services has shown the high importance of electronic tools in the modern educational process. Based on the research data, in which we focused on the development of soft skills as significant elements of modern professional training, we can say that electronic services expand student opportunities. Students can quickly resolve issues remotely, creatively approach the solution of assigned tasks, critically assess the situation.

The development of soft skills shows that students are ready for further independent construction of the educational route. They are aware of their needs, determine the need to improve certain competencies.

The electronic services presented in the study have a wide range of tools that adapt to the needs of each student and contribute to the construction of an effective educational route.

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## Formation of students' competitiveness in the vuca world

### Formación de la competitividad de los estudiantes en el mundo vuca

**Mikhail A. Rodionov**

<https://orcid.org/0000-0003-2213-9997>  
Penza State University, Penza, Russia.

**Julia M. Tsarapkina**

[julia\\_carapkina@mail.ru](mailto:julia_carapkina@mail.ru)  
<https://orcid.org/0000-0002-3807-4211>

Russian State Agrarian University - Moscow Timiryazev Agricultural Academy, Moscow, Russia.

**Julia A. Kulagina**

[kulagina\\_yu.a@mail.ru](mailto:kulagina_yu.a@mail.ru)  
<https://orcid.org/0000-0002-8892-0367>  
Penza State Technological University, Penza, Russia.

**Irina M. Morozova**

[89063981816@mail.ru](mailto:89063981816@mail.ru)  
<https://orcid.org/0000-0003-2249-8332>  
Penza State Technological University, Penza, Russia.

**Nina A. Tkacheva**

<https://orcid.org/0000-0002-7545-6358>  
Federal State Budget Educational Institution of Higher Education «Industrial University of Tyumen», Tyumen, Russia.

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#### Abstract

The purpose of the article is to study the influence of the Vuca-world on the professional training of students and their competitiveness. The study presents an analysis of adaptations of an agile approach that meets the requirements of Vuca, a test of the formation of the level of competitiveness of students of a higher education institution according to the selected criteria. The study found that the training of students in the Vuca-world is becoming more technological, aimed at the formation of independent and creative specialists who can solve problems in interaction. The level of students' competitiveness in the new environment is getting higher.

**Key Words:** Vuca world, agile approach, professional training, uncertainty, electronic technologies.

## Resumen

El propósito del artículo es estudiar la influencia del mundo Vuca en la formación profesional de los estudiantes y su competitividad. El estudio presenta un análisis de adaptaciones de un enfoque ágil que cumple con los requisitos de Vuca, una prueba de la formación del nivel de competitividad de los estudiantes de una institución de educación superior según los criterios seleccionados. El estudio encontró que la formación de los estudiantes en el mundo Vuca se está volviendo más tecnológica, dirigida a la formación de especialistas independientes y creativos que puedan resolver problemas en la interacción. El nivel de competitividad de los estudiantes en el nuevo entorno es cada vez mayor.

**Palabras clave:** mundo Vuca, enfoque ágil, formación profesional, incertidumbre, tecnologías electrónicas.

## 1. Introduction

Describing the modern world, experts use the term Vuca, which implies life activity in conditions of variability and complete uncertainty. Vuca-world makes lifelong learning and continuous professional self-improvement a global trend.

The relevance of training a modern specialist who can quickly adapt to constantly changing conditions is increasing (Yarygin et al., 2019b).

The formation of a learner's competence should be built by the basic concepts that characterize the Vuca world: instability, uncertainty, complexity and ambiguity (Dobudko et al., 2019). The student's ability to quickly and creatively solve professional problems in these conditions determines his demand in the labor market.

In the context of the third industrial revolution, the traditional approach to vocational training of students is losing its relevance. The Vuca world emerged in opposition to the SPOD world (stable, predictable, simple and definite) (Yarygin et al., 2019a). A sharp leap in the development of electronic technologies and the expansion of the information field forces modern vocational education to introduce appropriate changes to improve the quality of education, bringing it by the requirements of the state to a competent specialist who can compete in the global labor market (Vaganova et al., 2019).

The organization of the educational process is acquiring new features. The role of students' independence, forecasting skill, risk vision and the ability to use technical means in their work, to act in conditions of uncertainty is growing.

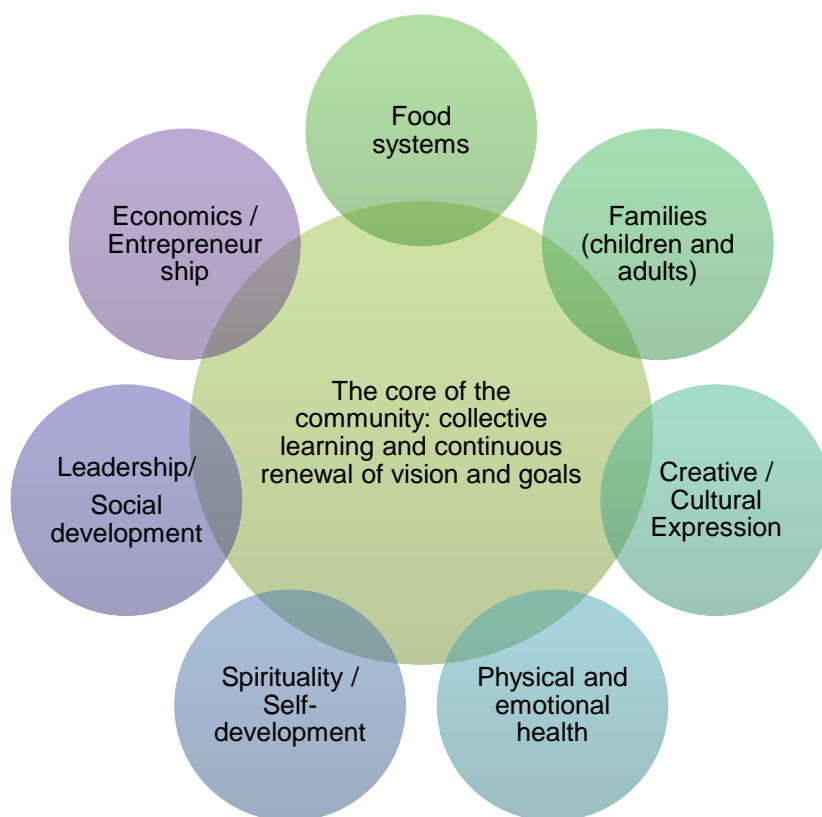
In shaping student competitiveness, higher education institutions should rely on megatrends that shape the future of education (Pinkovetskaia et al., 2020). It is worth mentioning digitalization and automation (the modern era can be considered a new

industrial revolution), demographic changes (declining birth rates, diversity of cultural needs, and others).

In the Vuca world, the agile approach, which was originally used in the business industry and has shown its effectiveness in startups and small companies, is becoming increasingly important in training a competitive specialist. The transfer of the approach to the sphere of vocational education will ensure the training of a specialist who can navigate in modern professional conditions (Ponachugin & Lapygin, 2019).

The approach describes a system of principles and values that allow for flexible teamwork (Shashlo et al., 2018). The agile approach allows you to visualize progress for all project participants and record changes that are taking place, plan work on a common task with time intervals with a fixed duration.

This approach also reflects the modern vision of scholars of education development specialists. For the formation of competent, in-demand specialists, it is already necessary to take into account the components on which the formed educational communities are based.



**Fig. 1.** Components of Emerging Learning Communities (Global Partnership for Education Leaders in Moscow) (Luksha, 2018)

Developing educational communities make it possible to implement the format of collective education of different ages and joint creativity, which supports the exchange of knowledge in different areas of human life throughout life.

With the emerging changes in society, there is a need to study the influence of the Vuca-world on the professional training of students, the formation of their competitiveness.

## 2. Theoretical framework

The Vuca-world is characterized by signs that reflect the activities of the society in innovative conditions: high speed of new information emergence and obsolescence of existing information (also, these are large amounts of data), content can become outdated in 2-3 years and faster; active development of information technologies and communication systems, development of end-to-end technologies; the emergence of new demanded and highly paid professions, the withering away of old ones or their transition to an automated mode (Kiseleva et al., 2019).

A competitive specialist in the modern world has the following skills: mental flexibility (the ability to respond appropriately to a situation that has arisen and take adequate measures) (Shcherbakova & Shcherbakova, 2019); the ability to quickly analyze situations and tasks; creative thinking; interpersonal sensitivity (the ability to find a common language with different people); susceptibility to new things (Misakov et al., 2019). A competitive specialist in the Vuca world can select several options for solving problems and not panic in difficult situations, soberly react to the circumstances that have arisen.

Many scientists, revealing the peculiarities of life and learning in the Vuca world, highlight the agile approach, which allows you to build effective work face to face.

This approach came from the IT industry and has spread to many areas, including education (Pichugina & Bondarchuk, 2019). Building project activities of students based on this approach allows you to distribute the responsibilities of the participants evenly.

Agile means easy and quick change. A large project can be divided into several small ones and thus the highest priority ones can be highlighted. So the team will know for sure which of the tasks is most important for the progress of the entire project. Since this approach came from the IT sphere, the project divided into parts (small subtasks) are called user stories, and the time interval for which the subtask is completed is called a sprint.

The table presents the values of the agile approach in software development and the adapted values for professional education (Manokin et al., 2018).

**Table 1.**  
*Adapted values of the agile- approach (M.A. Manokin)*

<b>Agile values in software development</b>	<b>Adapted values in education</b>
The value of people and their interactions is higher than the value of processes and tools	The value of the subjects of the educational process and their interaction is higher than the administration and infrastructure
Work product value is higher than complex documentation	The value of employment and competitiveness is higher than a rigid program and grades
Customer interaction value is higher than the contractual relationship	The value of competencies and interaction is higher than complaints and competition
The value of reacting to change is greater than following a precise plan.	The value of thinking, the ability for continuous self-improvement, reaction to changes, increasing the flexibility of the learning process is higher than the ability to perform routine work and follow a plan

Agile values in education are primarily aimed at organizing collaboration and creative joint achievement of goals (Shcherbakova et al., 2019). The table shows that the significance of the still prevailing convergent conditions, in which processes are more important than human ideas, is decreasing. Processes must be automated, while the human task is to discover new ideas and expand opportunities. The approach puts the competitiveness and employment of the graduate higher than his marks throughout the training.

Vocational education should be based on data on the emergence of new demanded spheres of activity, including the creative economy, cyber economy, the environmental sphere, human-centered services, and a new technological sector (Kidina, 2020). Orientation towards new professions is one of the main features of the Vuca world (Kharytonov et al., 2019).

As L.V. Shper, in the new educational process, it is important to observe the following principles: implementation of work in a system of interrelated processes; the presence of variations; awareness of variations and their reduction - allows you to make processes more operational and efficient (Shper, 2019).

### 3. Methodology

The study is aimed at checking the formation of the level of competitiveness of students of a higher educational institution. The training of the students took place taking into account the agile approach. The test of competitiveness was carried out according to several criteria that reflect the student's ability to carry out professional activities in the

Vuca-world (the ability to make responsible decisions, the ability to quickly master new material, high efficiency, creativity, sociability, the desire for constant self-improvement, focus on achieving high-quality results).

The table shows the criteria for the competitiveness of an individual.

**Table 2.**  
*Student competitiveness criteria.*

Competitiveness		
No.	Component	Characteristic
1	Ability to make responsible decisions	The student is responsible for completing assignments, is responsible for his role and functions in the project, works for a team result
2	Ability to quickly master new material	The student quickly memorizes new material and applies it in practice, easily identifies the key idea and relevant information, subjects it to structuring
3	High efficiency	The student completes the work on time, showing the success of meeting the requirements for a specific type of activity
4	Creativity	The student solves issues in various ways, resorts to non-standard solutions to achieve goals
5	Sociability	The student easily interacts with other participants in the educational process, overcomes conflicts to achieve common goals
6	Striving for constant self-improvement	The student realizes the importance of professional development for the implementation of professional activities at a high level, also, he realizes the essence of the concept of lifelong learning
7	Commitment to achieving quality results	The student strives to achieve high-quality results and chooses the appropriate ways to achieve them, build their activities and the activities of the team, each of the students controls the process
8	Use of electronic technologies in their activities	The student uses in the learning process technical capabilities that promote active interaction, the most rapid achievement of the set goals

The results were categorized by level: high, medium, low.

#### 4. Results and discussion

The preparation of a student in the Vuca-world is based on the idea of completing assignments independently with the consulting role of a teacher.



In the classroom, the teacher initiates a discussion of issues, meets with them at consultations and communicates remotely using electronic technologies.

Students carry out projects in groups. The process, as mentioned above, is based on an agile approach. Students in the process of completing the assignment change roles. Part of the team completes the task, another part of it observes and suggests ways to solve the problem, corrects errors, and controls the process. Then they change places. The basis of the students' work is collaboration - joint independent fulfillment of tasks. At the same time, the work of students is constantly monitored. The student's knowledge is assessed through direct feedback, monitoring and feedback. Direct feedback allows you to identify the initial knowledge of students. Current control allows you to timely adjust the learning process. Feedback makes it possible to analyze the results.

Competitiveness is determined by the student's ability to make prompt and creative decisions to achieve professional goals. Therefore, according to Vuca, in the process of preparation at the university, students develop the ability to see (vision of the long-term direction of movement and development of the project, the ability to see the result at the beginning of work); understanding (in various companies there is risk management, which allows you to systematize data and analyze factors that may have an impact on the business, already at the preparation stage, tools are used to form students' understanding of how to achieve their goals in a short time in existing conditions); clarity (the formation of systematic thinking to overcome complexity, the development of critical and creative thinking. In a difficult situation, the student identifies the essence of risk and simplifies it); speed (allows you to overcome the ambiguity of tasks and quickly respond to the task by choosing an alternative scenario).

One of the most relevant options for organizing student activities in modern conditions is an electronic educational platform. Currently, she is used both in face-to-face classes and in remote conditions.

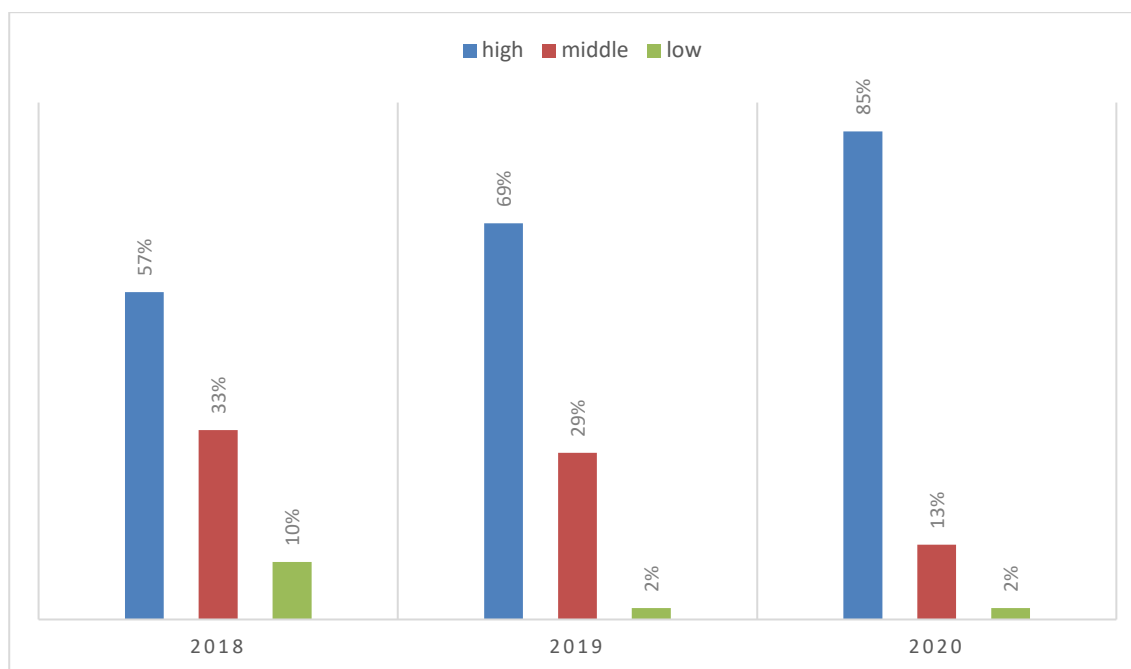
The technical capabilities and agile approach used to allow students to independently complete assignments, develop appropriate solutions in the interests of the working group.

Table 3 shows the characteristics of each level of training.

**Table 3.**  
*Student competitiveness levels.*

<b>Competitiveness</b>	
<b>Level</b>	<b>Characteristic</b>
High	<p>The student is responsible for completing assignments, responsible for their role and their functions in the project.</p> <p>The student quickly memorizes new material and applies it in practice, structures information. The student completes the work on time, showing the success of meeting the requirements for a specific type of activity. The student effectively uses technical capabilities in the learning process. The student strives to achieve quality results. The student realizes the importance of professional development for the implementation of professional activities at a high level. The student completes the work on time. The student easily interacts with other participants in the educational process. The student solves questions in a variety of ways.</p>
Middle	<p>The student approaches the assignments responsibly. The student tries to memorize new material and applies it in practice. The student completes the work on time. The student uses technical capabilities in the learning process. The student strives to achieve quality results. The student realizes the importance of professional development. The student completes the work on time. The student tries to effectively interact with other project participants and find solutions in difficult situations.</p>
Low	<p>The student does not seek to participate in projects and takes responsibility for his role in them.</p> <p>The student memorizes new material, but does not apply it in practice. The student does not complete the work on time. The student uses technical capabilities in the learning process. The student is not focused on achieving quality results. The student does not understand the importance of professional development. The student does not fit into the deadline for completing the work. The student interacts with other participants in the educational process. The student does not show interest in solving problems in different ways.</p>

During the learning process, students took part in projects of various levels. The figure shows the results of the formation of the competitiveness of students of a higher educational institution in the framework of the Vuca-environment.



**Fig. 2.** The level of formation of the competitiveness of students of a higher educational institution

There is a high level of responsibility. Students get creative with projects and complete them in a limited time. Show the ability to independently and promptly solve emerging problems.

The number of students capable of adapting to the modern professional Vuca world is growing every year.

## 5. Conclusions

Vuca-world has a significant impact on the training of a modern specialist, the restructuring of teaching methods. The formation of competitiveness is based on ideas related to the ability to navigate in rapidly changing conditions and take on various roles, both as a performer and as a leader, therefore, in the formation of a competent specialist, modern techniques are used that allow students to independently and creatively complete tasks. Higher education institutions are introducing more and more electronic tools in the educational process, which allow students to interact more actively, while receiving timely advice from the teacher.

The conducted research shows an increase in the competitiveness of students over the past three years. Formation of competitiveness in the new environment with the inclusion of an agile approach is achieved at the fastest pace.

The development of the Vuca-world necessitates further monitoring of the educational process and its improvement by modern requirements.

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## **Free education as the main idea in the preparation of a competitive graduate**

### **La educación gratuita como idea principal en la preparación de un graduado competitivo**

**Marina N. Bulaeva**

bulaevamarina@mail.ru

<https://orcid.org/0000-0002-9928-9451>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Olga I. Vaganova**

vaganova\_o@rambler.ru

<https://orcid.org/0000-0001-8347-484X>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Tatiana V. Krylova**

perova\_tatyana83@mail.ru

<https://orcid.org/0000-0001-9328-9066>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Zhanna V. Smirnova**

z.v.smirnova@mininuniver.ru

<https://orcid.org/0000-0001-9950-9824>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Lyubov I. Kutepova**

lubovkutepova@mail.ru

<https://orcid.org/0000-0002-3175-4978>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

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#### **Abstract**

The purpose of the article is to analyze the experience of training students in the framework of implementation the idea of free education. The study participants were students of higher educational institutions of the age group from 17 to 24 years. Throughout the study, the subjects were under the supervision of experts who recorded the features of students ' choice and the main aspects of their behavior. The study showed that students are active participants of educational process they highly appreciate the importance of free education and are ready to use its elements in teaching. The idea of implementing free education is a promising direction in the training of highly qualified specialists.

**Key Words:** free education, competencies, competitiveness, professional education, professional competence.

## Resumen

El propósito del artículo es analizar la experiencia de formar estudiantes en el marco de la implementación de la idea de educación gratuita. Los participantes del estudio fueron estudiantes de instituciones de educación superior del grupo de edad de 17 a 24 años. A lo largo del estudio, los sujetos estuvieron bajo la supervisión de expertos que registraron las características de la elección de los estudiantes y los principales aspectos de su comportamiento. El estudio mostró que los estudiantes son participantes activos del proceso educativo, aprecian mucho la importancia de la educación gratuita y están listos para usar sus elementos en la enseñanza. La idea de implementar la educación gratuita es una dirección prometedora en la formación de especialistas altamente calificados.

**Palabras clave:** educación gratuita, competencias, competitividad, formación profesional, competencia profesional.

## 1. Introduction

Paying attention to the trends of modern vocational education, higher educational institutions are looking for new ways to train specialists that will ensure their competitiveness and demand in the labor market. Today, global transformations are taking place in Russian vocational education.

One of the main ideas of modern vocational education is freedom of educational process.

Recently, the dominant idea was the existence of a system of peculiar sequential steps, courses that a student takes, adhering to the established program. It is difficult to overestimate the advantages of this system, since the designer of educational program clearly represents what a student should know and be able to do. In the conditions of the planned distribution (job providing) of higher educational institutions graduates with jobs, which was typical of the Soviet educational space, this system allowed achieving high results. The requests of labor rank were fully satisfied, since higher educational institutions knew the requests for specialists, for their specific number and profile. It was quite easy to predict who they would work with, in a few years' time and for what enterprises.

It should be noted that the dynamics of innovative technologies development was much slower than today, so the implementation of the main professional educational program without changes could take place for a long time and quite effectively.

This model remains relevant and effective in certain areas of training to date, but due to the changing demands of society, there is a need for its transformation. Technical progress is gaining high rates, technologies are developing.

For a modern person, a frequent change of work place is spread. In these conditions, it becomes impossible to prepare a specialist for a certain field of activity where he will be employed for many years.

People change not only their work place, but also their profession (Shashlo et al., 2018). There is a need to prepare both for a specific type of activity, and to form the student's ability for professional self-improvement and rapid adaptation to a new professional activity (Smirnova et al., 2020).

Ensuring educational process freedom becomes a significant factor in development of future graduates competitiveness. The concept of freedom includes many elements (Kiseleva et al., 2019). This should include individualization, informatization, technologization, continuity, and other factors.

The student is placed in the position of educational process participant who actively and creatively solves educational problems, is included in various projects, competitions of professional skills (Tezer et al., 2019). The educational process is based on the terms of partnership (Vaganova et al., 2019). The teacher becomes a consultant of the learning process (Tsarapkina et al., 2021).

Modern training strives to ensure that the student has the opportunity to freely and independently choose the courses that he needs (Aniskin et al., 2020).

The idea of lifelong learning which was established several years ago in Russian education, allows us to complement and form the missing competencies in this way (Dobudko et al., 2019). The concept of designing a personal educational route becomes significant.

For the further formation of competitive specialists in modern conditions, who are ready to quickly navigate in rapidly changing conditions, monitoring of educational process is required.

## **2. Theoretical framework**

Today, free education formats are being developed that implement the idea of liberal arts and sciences that contribute to the development of meaningful interaction between the student and educational program developers (Vaganova et al., 2020). Along with the idea of free education, the idea of introducing a free curriculum is developing. It exists in pilot projects of several professional educational institutions (Kharytonov et al., 2019). Their task is to provide students with a certain amount of freedom, having previously structured



the process to prevent possible disorientation of students when they build an individual learning route (Pichugina & Bondarchuk, 2019).

The task of free training is to give a lot of soft skills, to provide understanding of one or more disciplinary areas so that a graduate can work in a free market where there are no strict training requirements or go further to study (master's, postgraduate studies) (Mazanyuk et al., 2020).

The tasks of implementing free education include:

- preparation for a comfortable life in the information society (Demidov et al., 2020);
- improving the quality and effectiveness of the educational process at all levels of the education system.

Today there are projects in Russia that are aimed at free education development, including school education. It is worth mentioning the project "School 800", which implies a step-by-step individualization of education, starting from the second stage (high school) (Kidina, 2020). The school will implement more than ten training areas. Students will be able to choose the most suitable among them (Yarygin et al., 2019). Such a system of early career guidance will allow retaining highly qualified specialists in the region (Pinkovetskaia et al., 2020).

The principles on which free learning is based in general and the individual educational route separately include: reliance on subjective experience (Shcherbakova & Shcherbakova, 2019); orientation to self-development and self-improvement (Vaganova et al., 2019); development of communication skills, critical thinking (Bulaeva, et al., 2018), (Nagovitsyn et al., 2020); individual pace of learning (Ivanova & Korostelev, 2019); individual format of information presentation (Nagovitsyn et al., 2020).

Free learning and individualization also involve visualization of information, process control and feedback.

### **3. Methodology**

The study was conducted in 2019-2020. The participants were students of higher educational institutions aged 17 to 24 years. Six groups of students were asked to develop their own learning trajectory without relying on the existing program and their chosen direction of study. They were asked to choose a different direction and profile and choose disciplines and courses for themselves, as well as the sequence of their study.

Throughout the study, the subjects were under the supervision of experts, who recorded peculiarities of the students' choice and the main aspects of their behavior. They were asked to take part in several surveys. Students needed to agree with the statement or refute it. A certain number of points is provided for each answer. On a scale of 1 to 4,

students expressed their degree of agreement. 1 - strongly disagree, 2 - rather disagree, 3 - rather agree than disagree, 4 strongly agree.

#### 4. Results and discussion

As part of educational process in higher educational institutions, a study was conducted among students (from the first to the fourth year). Students were invited to participate in construction of their own individual educational route without reference to the existing program. The students were able to choose the necessary disciplines and additional courses, in their opinion.

Despite the fact that each student had the opportunity to individually and independently choose disciplines and courses, the observation showed that during the process of study many students preferred to unite. Joining groups made it easier for students to cope with the choice, since everyone was able to offer arguments in favor of a particular course.

To obtain the results of the study, a survey was conducted among the subjects on the topic of free education which included 35 statements. The article presents some of them: "I believe that free education is the key to a successful professional future of a modern specialist", "Free education expands the possibilities of my training", "I am able to independently choose necessary courses, this does not cause me difficulties", "I am completely ready for transition to free education", "I like the idea of free education", "I had difficulties with research process", "I believe that a complete transition to free education contributes to improving the quality of student training" , etc.

The task of the students was to agree or refute the statement on a scale from 1 to 4, where 1-does not agree with the statement, 4-completely agrees.

The results of the survey are presented in the table.

**Table 1.**

*Results of a survey of students on the implementation of free education.*

Statement	Answer
"I believe that free education is the key to a successful professional future modern specialist"	3
"Free education expands my training opportunities"	3
I believe that today it is necessary to introduce elements of free education	4
"I am able to independently choose the necessary courses, this does not cause me any difficulties"	1

"I am fully prepared for the transition to free education"	1
"I love the idea of free education"	3
"During the research I had difficulties"	4
"I believe that a complete transition to free education contributes to the improvement of the quality of student preparation"	3

The results showed that students are not ready for transition to free education. They face difficulties during the selection of courses and many doubt the accuracy of their choice. But they actively accept the elements of free education, which provide an opportunity for creativity and professional self-improvement under the guidance of a teacher. Students as active subjects of the educational process show the best results of training.

To determine the principles by which students chose certain programs, the following survey was conducted among the respondents, which included 25 variants of statements, the evaluation of which was carried out according to the previous scheme, in which 1 – disagree, 4 – completely agree.

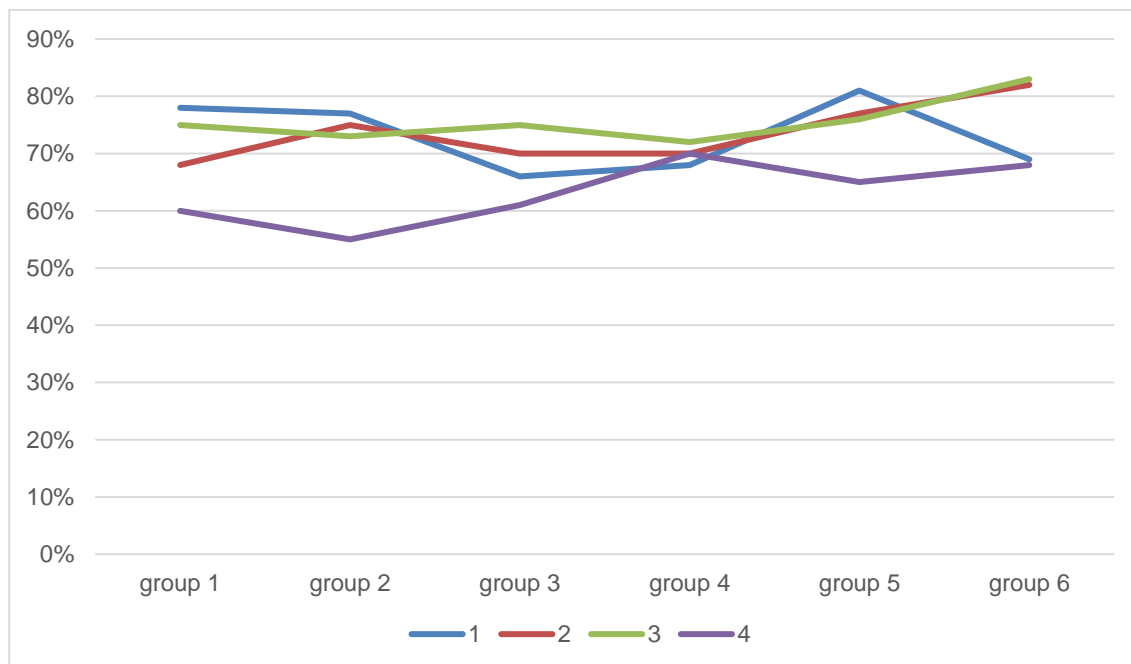
A fragment of the statements is presented in the table.

**Table 2.**

*Revealing the reasons for the selection of certain courses by students.*

Statement	Answer
"I didn't have a plan for the selection of courses."	4
"Choosing courses, I was based on my own interests"	3
"I chose those courses, the schedule of which I liked the most"	3
"I think these disciplines are the easiest to learn."	3
"I have an idea about this professional area, it was not difficult for me to find the necessary courses"	4
"I am equally interested in discipline and technical and humanitarian cycle"	4
"I consider the disciplines of both technical and humanitarian cycle equally important for my education"	4
"I choose the disciplines and courses that I know best"	3

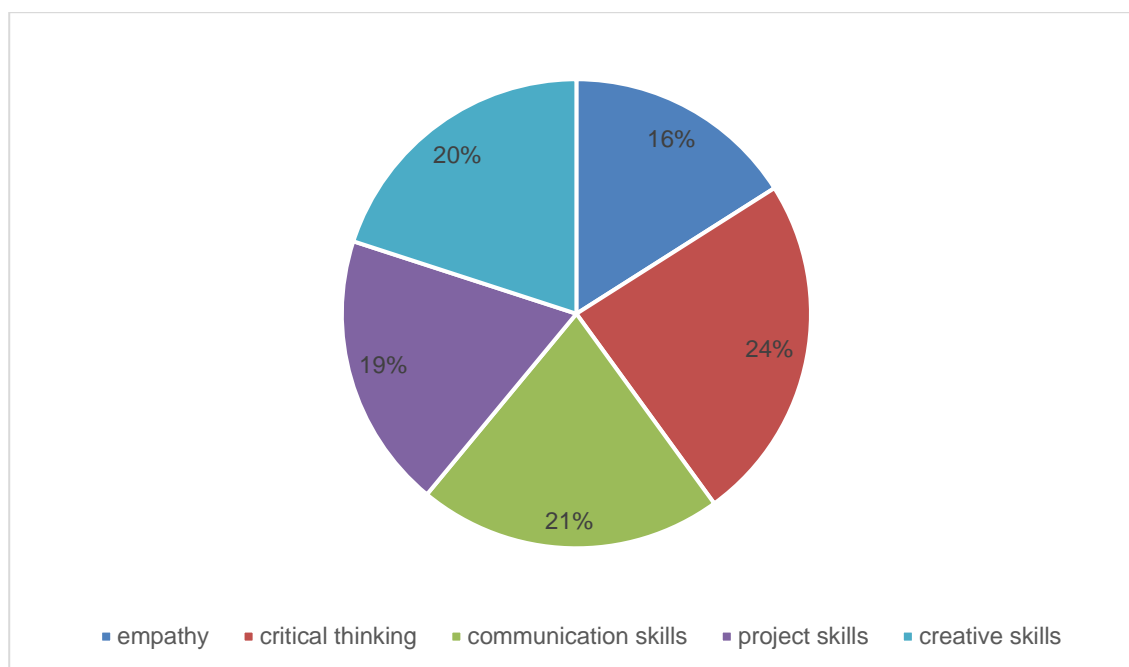
According to the results of the survey, several groups of reasons for choosing were identified: 1-personal interest; 2 - a clear idea of professional activity; 3 - importance for the student of technical and humanitarian areas - (everything should be in balance), 4-avoidance of complex subjects – the student does not want to study any sciences (depending on his inclinations and predispositions). These groups were formed based on the results of the most common responses.



**Fig. 1.** Choice distribution of specific courses and disciplines by students.

Junior students most often rely on their own interests. The older the course, the more formed the ideas about professional activity are and the grounds for selecting a course change. In most cases, students still do not have a clear action plan for selecting a course and are mostly guided by their interests and assumptions. Although several groups were identified that thoroughly approached the choice of courses and disciplines and are ready to study them independently.

In the course of the study, the students noted exactly what skills they were able to improve in the process of participating in the study.



**Fig. 2.** Improving skills in the process of implementing free learning.

Soft skills that the students noted are an important component of modern training, important to develop a competent specialist. Students identified the ability to communicate, project skills, empathy, critical thinking, and a creative approach among the main ones.

We can say that the idea of free education can be successfully implemented in the future. Most students are ready for a gradual and systematic transition to free education. Currently available educational tools provide ample opportunities for individualization of the educational process and creative professional self-realization of students.

## 5. Conclusions

Ensuring the individualization of the educational process and the freedom of the student become an integral part of the training of highly qualified specialists who are ready to carry out professional activities at a high level and creative adaptation to rapidly changing conditions.

The number of projects implemented by educational institutions aimed at ensuring the freedom of educational choice is increasing.

The study showed that students are active participants of educational process. They highly appreciate the importance of free education and are ready to use its elements in teaching.

A modern student not only has the competencies necessary for implementation of a specific professional activity, but also the ability to constantly improve professionally. Modern students form a systematic vision of their learning, the competent construction of an educational route.

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## Gamification in modern education

### Gamificación en la educación moderna

**Julia M. Tsarapkina**

julia\_carapkina@mail.ru

<https://orcid.org/0000-0002-3807-4211>

Russian State Agrarian University - Moscow Timiryazev Agricultural Academy, Moscow, Russia.

**Olga I. Vaganova**

vaganova\_o@rambler.ru

<https://orcid.org/0000-0001-8347-484X>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia

**Anna V. Lapshova**

any19.10@mail.ru

<https://orcid.org/0000-0001-7017-3589>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia

**Margarita I. Koldina**

ritius@mail.ru

<https://orcid.org/0000-0002-3368-7297>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia

**Ivan A. Sedov**

ivansedof@yandex.ru

<https://orcid.org/0000-0003-3904-7562>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia

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### Abstract

Purpose of the article is analysis of the experience of gamification in modern professional education. The article presents an analysis of the project activities of senior students of higher educational institutions against the background of gamification of the educational process. The study made it possible to determine the role of gamification in modern vocational education. Gamification acts as a means of promoting deeper involvement of students in the educational process, their achievement of higher indicators and results. Its development in modern education expands the opportunities for training students.

**Key Words:** gamification, educational process, higher educational institution, competencies, gaming technologies.



## Resumen

El objeto del artículo es el análisis de la experiencia de la gamificación en la educación profesional moderna. El artículo presenta un análisis de las actividades del proyecto de estudiantes de último año de instituciones de educación superior en el contexto de la gamificación del proceso educativo. El estudio permitió determinar el papel de la gamificación en la educación profesional moderna. La gamificación actúa como un medio para promover una mayor implicación de los estudiantes en el proceso educativo, su consecución de mejores indicadores y resultados. Su desarrollo en la educación moderna amplía las oportunidades de formación de los estudiantes.

**Palabras clave:** gamificación, proceso educativo, institución de educación superior, competencias, tecnologías de juego.

## 1. Introduction

The education system, responding to social changes and needs, includes innovative tools, which include the use of electronic educational platforms, applications for webinars and other educational purposes, and other tools for improving the educational process.

The modern labor market requires specialists capable of creative and prompt solution to professional tasks. To do this, educational institutions use tools that allow them to bring the educational process as close as possible to real professional conditions (Tsarapkina et al., 2021).

Gamification acts as a tool in the modern educational process, contributing to a deeper involvement of students in the educational process, achieving higher indicators and results. Gamification is considered both as the implementation of game technologies and as separate electronic tools that activate the learning process.

The concept of gamification is associated with a computer game intended for entertainment purposes, but today it is an integral part of the educational process (Rudenko et al., 2021). The tutorial game features gameplay that allows the player to interact with the game. That is, it is a control panel (Vaganova et al., 2019). In professional education, the role of gameplay is played by the tools provided by the electronic platform and applications. Students can interact remotely by developing a project at any stage (Shashlo et al., 2018). Students can send files to each other, edit documents, communicate via video conferences, and receive timely teacher advice (Yarygin et al., 2019).

Gamification allows you to make the training of students more effective (Ponachugin & Lapygin, 2019). The introduction of the gamification process will allow students to form an experience of solving professional problems in the learning process, to form the skill

of interaction in a competitive environment, the skill of working in a team, systematic thinking and the necessary competencies for professional activity (Aniskin et al., 2020).

Studying the possibilities of gamification and the experience of its implementation in education will improve the training of highly qualified specialists who can adapt to the implementation of professional activities in rapidly changing conditions, solve problems in a non-standard way, show independence and creativity (Pinkovetskaia et al., 2020).

## 2. Theoretical framework

Gamification is a game practice. This is a tool that challenges the student, forcing them to improve their skills and professional competencies. Each subsequent step in the game allows the student to better master the material and better navigate their professional activities (Vaganova et al., 2020). The essence of gamification is the use of game mechanics that arouse the student's interest (Shcherbakova & Shcherbakova, 2019).

In the work of V. V. Matonin, gamification is revealed as the process of using game methods in non-game environments, including in the environment of professional education (Matonin, 2017). The table shows the main aspects of gamification proposed by V. V. Matonin.

**Table 1.**

*The main aspects of gamification in the educational process.*

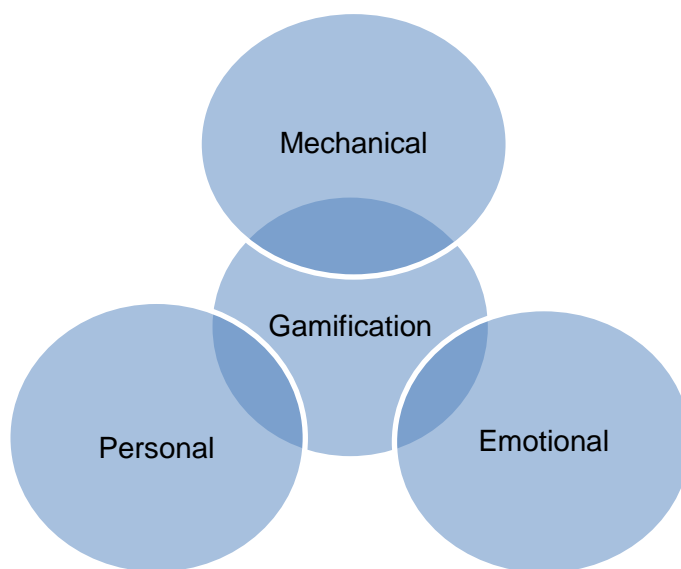
<b>Aspect</b>	<b>Characteristic</b>
Dynamic element	Use in the process of preparing students of various scenarios that require attention and concentration of students in real time
Game mechanics	Use of game-specific scenarios including awards, titles, bonuses and other game elements
Aesthetic element	Creation of emotional engagement through visual effect (for example, the simplicity and ease of use of the interface of an electronic tool for remote interaction)
Social element	Ensuring inter-user interaction to fulfill the established tasks

In the implementation of gamification in education, V.V. Matonin distinguishes cognitive, emotional and social components, the characteristics of which are presented in the table.

**Table 2.**  
*Components of gamification in the educational process.*

Component	Characteristic
Cognitive	Completing a task in the form of a so-called quest can be carried out in different ways, students can find several options for solving problems, with the help of which the student can independently determine the level of mastery of a particular material, whether he can solve problems in several ways
Emotional	Stimulating competitive behavior in the study of specific disciplines, activating the student's desire to achieve the highest results
Social	In the process of playing activity, the student has the opportunity to perform different roles and determine his ability to implement them

The main elements of gamification as a process were proposed in the work of A.S. Potapova. They are shown in the figure. A.S. Potapova combines the essence of gamification in three elements (Potapova, 2019).



**Fig. 1.** The main elements of gamification.

The mechanical element implies the student's mastering of the mechanism of the instrument, immersing him in educational activity, its goals and objectives. The personal element allows the student to be directly involved in an active learning process (Demidov et al., 2016a). Each of the students is aware of their importance in team activities, each of the students makes their important contribution to the result (Misakov et al., 2019). The emotional element means the need to create psychological comfort and a favorable emotional atmosphere in the process of completing tasks (Kidina, 2020). Students also immerse themselves in a state called "flow" - a state of complete concentration on the tasks at hand (Klimov et al., 2019). The teacher formulates goals, organizes clear feedback, allowing students to carry out work by requirements (Pichugina & Bondarchuk, 2019).

It should be noted that many authors emphasize the presence of awards, bonuses and points in the gamification process as mandatory elements (Demidov et al., 2016a).

Modern game and gaming technologies allow you to create certain conditions for the most effective achievement of the assigned tasks. Gamification allows simulating game reality (Bulaeva, et al., 2018). The student takes on different roles and acts based on the prevailing circumstances, thereby gaining experience in real professional activities (Kharytonov et al., 2019).

The step-by-step process of mastering the educational material in the process of completing tasks should be accompanied by the inclusion of the following components: mechanics (points, passing levels, rating (Demidov et al., 2016b) , implementation of constant feedback); an award confirming the status of the winner; measurement (the principle of evaluating results); behavior (increasing user loyalty, which allows you to make the process the most emotionally favorable and effective) (Ivanova & Korostelev, 2019) .

Gamification in the modern educational process contributes to the development of memory and attention, flexibility of thinking, critical thinking, and the formation of professional competencies (Braslavska & Rozhi, 2020).

G.A. Bannykh distinguishes several areas of gamification in his work. The table shows the main directions (Bannykh, 2017).

**Table 3.**  
*Directions of gamification.*

<b>Direction</b>	<b>Characteristic</b>
Play as a way to create innovation	In the process of playing activities, students create a project, the finished project of which can be introduced into the activities of any organization to increase its competitiveness
The game is a way of modeling professional situations and mastering practical skills	Simulation of professional activity allows students to quickly adapt to real professional conditions and apply existing experience to achieve the best results and adjust their activities
Play as a way to conduct a discussion	Organization of interaction between students in real time and in a distance format. Students learn to build a dialogue, give arguments, resolve conflicts

The number of directions presented is not exhaustive. The directions of gamification are expanding and there are more of them in educational activities.

### 3. Methodology

The article presents an analysis of the project activities of students of higher educational institutions (Russian State Agrarian University - Moscow Timiryazev Agricultural Academy, Minin Nizhny Novgorod State Pedagogical University) for 2019 and 2020. Promising projects of students that can be used in the activities of real organizations and companies are highlighted.

An analysis of the activities of three educational institutions revealed an increase in "viable" projects among students over the period 2019-2020.

A survey conducted among students of 3-4 courses allowed us to determine the role of gamification in project activities. The students were offered a list of questions concerning the positive and negative aspects of gamification. They had to agree with the statement or refute it by answering: yes; rather yes than no; rather no than yes; no. Each answer is assigned a corresponding score.

### 4. Results and discussion

In the training of students of higher educational institutions, innovative solutions are used to motivate students to professional self-improvement. The elements of gamification

provide ample opportunities for this. At various stages of training, universities use challenges, ranks, awards, and statuses (Dobudko et al., 2019).

As an element of gamification, we can consider a portfolio of achievements. Students receive points for participating in various activities: scientific, sports, social, and cultural (Nagovitsyn et al., 2020). Each of the students has the opportunity to control each of the areas of training in this way and fill in the gaps on time. The accumulated points motivate the student to study the material in more depth. The award is an increased student scholarship.

The training uses a kind of "leadership panel" where students see their achievements in the form of grades. The points are displayed in the section on the electronic platform.

The competitive game element encourages students to be more active, striving to achieve the best results.

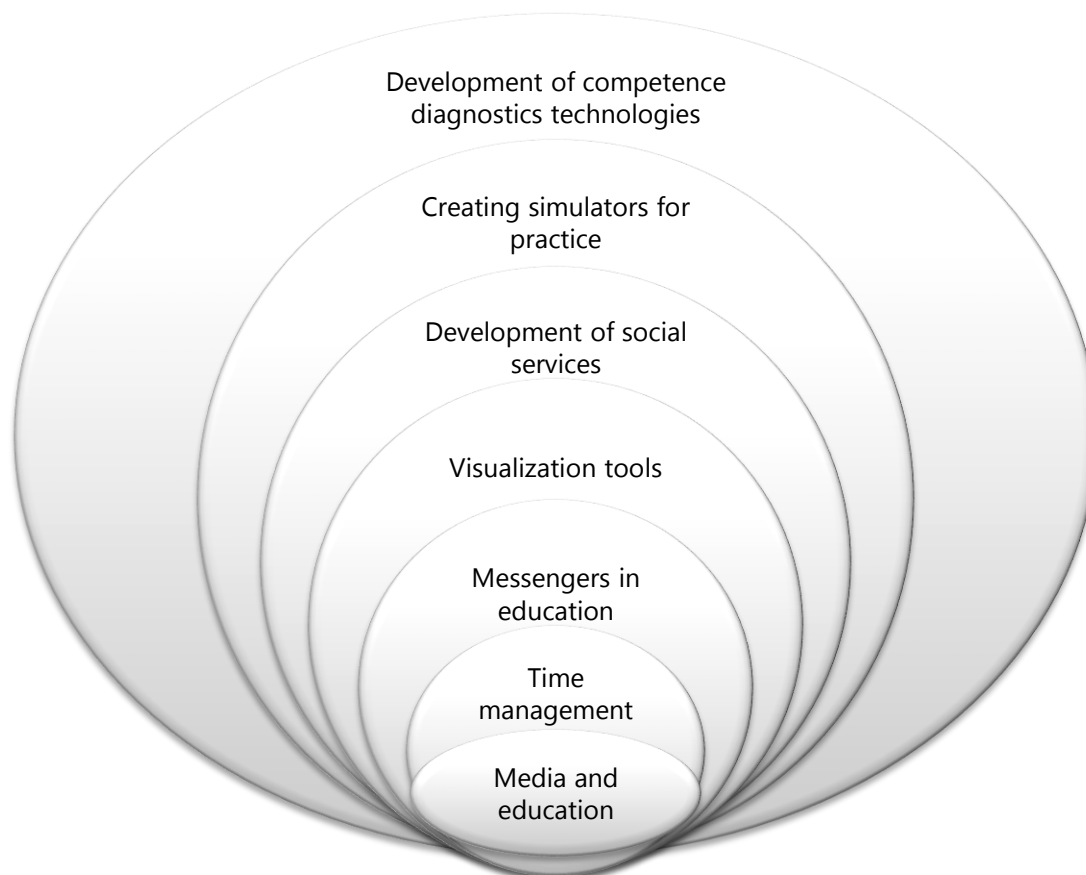
Modern gaming technologies involve the use of a significant number of electronic tools.

Students carry out projects, case studies, and conduct team research. Cloud storage is used, from where students can freely take files to complete tasks. Operational issues are resolved via Viber or WhatsApp. Conferences and consultations are held via Zoom. Electronic educational platforms, such as Moodle, are used to discuss the most ambitious topics and perform more extensive tasks. To visualize the materials obtained, the applications that are most convenient for the students themselves are used.

At the same time, gamification in the educational process of the university supports the process of self-improvement, the desire to overcome obstacles, achieve new goals, adapt to operational and effective team activities, and make decisions in conditions of time scarcity.

For remote execution of various tasks and projects, a Google document is often used, which can be edited by all team members who have access to it (Kiseleva et al., 2019).

For two years at universities (Russian State Agrarian University - Moscow Timiryazev Agricultural Academy, Minin Nizhny Novgorod State Pedagogical University) in the course of playing activities with the use of electronic tools, students prepared projects aimed at solving significant problems in various areas of society's life. The most significant ones are shown in the figure.



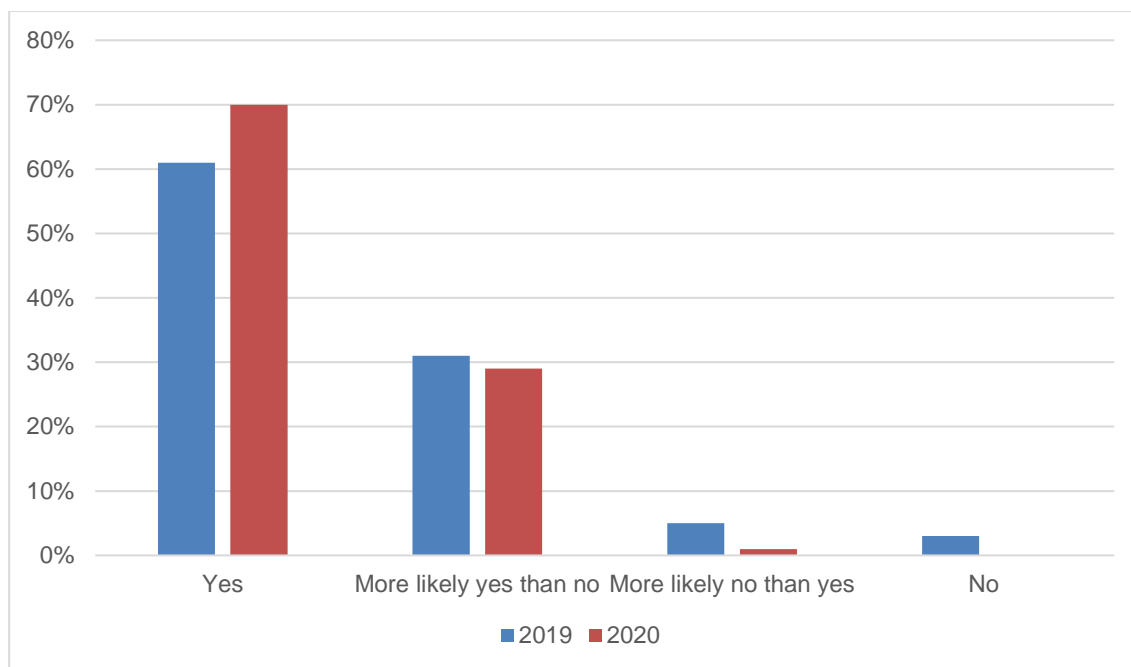
**Fig. 2.** Promising student projects developed using gamification tools for the period 2019-2020

It is also worth noting the growth in the number of projects carried out using electronic gamification tools. As the students themselves note, these tools allow them to interact most effectively, quickly solve problems and communicate with other subgroups. At the same time, each subgroup sees the results of its competitors and therefore tries to improve their results.

The process is controlled by a curator or teacher, so there is a "healthy" competition and a positive psychological climate.

Among the students of 3-4 courses (for the study, the respondents of the senior courses were selected as the most adapted to the educational process and implemented innovations) of higher educational institutions, a survey was conducted that allowed us to determine the role of gamification in project activities. The students were offered a list of questions concerning the positive and negative aspects of gamification. They had to agree with the statement or refute it by answering: yes; rather yes than no; rather no than yes; no. Among the questions were the following: "Do you think that the development of gamification has a positive impact on the educational process?"; "Are remote

technologies convenient to use in the implementation of projects and cases?"; " Is it possible to establish the process of game interaction in the subgroup using electronic technologies?"; "Is it possible to quickly establish the process of game interaction through electronic tools? "; Each answer is assigned a corresponding score. The results are shown in Figure 3.



**Fig. 3.** Results of the survey of senior students for two years.

Based on the data obtained, we can state that the majority of respondents noted the positive impact of gamification. Although students are not always able to quickly establish a remote interaction process for technical reasons.

In 2020, in the context of the need to maintain social distance and mass transition to distance learning, a high value of positive responses was revealed. The rapid response of educational institutions to the situation allowed us to change the conditions of training and continue to develop innovative processes. The gamification of modern education continues and improves.

## 5. Conclusions

Gamification in modern education is a multidimensional process that includes the use of various electronic tools, game technologies, implemented both in the classroom and in a remote format.

The conducted research allows us to detect the positive effect of the introduction and development of gamification in the educational process. There is an increase in projects



carried out by students with the help of gamification tools that make the educational process more active and involve each student in solving professional problems.

The development of gamification makes it possible to expand the possibilities of training students and to form the necessary competencies for the implementation of professional activities, to prepare specialists capable of creative and operational solution of professional tasks.

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## **Modeling the educational process on the example of training volleyball players**

### **Modelar el proceso educativo a partir del ejemplo de la formación de jugadores de voleibol**

**Maxim M. Kutepov**

kmm-asb@mail.ru

<https://orcid.org/0000-0002-5397-6168>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Vasiliy A. Razorenov**

rvasek82@mail.ru

<https://orcid.org/0000-0001-8455-3785>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Natalya E. Zhitnikova**

g-nat73@mail.ru

<https://orcid.org/0000-0001-8547-3699>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Elena V. Lukina**

lukina.ieliena@mail.ru

<https://orcid.org/0000-0003-1437-3337>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Ivan A. Sedov**

ivansedof@yandex.ru

<https://orcid.org/0000-0003-3904-7562>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

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#### **Abstract**

The purpose of the article is to analyze the experience of modeling the educational and training process for training volleyball players. Methodology: the research is carried out on the example of volleyball players' educational-training process formation. The article reveals the process of speed-strength readiness as an indicator characterizing the success of the performance of game teams. The research includes revealing the influence of students' physical abilities on the effectiveness of competitive activity: speed-strength, agility, endurance. Results: carrying out tests by Uchelli and Bosco allow determining the effectiveness of the model of the educational and training process implemented in training volleyball players.

**Key Words:** educational and training process, model, sports training, professional competence, physical culture.

## Resumen

El propósito del artículo es analizar la experiencia de modelar el proceso educativo y formativo para la formación de jugadores de voleibol. Metodología: la investigación se realiza sobre el ejemplo del proceso de formación educativo-formativo de los jugadores de voleibol. El artículo revela el proceso de preparación velocidad-fuerza como un indicador que caracteriza el éxito del desempeño de los equipos de juego. La investigación incluye revelar la influencia de las habilidades físicas de los estudiantes en la efectividad de la actividad competitiva: velocidad-fuerza, agilidad, resistencia. Resultados: la realización de pruebas de Uchelli y Bosco permiten determinar la efectividad del modelo del proceso educativo y formativo implementado en la formación de jugadores de voleibol.

**Palabras clave:** proceso educativo y formativo, modelo, formación deportiva, competencia profesional, cultura física.

## 1. Introduction

The organization of the educational and training process for future specialists in physical culture and sports is of particular importance since it is a means of forming professional competence, which, in turn, is one of the main goals of modern professional education. Modeling the educational and training process contributes to an increase in the effectiveness of sports training, which is primarily associated with a high level of motivation of students and their desire to improve sports achievements (Bogdanova & Fedorova, 2020).

The second group of models includes models of large structural formations, such as stages of preparation, their periods; models of training stages, cycles; models of training sessions; exercise models and their complexes (Shashlo et al., 2018).

With an increase in the duration of the competitive period, additional requirements appear for the organization of the educational and training process and the process of physical training of students (Yarygin et al., 2019). Among these requirements is the preservation of optimal physical shape (Ponachugin & Lapygin et al., 2019). The simulated educational and training process is aimed at solving the problems of the formation of professional competencies associated with an increase in the level of manifestation of motor abilities, the development and strengthening of functional systems of the body, prevention and reduction of injuries in volleyball players (Nagovitsyn et al., 2020).

Modeling allows developing the technical training of specialists in physical culture and sports. Students will be able to use the available arsenal of technical and tactical actions

and apply them in specific situations by the characteristics of the enemy's tactics (Demidov & Tretyakov, 2016a). Team tactics imply the solution of a set task by each player of the team, therefore the result depends on each player, their interaction in the game (Ivanova & Korostelev, 2019).

The educational and training process is based on the ideas of the development of physical, technical training, team tactics (Demidov & Tretyakov, 2016b). Following this, the modeling of the educational and training process includes three stages: the formation of physical readiness, technical readiness, the development of the group and team tactics (Smirnova et al., 2020). Methods for diagnosing strength abilities are divided into two groups: instruments and technical devices; exercise tests (Solomchenko, 2015).

Modeling of the educational and training process is based on the principles of maximization and in-depth specialized specialization of training loads.

The structure and content of training volleyball players are based on the construction of competitive physical activity since volleyball is a team sport and the game takes place in constantly changing conditions with a lack of time.

## **2. Theoretical framework**

Different types of models are involved in sports training, which can be combined into two groups (Aniskin et al., 2020). The first includes models of the structure of competitive activity and its characteristics, which are important for achieving the set goals (Vaganova et al., 2020).

The same group includes models that characterize the main aspects of a student's readiness, provide sports and competitive activities (Bulaeva, et al., 2018). The modeling takes into account two directly interconnected links: the age-related dynamics of the development of physical qualities and the degree of utilization of physical capabilities (Dobudko et al., 2019).

In the process of modeling, it is important to achieve the optimal balance of the level of development of physical qualities (Vaganova et al., 2019).

The educational and training process includes many aspects. Special attention is paid to technical and team tactics. For the correct construction of the educational process, it is necessary to adhere to the principle "from simple to complex".

The basic component of the technique of playing volleyball is standing and movement. These are the most productive elements in the movement process. The starting positions, in this case, depending on various factors. In the second gear, a high stance (Tsarapkina et al., 2021). If the ball is received from the serve, then the middle stance is used, with the power serve, the low stance is used. Movement includes running, walking, various types of movements (for example, side steps, backward steps).

When training volleyball players, it is important to teach them to combine movement methods for the best results.

Team tactical actions include: the second transfer of the front row player, the second transfer of the player leaving the backcourts into one of the attacking zones.

The technical training of basketball players is one of the most important components. The main task of the players is to imitate the game behavior model as accurately as possible (Tezer et al., 2019).

For an effective game, the physical development of athletes, timely diagnosis of errors and the appropriate selection of means for correcting movements are important.

The requirements for those engaged in the training process should gradually increase to maintain a high level of quality in the performance of the set game tasks.

### 3. Methodology

The study involved 66 students. Based on the results of preliminary tests, the participants were divided into groups. The research is aimed at checking the effectiveness of the proposed model of the educational and training process.

The table shows the age of the participants.

**Table 1.**  
*Characteristics of study participants.*

Group	Number of persons	Age	Height (cm)	Weight
KG - 1	22	19 to 22	185± 5	83 to 85
KG - 2	22	20 to 23	183± 3	82 to 86
EG	22	20 to 24	187± 4	84 to 85

Control groups are divided into junior and senior. Their training was carried out before the introduction of the model of the educational and training process. The results of the experimental group were recorded after applying the model.

CG - control group, EG - experimental group. In the process of modeling, the degree of detail of the models is determined, the duration of the model development time is set. The object of control is the student's organism. The developed model includes a three-stage training of volleyball players in the preparatory period. The content of training programs determines the volume of training loads. The research includes tests to identify the level

of influence of various physical abilities on the results of the competitive activity of volleyball players.

For the study, the previously collected results of volleyball players for 2018-2019 were used. On their basis, exercises and tests (Uchelli, Bosco test) were proposed and introduced into the model of the educational and training process. To determine the height of the jump, the difference between the best result and the mark obtained in the hand up position while standing on toes was calculated. The result was recorded in centimeters. The determination of the mechanical power of the jumps was performed using the Bosco test. The selected fifteen-second interval allows a high confidence factor to be demonstrated. The performed jumps were recorded visually, then the results were recorded by two testers for 15 seconds. The result obtained in watts was converted to the student's weight in kilograms.

The implementation of the training programs was carried out in groups distributed according to the initial strength training.

#### **4. Results and discussion**

The proposed model includes a target component, which is aimed at improving the training process, taking into account the new requirements for the training of volleyball players. The content-process component includes unidirectional training impact, block periodization, modern methods and means of training the most significant abilities: speed-power, speed, endurance, agility. The component includes the organization and management of the training process on the part of the teacher, recording the results of students and correcting training, conducting training sessions using exercises that develop students' physical abilities. The performance component reflects the improvement of volleyball players' results due to the improvement of the training process (Vaganova et al., 2019).

The training session includes the introductory part, the main part and the final part. The introductory part involves a warm-up session (Kidina, 2020). The main part takes into account the ratio of the time of performing exercises, the intensity of loads, and the rest time. The final part includes a static stretch. Conducting classes in the established mode allows students to adapt to the training process (Misakov et al., 2019). The individual state of the student's body is taken into account, and the training load is distributed evenly. During the lesson, the load is carried out in the same direction and the same methods and means are used (Kiseleva et al., 2019).

The study includes testing the influence of physical abilities on the effectiveness of competitive activities. Some of the most significant abilities are speed-power, speed, endurance, agility. Students show speed-power abilities when attacking blows, blocking or passing the ball in a jump (Kharytonov et al., 2019). Speed abilities and endurance allow you to effectively perform all the game actions throughout the game. Agility allows the volleyball player to control his body while performing the jump. Game endurance is a



combination of physical qualities and special endurance. Modeling of the training process is carried out based on taking into account the development of the necessary physical abilities and includes appropriate exercises (Pichugina & Bondarchuk, 2019). The developed model involves alternating exercises in a certain sequence. The training mode is set according to the content of the load components (Pinkovetskaia et al., 2020).

The study uses the Uccelli test, which allows you to determine the highest possible jump mark. Since jumping is an integral part of the game, the Uccelli test will allow you to improve them and improve your performance. Students performed three jumps; the best result was taken into account. To determine the height of the jump, the difference between the best result and the mark obtained in the hand-up position standing on the toes was calculated. The result was recorded in centimeters. The Bosco test is performed to determine the mechanical power of performing jumps. The actual conditions for performing jumps in competitive activities reflect the fifteen-second interval, so it was chosen for the study.

To test strength abilities, exercise machines and dynamometers are used as the most common tools (hand and wall). Exercises-tests (long jumps, pull-ups, leg press in the simulator, barbell press, wall dynamometry, height of setting blocks, and others).

A fragment of the training content is presented in the table.

**Table 2.**  
Content of training of students.

<b>An exercise</b>	<b>Amount</b>	<b>Approaches</b>
Reduction of hands in the simulator	40 minutes	5
Barbell bench press	7 repetitions	6
Leg press in the simulator	14 repetitions	4
Deadlift	13 repetitions	5

With the development of maximum strength without increasing muscle mass, the amount of weight varies in the range from 50-60 to 90-100% of the maximum strength level. The acceptable temp is 1.5-2.5 seconds for each repetition.

The weight of the weights is shown in Table 3.

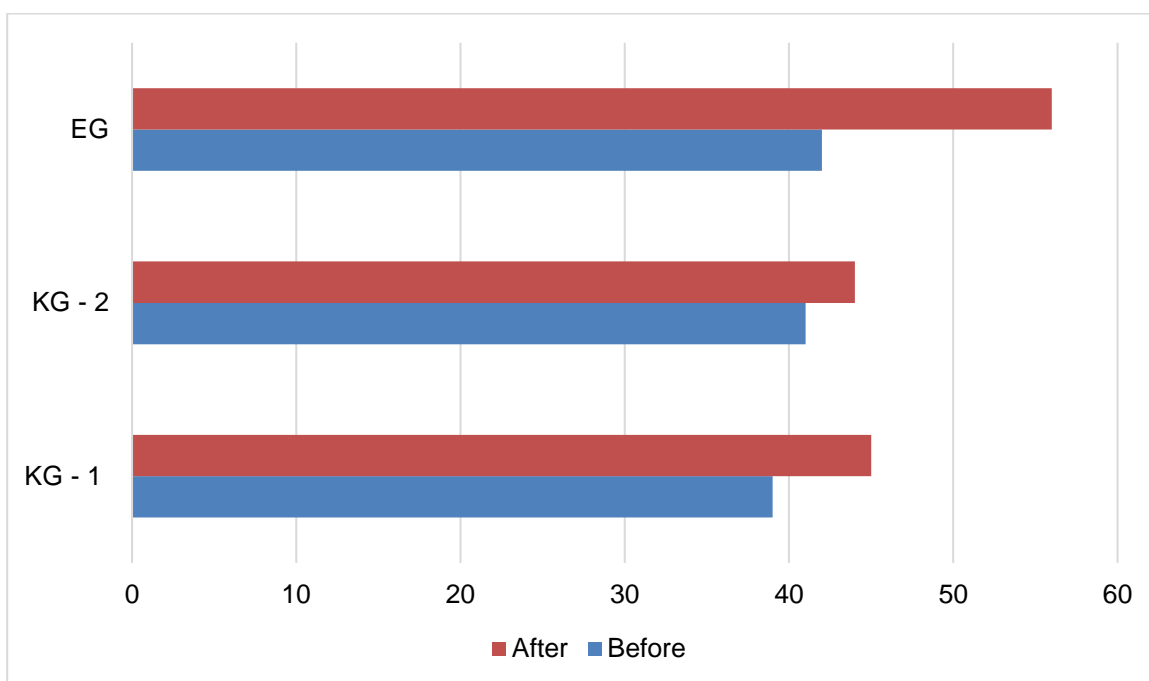
**Table 3.**  
Weight weights during exercise.

An exercise	Weight	Number of approaches	The number of repetitions in the approach
With dumbbells	Up to 5 kg	7-8	10-12 times
With belt	Up to 10 kg	7-8	10-12 times
With kettlebell	Up to 16 kg	3	10-12 times
Barbell		% of own weight	

When training the strength of volleyball players, the following methods are used: repeated efforts, conjugate, circular training.

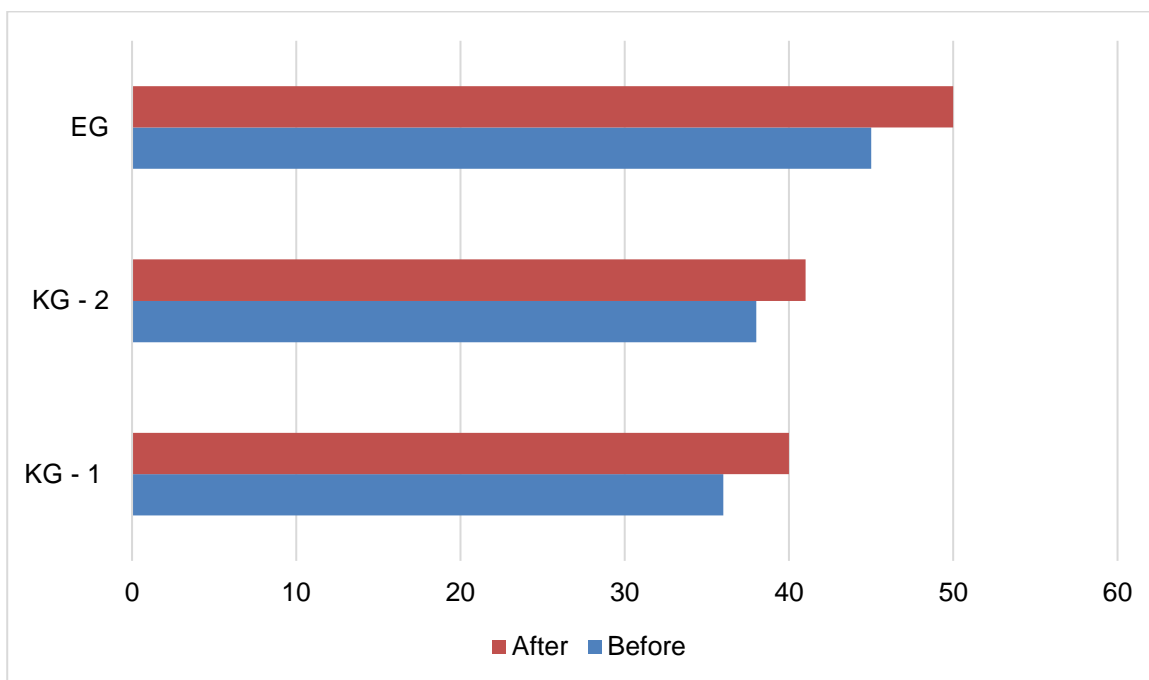
At the same time, the following methodological provisions are observed: observance of the continuity of tasks, means and methods at all stages of training; scientifically grounded distribution of the volume and intensity of the load, taking into account the individual characteristics of the student; gradual use of exercises.

Figure 1 shows the results of the control and experimental groups on the Uchelli test.



**Figure 1.** Results of the Uchelli test before and after model implementation.

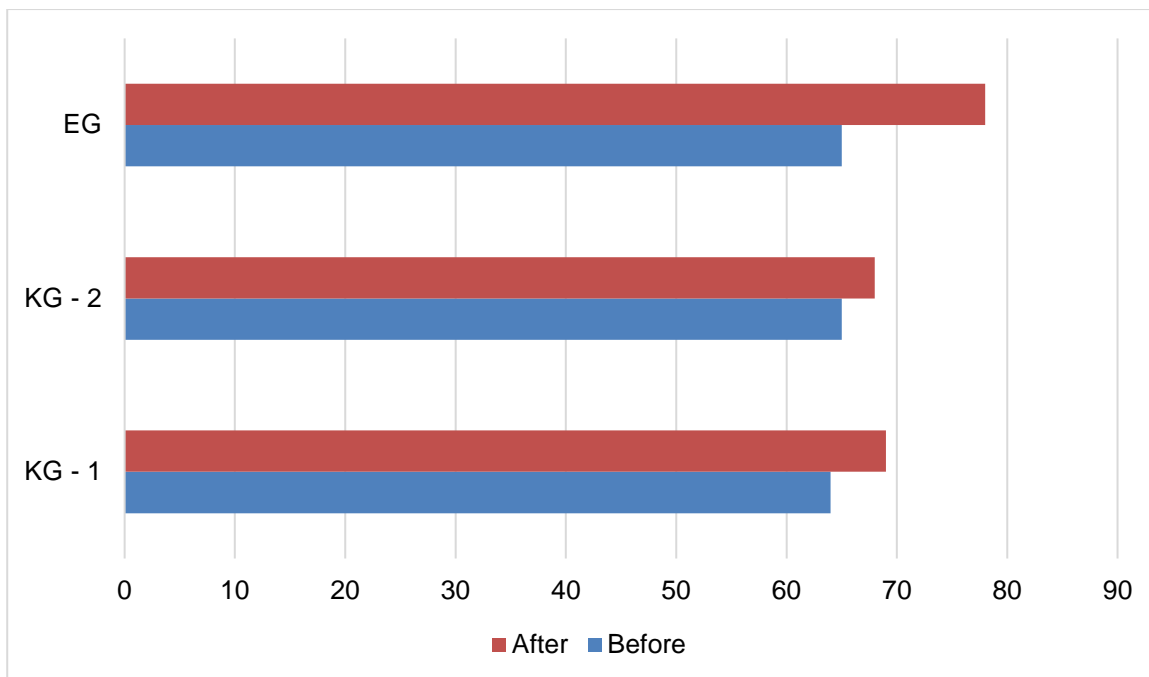
The increase in positive results in the experimental group exceeded the results of the control groups, which indicates the effectiveness of the used model. Figure 2 shows the results of the Bosco test.



**Figure 2.** Results of the Bosco test before and after model implementation.

Note that the model was implemented only in the experimental group. The improvement in the results of the control groups is insignificant and is not associated with the introduction of changes in the training process. After the implementation of the model, the students of the experimental group show higher results in performing the Bosco test compared to the control groups.

Figure 3 shows the upward jump measurement.



**Figure 3.** The results of measuring the jump.

Students' high jumps after the implementation of the model became much better. The model of the educational-training process made it possible to evenly distribute the load and gradually increase it. Due to this, students better adapt to the gameplay and increase their performance.

It should be noted that the game actions of students became clearer, according to the observations of teachers, the effectiveness of tactical and speed-strength readiness increased.

## 5. Conclusions

The paper presents a model of the educational and training process of volleyball players, which includes three components: target, content-procedural, effective. The model makes it possible to make the process of training volleyball players more systematic and progressive, taking into account the individual characteristics of students and the development of basic physical capabilities.

The developed model of the educational-training process contributed to more effective control of the complex mechanism of training volleyball players, allowed to make appropriate adjustments to the content of educational-training sessions. The study allowed to establish an increase in test results.

The results in the experimental group, where the model of the educational-training process was introduced, are significantly higher than in the control groups. Minor

improvements in results are not stable and are not associated with changes in the educational and training process. The implementation of the model made it possible to improve the performance of the Uchelli and Bosco tests, improve the results of the jump height.

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## Professional education in the digital transformation society

### La educación profesional en la sociedad de la transformación digital

**Olga I. Vaganova**

vaganova\_o@rambler.ru

<https://orcid.org/0000-0001-8347-484X>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Lyubov I. Kutepova**

lubovkutepova@mail.ru

<https://orcid.org/0000-0002-3175-4978>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Zhanna V. Smirnova**

z.v.smirnova@mininuniver.ru

<https://orcid.org/0000-0001-9950-9824>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Marina N. Bulaeva**

bulaevamarina@mail.ru

<https://orcid.org/0000-0002-9928-9451>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Evgeniy L. Bobylev**

arzjen@mail.ru

<https://orcid.org/0000-0003-4416-5707>

National Research Lobachevsky State University of Nizhny Novgorod, Arzamas branch, Russia.

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#### Abstract

Purpose of the article is analysis of the experience of training students in the context of digital transformation. The article presents the dynamics of the development of online schools at the global level, highlights the main goals of using electronic educational resources. The respondents were presented with the variety of answer options. The most common were selected and put into a separate diagram. Results says the development of online education is being carried out at a high rate both in Russia and at the global level. Digital transformation gives rise to the demand for the development of new professions directly related to electronic instruments. Based on the data obtained, first of all, there is a need for specialists who are ready for high-quality teaching of students in the online space. The variety of electronic educational resources expands the

opportunities for their training and focuses professional education on new reform processes.

**Key words:** digital transformation, vocational education, distance learning, online schools, electronic technologies.

## Resumen

El objeto del artículo es el análisis de la experiencia de formar estudiantes en el contexto de la transformación digital. El artículo presenta la dinámica del desarrollo de las escuelas en línea a nivel global, destaca los principales objetivos del uso de recursos educativos electrónicos. A los encuestados se les presentó una variedad de opciones de respuesta. Se seleccionaron los más comunes y se colocaron en un diagrama separado. Los resultados dicen que el desarrollo de la educación en línea se está llevando a cabo a un ritmo elevado tanto en Rusia como a nivel mundial. La transformación digital genera la demanda de desarrollo de nuevas profesiones directamente relacionadas con los instrumentos electrónicos. Con base en los datos obtenidos, en primer lugar, se necesitan especialistas que estén preparados para una enseñanza de alta calidad de los estudiantes en el espacio en línea. La variedad de recursos educativos electrónicos amplía las oportunidades para su formación y enfoca la educación profesional en nuevos procesos de reforma.

**Palabras clave:** transformación digital, educación vocacional, educación a distancia, escuelas en línea, tecnologías electrónicas.

## 1. Introduction

The digital transformation process encourages vocational education system to adapt to modern conditions. Continuous innovative development is an incentive for professional educational institutions to find effective, appropriate to the situation, ways to form competitive specialists, ways to prepare for professional activities that will be in demand in the long term.

The development of electronic technologies is actively supported by the state. From September 1, 2020 to December 31, 2022, an experiment is being conducted to introduce a target model of a digital educational environment, which makes it possible to implement educational programs using electronic educational technologies.

Today, normative documents are being actively developed that regulate in detail the activities associated with introduction of digital educational content.

As part of the implementation of the Decree of the President of the Russian Federation of May 7, 2018 No. 204 "On national goals and strategic objectives of the development of the Russian Federation for the period until 2024 and the Decree of 21.07.2020 No. 474" On the national development goals of the Russian Federation for the period until



2030 " the issue of ensuring accelerated introduction and implementation of digital technologies is being addressed.

The National Program "Digital Economy of the Russian Federation" is implementing several projects that focus on regulatory regulation of digital educational activities, personnel for the digital economy, information infrastructure and security, digital technologies and artificial intelligence.

Order of the Ministry of Education of Russia dated 11.08.2021 No. 543 "On approval of the criteria and procedure for the examination of digital educational content and educational services offered by providers of content and educational services within the digital educational environment" approves the procedure for testing various educational services.

Order of the Ministry of Education of Russia dated 11.08.2021 No. 545 "On approval of requirements for functional, technical characteristics and parameters of digital educational content units, for educational services" discloses in detail the regulations for the implementation and use of digital educational content (Smirnova et al., 2020).

Today, professional educational institutions use various digital tools in their activities (Shashlo et al., 2018). The training of students is accompanied by the inclusion of electronic platforms, online broadcasts via Zoom, Skype or Google Duo, VR glasses, simulation programs, document cameras and others.

It is necessary to note the features of the educational process that arose as a result of social changes (Kiseleva et al., 2019). The 2020 pandemic has exacerbated issues of distance learning, the use of electronic tools in order to maintain social distance and prevent threats to the life and health of citizens (Dobudko et al., 2019). The consequences of the decisions made in the crisis conditions were the development of online courses and schools. The distance educational process has become more developed.

There is a need for specialists who are able to organize a high-quality distance educational process. The training of modern specialists in the field of education is carried out by a professional education teacher. In modern conditions, he must have competencies related to the implementation of information technology for conducting classes in an online format and providing students with material in electronic form.

In these conditions, we are talking about the teacher of vocational training as a profession of the future, which is already in high demand today (Aniskin et al., 2020). Teaching students through the use of the Internet has a special specificity.

Today, it is required to monitor the development of the digital educational space in order to implement a prompt response of educational institutions to emerging changes.

## 2. Theoretical framework

The introduction of digital technologies in vocational education is carried out in order to intensify, improve the quality of the educational process, in order to fulfill a social order in the context of informatization, globalization and mass communication, in order to develop the student's personality and prepare him for a comfortable life (Mazanyuk et al., 2020).

Traditionally, vocational education implies a fusion of theoretical and practical training (Demidov et al., 2020). The issue of organizing practical classes for lawyers, designers, economists, builders and other students in a remote format is solved by the introduction of electronic simulators that provide imitation of professional activities.

The didactic possibilities of digital transformation include: the implementation of an interactive dialogue (Vaganova et al., 2020); visualization of educational material (Kharytonov et al., 2019); graphic interpretation of various patterns (Pichugina & Bondarchuk, 2019); informatization of educational activities management processes and control of results; simulation of real and virtual processes (Kidina, 2020). Electronic instruments act as tools that simulate the operation of laboratory stands and machines (Tsarapkina et al., 2021).

These are new opportunities that other learning tools do not have, opportunities for constant feedback.

Digital tools allow future designers to step into a room and see it from the inside. Virtual reality glasses allow them to build a project more carefully (Yarygin et al., 2019). It is easier for a teacher to give a technical task. Through the program, the student can increase or decrease the object (Vaganova et al., 2019). For future surveyors or geologists, it becomes possible to trace the growth or destruction of mountains, the disintegration of the core (Pinkovetskaia et al., 2020). Flight simulators are used to train pilots (Savka et al., 2020).

For teachers of both humanitarian and natural sciences, technical disciplines, such tools are not enough, since it is necessary to conduct laboratory, practical exercises (Samerhanova, 2019).

The pre-digital era characterized the student as a consumer. But now, when we use a variety of technologies, we are talking about training a creative specialist (Akvazba et al., 2019). All the necessary information is on the Internet. A person should be able to use tools to search for it, generate new knowledge, systematize, analyze the correctness of certain judgments about one event and draw his own conclusion, that is, think critically. Nowadays, when a large amount of information needs to be processed, critical thinking becomes very important (Ponachugin & Lapygin, 2019). And this is one of the main results of digital transformation in terms of the personal and professional development of the student (Shcherbakova & Shcherbakova, 2019).

As the trend towards the use of innovative technologies in education is becoming more and more popular, online schools are becoming more, then the demand for teachers of vocational training is increasing (Bulaeva, et al., 2018). Therefore, we can talk about the profession of a teacher of vocational training as a profession of the future, a profession, the transformation of which is closely related to digital transformation (Ivanova & Korostelev, 2019).

The vocational education teacher must have the skills to:

- communication in the digital environment (Klinkov, 2020);
- cooperation in the digital environment (Nagovitsyn et al., 2020);
- professional self-improvement in conditions of uncertainty;
- information data management (Vaganova et al., 2019).

It is necessary to note the condition of compliance with the safety of communications, which is disclosed in more detail in the table.

**Table 1.**  
*Contents of the safety conditions of communications.*

Communication security		
Communication is a specific connection between the subjects of the educational process, which is the interrelated stages of working with information.		
Information security - protection of the information system from outside interference (accidental or deliberate), which has a negative impact on the owners (s) or users of information.		
Safety principles		
Confidentiality	Availability	Integrity
The privacy policy applies to all personal information, such as last name, first name, patronymic, date of birth, photo, contact numbers, address, place of work and place of residence, etc.	Providing the opportunity for each student to use the information available on the corresponding course, ensuring the availability of correspondence with the teacher and fellow students	The real functioning of the system is achieved due to the formed system of goals, methods and teaching aids

A modern teacher of vocational training in the context of digital transformation, carrying out activities remotely, must have the knowledge of the methodologist of online courses, that is, create high-quality courses within the framework of an online school, administer and supervise them.

### 3. Methodology

This article presents a study by TalentTech, Netology and EdMarket (large companies specializing in full-cycle online education). For six months, the expert group studied several segments of the world education industry (higher education, school, lifelong learning, preschool and corporate education), as well as investment activity. This is the second global survey of the online education market. The first was held in 2017.

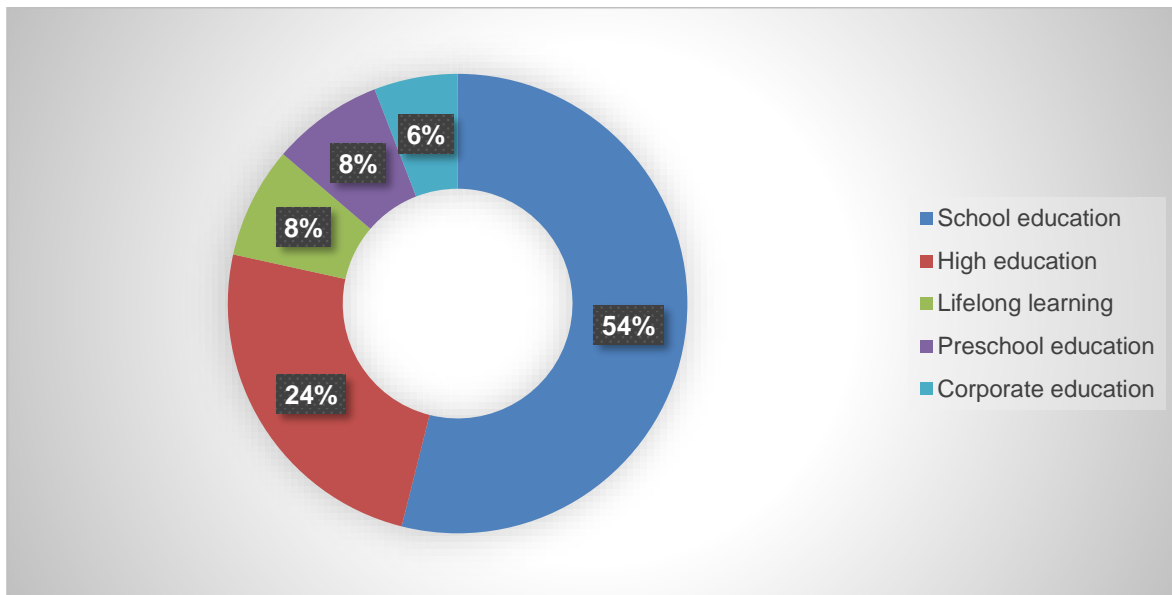
In the study, we focused on the goals that students of online schools are pursuing in 2020 and recorded the main answers.

A specially designed survey was conducted for students, which shows the main educational goals. The research was carried out in several stages. At the first stage, a questionnaire was developed for the student audience. Further, the collection of data was carried out in electronic format. The most frequent answers were statistically processed. At the third stage, the results were formed into a single table and presented graphically.

### 4. Results and discussion

The global education market has undergone major transformations. The spread of online education is gaining momentum.

The figure highlights the forecast for the use of online education in various sectors.

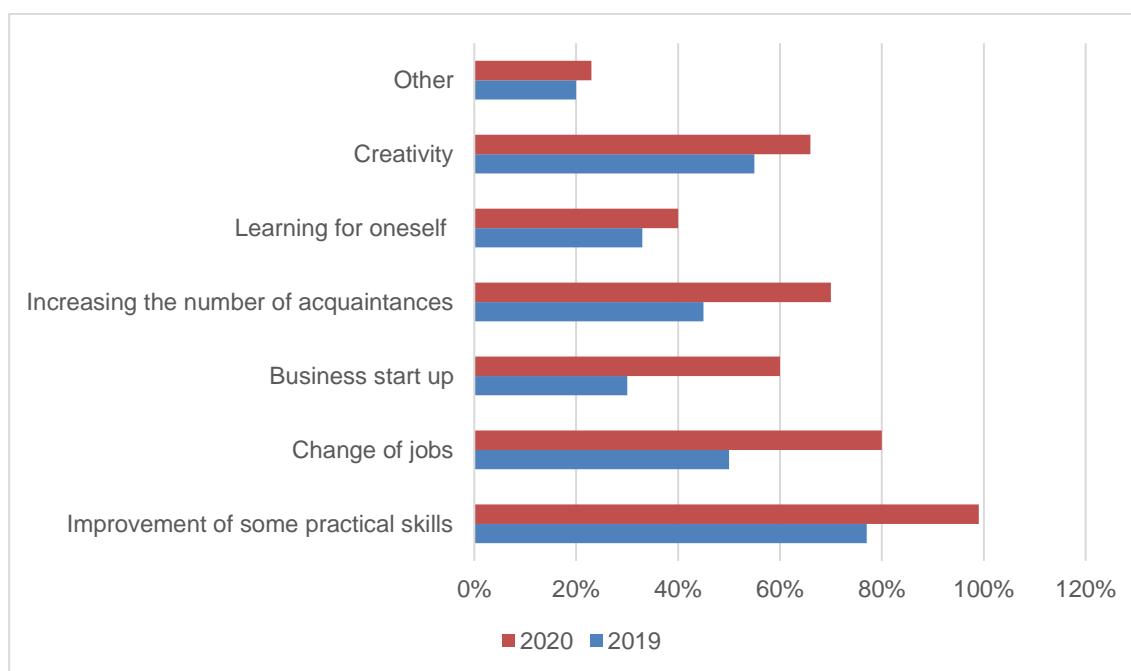


**Fig. 1.** Forecast for the structure of the global education market by 2030.

We see that school education occupies a leading position, followed by higher education, followed by lifelong learning, preschool and corporate education.

According to forecasts, the demand for online education will only increase, therefore, the relevance of training relevant specialists who are ready, in turn, to carry out training in the online space, is confirmed.

In the study, we focused on the goals pursued by the students of online schools. We have highlighted the main answers in the figure.



**Fig. 2.** Learning Objectives in Online Schools.

In general, each of the indicators presented by 2020 has become higher. In the unfolding social conditions, the most urgent were the improvement of individual practical skills and a change of profession.

The professional education teacher, as a professional of the future, should be guided by consumer needs, relying on statistical data, on forecast data. The online education market is growing and the need for specialists will also grow over time.

## 5. Conclusions

In the context of digital transformation, vocational education is becoming more visual, effective and mobile. Today there are many questions and difficulties to be overcome. However, it should be said that the great potential of the available opportunities allows us to form an idea of how much electronic technologies are in demand and how they are reflected in the future of professional activity.

Education acquires a number of features that are associated with remote learning and the use of innovative means of training students, such as simulators, electronic programs, virtual reality glasses, and more.

Today we cannot talk about the complete replacement of traditional education with distance education, however, the introduction of information technologies is carried out at a high pace. And the addition of the educational process with electronic tools allows students to engage and make them active subjects of learning, to form a readiness for independent mastering of the material, quick adaptation to innovative changes. The future of vocational education is closely related to information technology.

Today, educational institutions are developing professional competencies and soft skills that will allow students to adapt to the professions of the future.

Based on the results of the study, we can say that one of the main professions of the future is becoming a professional education teacher who is able to build a competent educational process in a distance setting.

Today, the majority of students using online education note that it is important for them to improve certain professional skills. And teachers of online courses, online schools allow them to achieve their goals.

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## **Ways of conducting surveys in the student environment in remote format**

### **Formas de realizar encuestas en el entorno estudiantil en formato remoto**

**Anna V. Lapshova**

any19.10@mail.ru

<https://orcid.org/0000-0001-7017-3589>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Olga I. Vaganova**

vaganova\_o@rambler.ru

<https://orcid.org/0000-0001-8347-484X>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Vyacheslav A. Ivanov**

ivanov65@inbox.ru

<https://orcid.org/0000-0001-5112-3789>

Plekhanov Russian University of Economics, Moscow, Russia.

**Marina N. Bulaeva**

bulaevamarina@mail.ru

<https://orcid.org/0000-0002-9928-9451>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Maxim M. Kutepov**

kmm-asb@mail.ru

<https://orcid.org/0000-0002-5397-6168>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

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### **Abstract**

The purpose of this article is to analyze the experience of conducting surveys in the student environment through the use of electronic educational resources. The article presents a survey of students about the performance of one of the most popular electronic tools Mentimeter today. The dynamics of the results of project activities of students using this service is traced. As a result, it was obtained that the use of Mentimeter makes it possible to conduct effective surveys, obtain automatic results and feedback on a specific issue, allowing you to build constructive activities in the student environment and form the professional competence of students.

**Key Words:** Mentimeter, survey, electronic tools, professional education, project activity.

## Resumen

El propósito de este artículo es un análisis de la experiencia de realizar encuestas en el entorno estudiantil mediante el uso de recursos educativos electrónicos. El artículo presenta una encuesta a estudiantes sobre el desempeño de una de las herramientas electrónicas más populares de Mentimeter en la actualidad. Se rastrea la dinámica de los resultados de las actividades del proyecto de los estudiantes que utilizan este servicio. Como resultado se obtuvo que el uso de Mentímetro permite realizar encuestas efectivas, obtener resultados automáticos y retroalimentación sobre un tema específico, lo que le permite construir actividades constructivas en el entorno estudiantil y formar la competencia profesional de los estudiantes.

**Palabras clave:** mentímetro, encuesta, herramientas electrónicas, formación profesional, actividad de proyectos.

## 1. Introduction

Building a process of communication and interaction with the audience, promptly obtaining data in modern conditions is becoming one of the most important tasks of professional education since the learning process is actively developing in an electronic environment.

Universities are actively looking for the most relevant ways to conduct surveys in the student environment in a remote format. The main criterion is the ease of processing the data obtained in the course of monitoring the educational results of students.

One of the most popular electronic tools in the educational environment - Mentimeter - offers ample opportunities in organizing and conducting instant feedback polls, advanced data analytics.

The tool exports analytical data to PDF or spreadsheets, moderates questions and answers. There is a possibility of integration with Microsoft Excel.

Each survey has its unique identification code. Therefore, survey participants have the option not to register for the test (Smirnova et al., 2020). Each student uses their device to access the resource, enter the code and answer questions or vote (Bogdanova & Fedorova, 2020).

Mentimeter is a solution that allows you to interact with a wide target audience online. A wide audience can be represented by a different number of people (Aniskin et al., 2020). And this electronic instrument is one of those that makes it easy to do.

The functionality of the tool allows you to:

- polls;
- quizzes;
- voting (Vaganova et al., 2020).

Mentimeter is an English-language platform, but the program's interface is intuitive and therefore easy to use (Bulaeva, et al., 2018).

Google forms are in high demand in conducting current and mid-term surveys. Conducting surveys and arranging them in tables is completely free, therefore, this electronic tool is also popular among students (Dobudko et al., 2019).

The Kahoot service is also relevant today for testing the knowledge component. Allows you to conduct surveys and quizzes, organize both individual and group activities (Vaganova et al., 2019). Kahoot allows you to create both short and capacious questions, and more extended ones that require more serious preparation, therefore, surveys created in Kahoot are carried out for both current and midterm control (Dronova, 2020).

Universities independently choose the tools for conducting surveys, it all depends on specific needs and tasks (Shashlo et al., 2018).

The resources we have presented are not exhaustive, but the most common among those used by higher education institutions.

Each of the tools provides the ability to create different surveys in the learning process. There is a need to identify the effectiveness of electronic services for conducting surveys in the student environment.

## **2. Theoretical framework**

The fastest and most versatile way to write tests is to use Google Forms. Each form is a web page that hosts a questionnaire or quiz. Google forms allow you to conduct briefs, votes, and collect feedback (Yarygin et al., 2019).

The advantage is the ease of use, 24/7 accessibility. The form is always in the cloud. Everyone can choose an individual design. Also, Google forms are adapted for mobile devices and you can create and edit polls from your phone (Kiseleva et al., 2019). Forms provide an opportunity for professional registration of statistics on responses (automatically).

The Kahoot service settings allow you to set the difficulty level of the question, the response time interval, add a description and tags to the question, automatically go to the next question, set the order of the questions, download the received data to a computer in Microsoft Excel format and Google disk (Pichugina & Bondarchuk, 2019).

When using this service, a survey is created with the ability to add photos and videos (Kidina, 2020). The teacher gives the student a virtual room number, which is generated by the system itself and shows the task on the screen. Students enter the virtual room from their devices (while competitive results are displayed on the main screen) (Vaganova et al., 2019). Each participant is assigned corresponding points (Shcherbakova & Shcherbakova, 2019).

Mentimeter differs in that the survey is accompanied by maximum clarity through presentation (Pinkovetskaia et al., 2020).

Mentimeter is a service that offers its users various tariff plans, including a free one, which provides the functions necessary for conducting a high-quality survey for use (Demidov et al., 2016 b). There are several template options for creating a survey:

- multiple choice (Demidov et al., 2016a);
- open answers;
- word clouds (Kharytonov et al., 2019);
- scales;
- ranking (Demidov et al., 2016b);
- choice of answer cards and others (Chulanova, 2018).

The advantages of the tool in question are as follows:

- organization of fast feedback in real time (Ivanova & Korostelev, 2019);
- interactive feedback increases the involvement of students in the educational process (Nagovitsyn et al., 2020);
- the possibility of visualization, a high level of visibility of information for a wide audience (Tezer et al., 2019).

Using Mentimeter provides many benefits for its users in mastering educational material. Students, developing a survey on their own, immerse themselves in the topics studied and form the ability for professional self-development. Maximum visibility forms a clearer idea of the topic being studied.

### **3. Methodology**

The study was conducted in 2018, 2019 and 2020 among 358 senior students. Over several semesters, students have used Mentimeter's project-based capabilities to conduct surveys. Their results were recorded.

High, average and satisfactory results were identified by the point-rating system.

Upon completion of the design work, students were asked to rate the performance of Mentimeter on a scale from 1 to 4. They were asked to answer the question: "How do you

assess the use of Mentimeter in the implementation of your project activities?" Where 1 - the tool does not unambiguously show its effectiveness in project activities; 2 - the instrument does not show its effectiveness to a greater extent; 3 - the tool is more effective in project activities; 4 - the tool shows the absolute effectiveness in project activities.

#### 4. Results and discussion

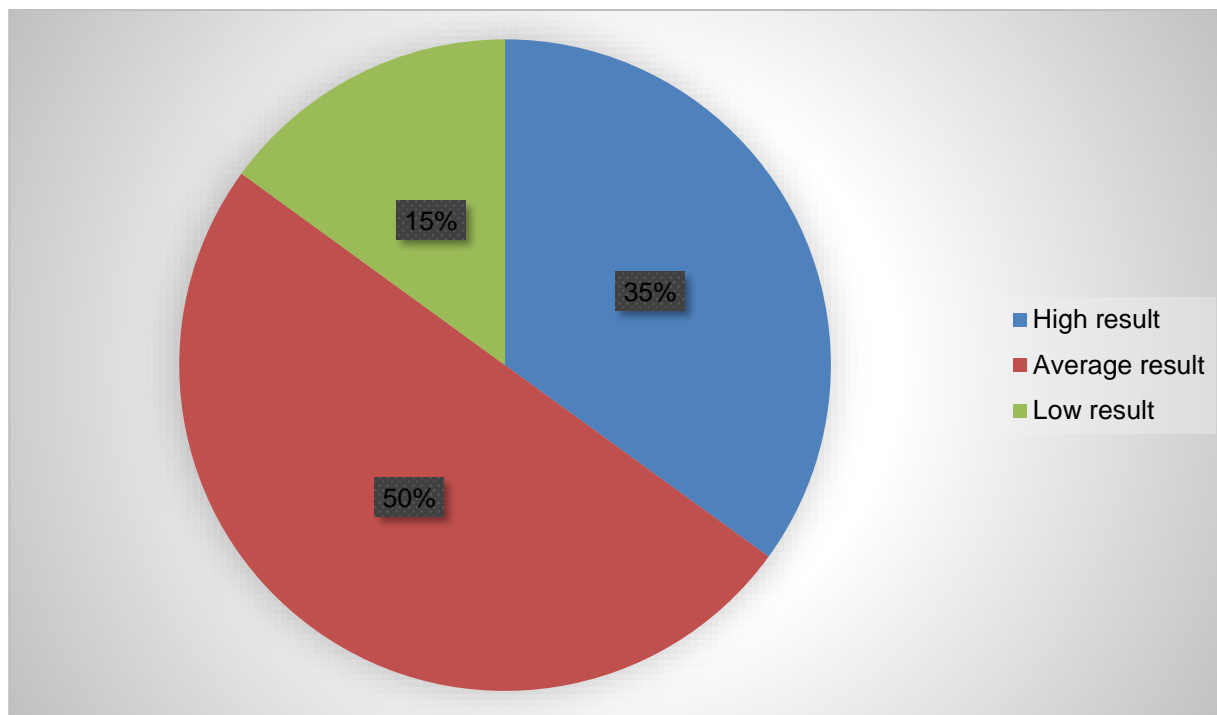
In Mentimeter, students were offered various types of polls:

- multiple choice with ready-made answer options;
- open questions;
- word clouds;
- quizzes.

The trainees independently used the capabilities of the tool in their project activities.

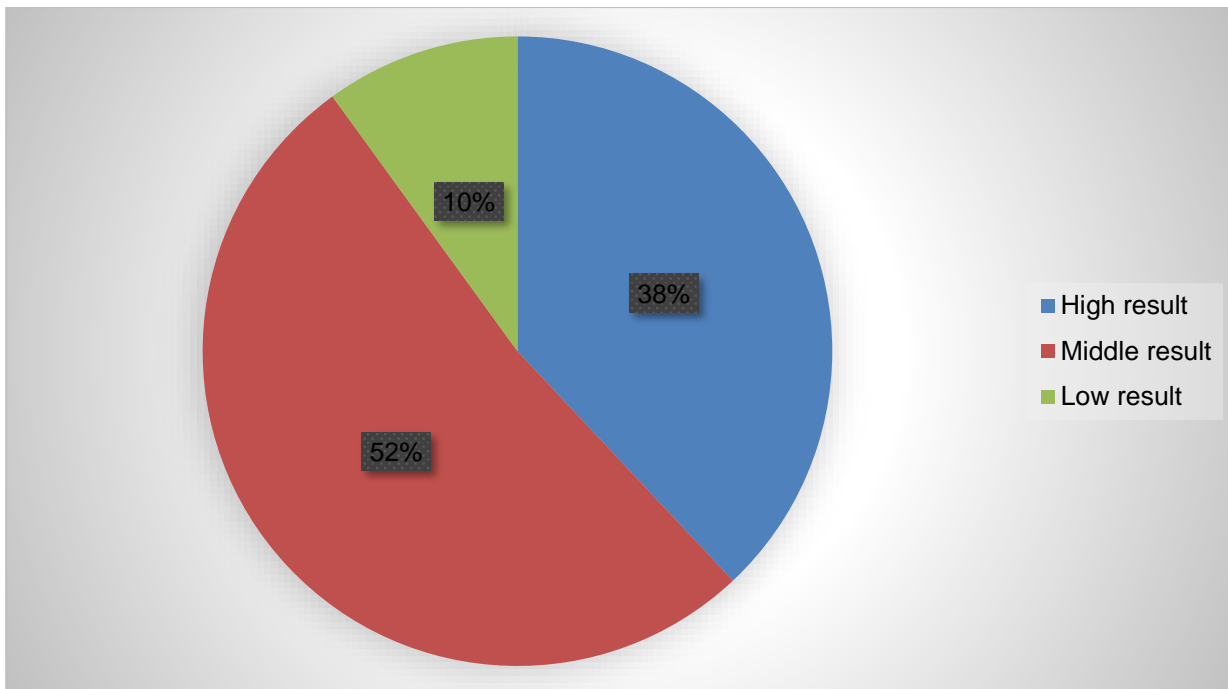
The results of the students were assessed by the point-rating system.

High result: 86-100 points; average result: 71-85 points; satisfactory result: 55-70 points.



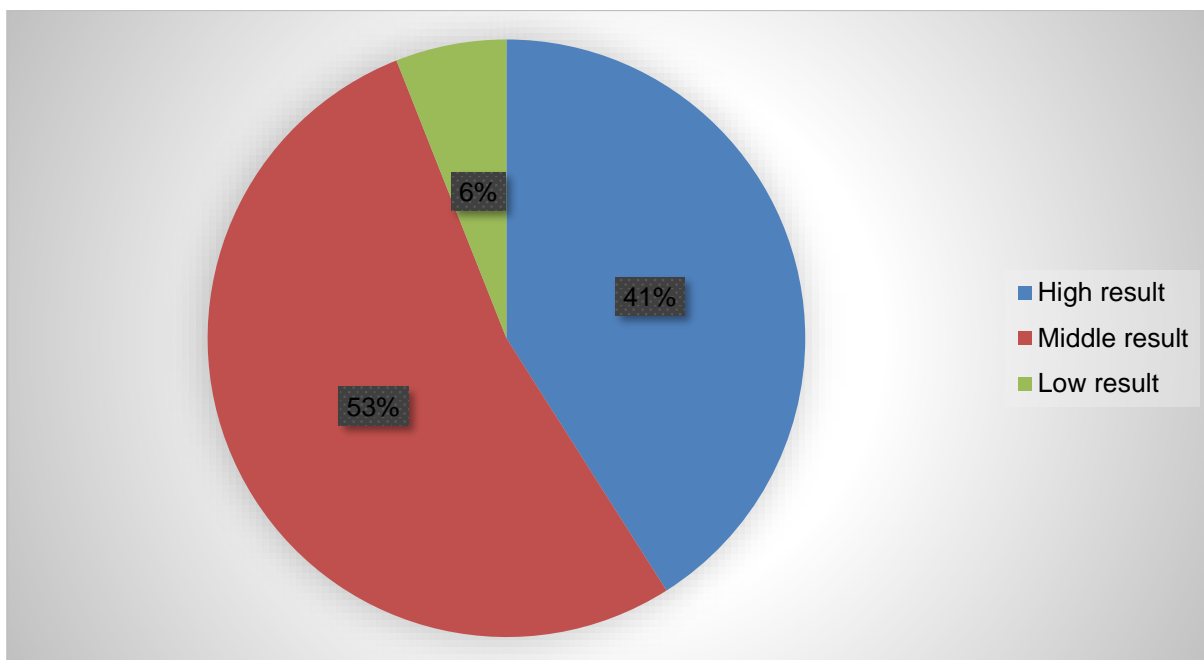
**Fig. 1.** Results of using Mentimeter in student project activities in 2018.

In 2018, the number of respondents with an average result was 50%, and 35% of students had a high result.



**Fig. 2.** Results of using Mentimeter in student project activities in 2019.

In 2019, the percentage of people with high results reached 38, with an average of 52. At the same time, accordingly, the number of students with low results becomes lower.



**Fig. 3.** Results of assessing the use of Mentimeter in student project activities in 2020.

Using Mentimeter shows that students love this resource for conducting surveys. By 2020, the percentage of students with high and average results has increased.

Creating presentations with polls and polls allowed students to fully master the functionality of Mentimeter.

Students also assessed the effectiveness of Mentimeter on their own. They were asked to answer the question: "How do you assess the use of Mentimeter in the process of carrying out your project activities?" from 1 to 4 points.

Where 1 - the tool does not unambiguously show its effectiveness in project activities; 2 - the instrument does not show its effectiveness to a greater extent; 3 - the tool is more effective in project activities; 4 - the tool shows the absolute effectiveness in project activities.

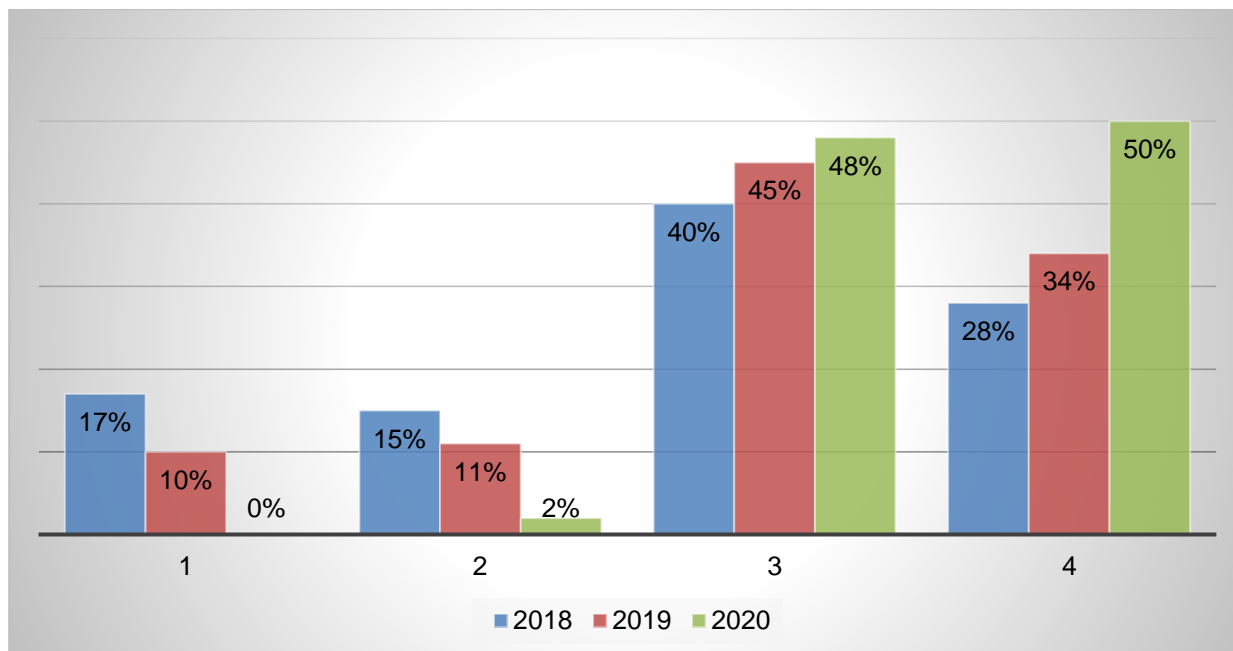
At the same time, it was indicated that the effectiveness includes several provisions. The main provisions on which the students relied are reflected in table 1.

**Table 1.**

*Key points about the performance of Mentimeter in project activities.*

No.	Characteristic
1	Through the use of Mentimeter, I receive prompt feedback from respondents
2	I can quickly create the survey and quiz I want because Mentimeter has the right set of tools
3	The target audience does not have technical problems when taking the survey, so I get the results on time
4	I can easily interpret the received data
5	I can use the created questionnaires an unlimited number of times

The figure shows the results of students' answers on the use of Mentimeter in student projects of different levels.



**Fig. 4.** The results of students' answers on the question of the effectiveness of Mentimeter in project activities.

An increase in the number of participants who noted the high performance of Mentimeter in project activities was recorded.

## 5. Conclusions

The electronic tools considered in the article represent the possibility of automatic processing of results, screen presentation of information for clarity and timely reflection of students on the results obtained.

Mentimeter allowed to achieve maximum involvement of students in the discussion of professional issues, allowed students to independently organize surveys among respondents to implement their projects.

The use of electronic tools turns the survey into a live dialogue with the audience. Conducting surveys in the student environment through electronic educational resources expands the possibilities for the formation of a highly qualified specialist in demand on the labor market.

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## **Development and implementation of project management skills in vocational institutions**

### **Desarrollo e implementación de habilidades de gestión de proyectos en instituciones profesionales**

**Ekaterina P. Sedykh**

<https://orcid.org/0000-0001-9612-9519>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Marina R. Zheltukhina**

[zzmr@mail.ru](mailto:zzmr@mail.ru)

<https://orcid.org/0000-0001-7680-4003>

Volgograd State Socio-Pedagogical University, Volgograd, Russia.

**Olga I. Vaganova**

[vaganova\\_o@rambler.ru](mailto:vaganova_o@rambler.ru)

<https://orcid.org/0000-0001-8347-484X>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Anna V. Lapshova**

[any19.10@mail.ru](mailto:any19.10@mail.ru)

<https://orcid.org/0000-0001-7017-3589>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

**Nina V. Frolova**

[nina-frolova-asb@mail.ru](mailto:nina-frolova-asb@mail.ru)

<https://orcid.org/0000-0001-8177-4910>

Minin Nizhny Novgorod State Pedagogical University, Nizhny Novgorod, Russia.

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#### **Abstract**

The purpose of the article is to analyze the experience of developing and implementing project management skills in the process of preparing students. From the methodological field, the dynamics of students' participation in project activities and the main ways of developing the project management skill are revealed. The participants of the study were teachers and students of higher educational institutions in the age category from 19 to 24 years. The results determined that the development and implementation of the skill of managing educational projects is one of the most significant areas of the development of educational activities since this soft skill allows students to adapt to professional activities most quickly and maintain competitiveness.

**Keywords:** soft skills, project management, VUCA world, vocational education, professional competence.

## Resumen

El propósito del artículo es analizar la experiencia de desarrollar e implementar habilidades de gestión de proyectos en el proceso de preparación de los estudiantes. Desde el ámbito metodológico, se revelan las dinámicas de participación de los estudiantes en las actividades del proyecto y las principales formas de desarrollar la habilidad de dirección de proyectos. Los participantes del estudio fueron profesores y estudiantes de instituciones de educación superior en la categoría de edad de 19 a 24 años. Los resultados determinaron que el desarrollo e implementación de la habilidad de gestionar proyectos educativos es una de las áreas más significativas del desarrollo de las actividades educativas ya que esta habilidad blanda permite a los estudiantes adaptarse más rápidamente a las actividades profesionales y mantener la competitividad.

**Palabras clave:** habilidades blandas, gestión de proyectos, mundo VUCA, formación profesional, competencia profesional.

## 1. Introduction

The training of a competent specialist who can navigate in rapidly changing conditions is becoming one of the primary tasks of Russian vocational education.

In this regard, many scientists and researchers pay attention to the need for the formation of soft skills that will allow the student to become in demand on the labor market and a competitive specialist in professional activity.

In the course of training, the emphasis is shifted towards the formation of creative independence, the ability to interact, jointly solve emerging problems, search for the most rational way out of conflicts and other abilities and skills of students that contribute to the formation of their professional competence in the modern environment. One of the most significant soft skills is project management (Tsarapkina et al., 2021).

The vision allows the student to rely on the available data and see the perspective of the development of events and take appropriate actions for the most effective achievement of goals.

Understanding allows you to cope with uncertainty, because an understanding student realizes the importance of flexibility in his life, the importance of soft skills for professional self-improvement, due to which he remains a sought-after specialist (Shashlo et al., 2018).

Clarity determines the student's ability to quickly focus on the most important ways out of difficult situations (Vaganova et al., 2019).

The quickness of reaction implies prompt decision-making, the ability to communicate effectively (Dobudko et al., 2019).

The understanding, vision and speed of reaction formed in the process of developing the project management skill allow the student not just to exist in the new modern world, but to be a leader, a competitive specialist who effectively acts in a variety of conditions and creatively achieves his goals (Aniskin et al., 2020).

A large number of students are involved in the project management process. And the implementation of the tasks is carried out in a short time. The task of the educational institution is to prepare the student for the implementation of the project in conditions of a lack of information and a small amount of time. During the implementation of the project, the student develops the ability to work in a team, the ability to serve other people, leadership qualities, the ability to argue his opinion.

Since a project is often a team effort, project management is team leadership. That is, each of the participants understands that in order to achieve the goal, coordinated activities are needed, in which minimizing conflicts and recognizing leadership roles play a significant role.

Project management allows students to form the necessary competencies, since it includes different types of activities and is a promising tool in the educational process.

Therefore, today, to achieve the highest results in the preparation of students of higher educational institutions, monitoring of the learning process in general and the development of project management skills, in particular.

## **2. Theoretical framework**

During the training, students somehow face a lot of projects of different scales. And each project includes several factors, for example, such as deadline, resources (time, material, equipment...), selection of project management methods, and others.

The project includes different types of activities that are united by common features:

- focus on achieving the set goals;
- implementation of coordinated actions in each working subgroup;
- the limited implementation of the project in time, the presence of a schedule of speeches.

The signs of the project should include:

- the presence of a goal;
- difficulty;

- specificity.

There are several types of approaches to project implementation. Among them, the classic type and Agile are distinguished. The classic way of project management involves dividing the process into several stages (without passing one stage, you can not go to the next). Usually, the stages can be represented as follows: initiation, planning, development, implementation and verification, the final stage.

During the initiation, the requirements for the project are determined. Brainstorming sessions are held among students to determine the final product. At the planning stage, students determine the content of the goal achievement process; carry out the maximum detail of goals and results. At the development stage, students are actively involved in the process of doing the work, distribute tasks among themselves, select the material necessary for the work. At the stages of implementation and verification, by the previously developed plans, the product is introduced and the process is monitored (Kharytonov et al., 2019). The final stage includes reflection and works on the main errors (Vaganova et al., 2020).

The agile approach includes compliance with established requirements and achieving certain results based on them and constant interaction within working subgroups.

Agile is a set of ideas and principles for the most effective implementation of the project (Pichugina & Bondarchuk, 2019).

The project is not divided into successive stages, but into small subprojects that can be assembled into a single product in the future. The sequential passage of the stages is laid down in each subproject (Kidina, 2020). Thus, students will be able to get results most quickly due to time changes to individual parts of a large project. In addition, you can notice the shortcomings of a small project most quickly (Ponachugin, & Lapygin, 2019).

Among the most popular features of the approach under consideration are adaptability and flexibility (Yarygin et al., 2019).

In the process of forming the project management skill, the most important qualities for the implementation of professional activities are formed:

- leadership (in the process of implementing the project, students distribute functions among themselves and each of them should understand that part of a successful project is a clear definition of goals and fulfillment of tasks by each of the participants) (Pinkovetskaia et al., 2020). The work execution process can be organized in such a way that each team member can perform the role of a leader at a particular stage of the project (Shcherbakova & Shcherbakova, 2019).

Project management skill also implies the ability to motivate others to complete tasks (an important part of leadership) (Vaganova et al., 2019).

Communication-open communication allows the team to develop trust in each other, which leads to transparency of decisions, absence or quick exit from conflict situations (Bulaeva, et al., 2018), prompt achievement of the results planned at the beginning of the project (Nagovitsyn et al., 2020).

Levels can also be allocated in the project management:

- goal setting (setting the main goal of the project) (Kosenok & Bezuevskaya, 2019);
- the level of design (careful development of the necessary tools for the project (tools, resources, organizational structure, communication between participants and the project, etc.) (Ivanova & Korostelev, 2019);
- the level of project implementation (correlation of project implementation requirements and the existing reality, availability of necessary resources) (Nagovitsyn et al., 2020).

Project management is a dynamic system that includes a variety of components, including: resources, results, risks, and others (Kiseleva et al., 2019).

In the modern world, project management is becoming an increasingly relevant skill among students of professional educational institutions.

### **3. Methodology**

The paper presents data on the degree of students ' involvement in project activities. For several years, starting from 2017 to 2020, the results of statistical data processing were recorded in a separate table.

The study participants were students of higher educational institutions in the age category from 19 to 24 years, studying in several areas. The total number of projects carried out in the university environment and the total number of participants were highlighted. Students and projects were divided into groups.

The study allowed us to pay attention to the dynamics of students ' participation in project activities.

Also, a survey was conducted among the teachers, which allowed identifying the main factors for the development of students ' management skills soon.

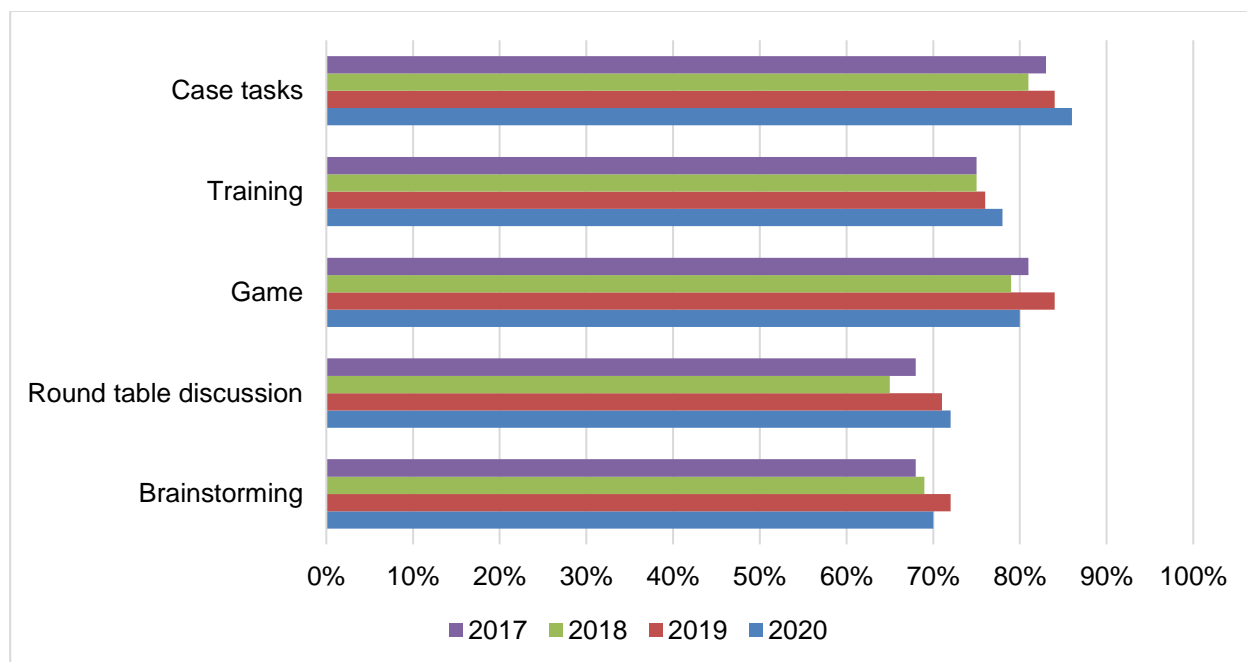
The most common answers were selected from the general list of answer options.

### **4. Results and discussion**

Most teachers of higher educational institutions are aware of the need to develop project management skills by the requirements of the modern labor market. In the VUCA world,

project management is one of the key skills that allow you to increase your competitiveness (Demidov & Tretyakov, 2016a).

A survey was conducted among the teachers, which allowed identifying the main ways to develop students' management skills soon. The results are shown in Figure 1.



**Fig. 1.** The results of a survey of teachers to identify the most relevant ways to develop the project management skill.

We see that the chosen methods remain relevant for a long time. But it is worth noting that each of them is transformed by modern conditions.

In the process of organizing training, tools are used that contribute to active group activity. Time-consuming brainstorming sessions, round tables (which are held in a remote format, among others), games and case solving allow you to improve professional competencies.

Brainstorming helps to make an operational decision, in the process of participating in round tables; students are forming the skill of conducting an effective discussion.

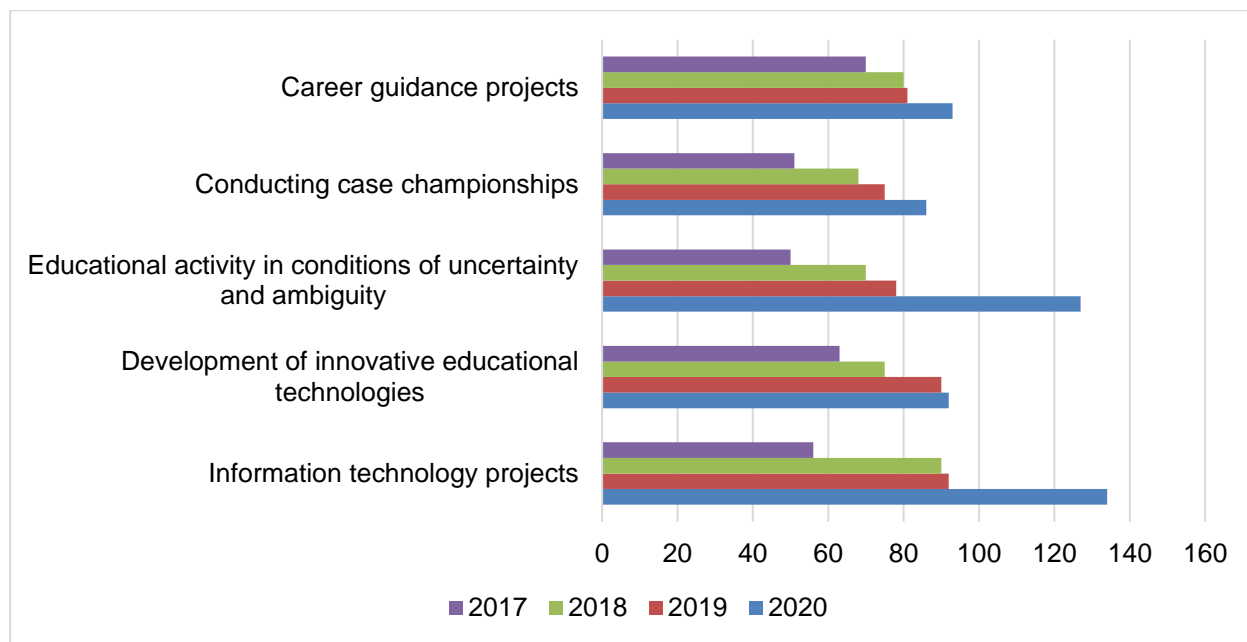
In the process of playing and solving case problems, students distribute functions among themselves. In this process, everyone can become a leader, a performer or a controller. This is how the preparation for the implementation of serious projects is carried out.

For several years, universities have been increasing the number of competitions for student projects. Timely monitoring allows you to identify the number of their participants.



The degree of students' involvement in project activities is beginning to increase, as evidenced by the results of research conducted over several years.

The figure below highlights several of the most popular areas of student projects implemented from 2017 to 2020.



**Fig. 2.** Popular directions of student projects (2017-2020).

The most popular areas of student projects over the four-year period were:

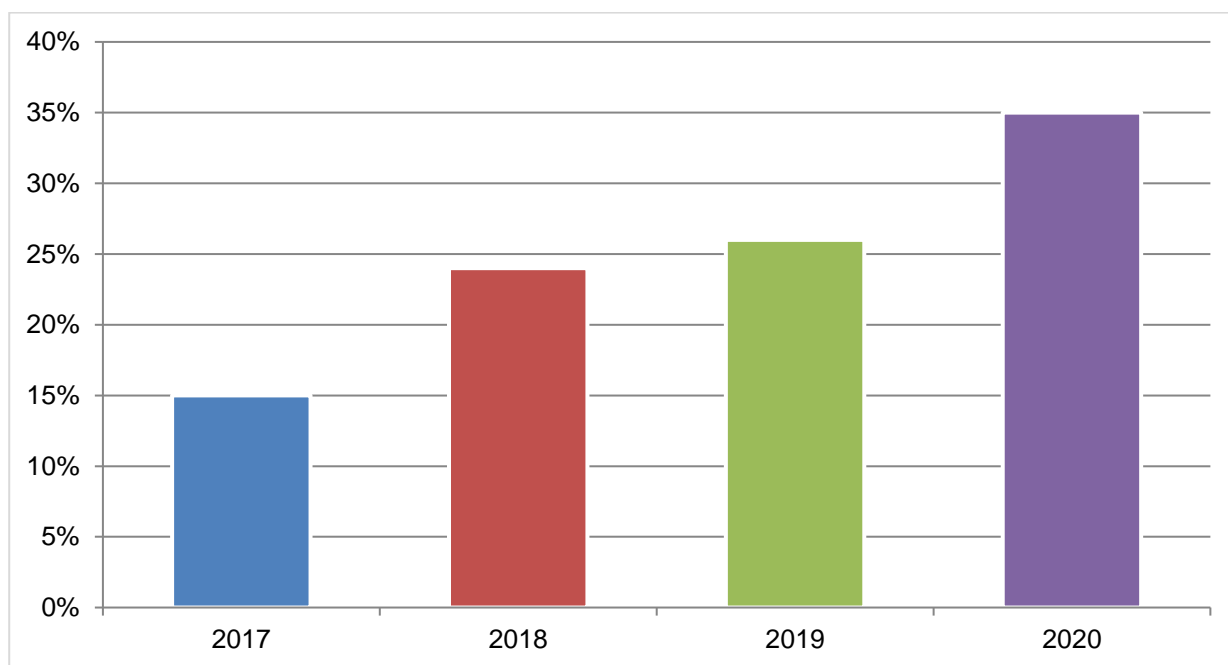
- conducting case championships (organizing events held by students on a competitive basis, where each student can present their skills and the formation of competencies);
- educational activities in conditions of uncertainty and ambiguity (student projects reflecting the organization of educational activities aimed at improving its quality in new conditions);
- development of innovative educational technologies (projects dedicated to the development and implementation of new technologies in the learning process);
- projects in the field of information technologies (development and implementation of new technical means that contribute to the organization of the most effective learning process).

By 2020, the largest number of participants has been identified in projects aimed at resolving issues in the field of educational activity development in conditions of uncertainty and ambiguity. Students are interested in adapting the educational process to the conditions of the VUCA world, in which uncertainty and ambiguity are a significant part.

It is also worth paying attention to the fact that information technologies have become an actual direction for research activities and by 2020 the interest of students is only increasing. The use of information technologies and e-learning in 2020 has become the most popular due to the forced and massive transition to a distance learning format. Students are interested in the development of this topic for the formation of the most comfortable conditions for educational activities.

It should be noted that the implementation of each direction is somehow connected with innovative technologies, electronic remote tools.

The following figure shows the percentage increase in participants in professional project competitions compared to 2016.



**Fig. 3.** Increase in the number of participants in professional project competitions (2017-2020)

We are seeing a steady increase in the percentage of participants.

## 5. Conclusions

The development and implementation of the skill of managing educational projects is one of the most promising areas for the development of educational activities, since this soft skill allows students to adapt to professional activities most quickly. During the implementation of the project, students are forming their leadership qualities, the ability to carry out planning and forecasting, to be a competitive specialist who effectively acts in a variety of conditions and creatively achieves their goals.

The conducted research suggests that the need for students to participate in project competitions is growing and the number of professional project competitions is growing. The percentage of participants increases from year to year.

The data of surveys conducted among teachers of higher educational institutions make it possible to identify tools and integral components of the development of project management skills in professional educational institutions in the conditions of the VUCA world.

With the development of project management skills, a systematic vision of the situation and the process of solving important tasks is formed by students, critical thinking and the ability to work effectively in a team is formed, resolving conflict situations on time manner without compromising the final result.

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## The problem of ethnocultural identity in the studies of symbolic interactionism

### El problema de la identidad etnocultural en los estudios del interaccionismo simbólico

**Lyudmila Redkina**

redkina7@mail.ru

<https://orcid.org/0000-0002-4201-8693>

Doctor of Pedagogy, Head of Department, Department of Pedagogy and Management of Educational Institutions, V.I. Vernadsky Crimean Federal University, Russia.

**Irina Zakiryanova**

ariddsev@yandex.ru

<https://orcid.org/0000-0001-7770-0986>

PhD in Pedagogy, Professor, Department of Foreign Languages, P.S. Nakhimov Black Sea Higher Naval School, Russia.

**Vladimir Vishnevsky**

vmwbox@gmail.com

<https://orcid.org/0000-0002-1471-7067>

PhD in Pedagogy, Associate professor, Department of Pedagogy and Management of Educational Institutions, V.I. Vernadsky Crimean Federal University, Russia.

**Tatiana Chernova**

Tatyana\_chernova55@mail.ru

<https://orcid.org/0000-0003-0249-9813>

PhD student, Department of Pedagogy and Social Work, I.N. Ulyanov Ulyanovsk State Pedagogical University, Russia.

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#### Abstract

The article addresses the problem of ethnocultural identity in the context of research by representatives of symbolic interactionism. The problem of ethnocultural identity acquires relevance in the epoch of globalisation, when the differences between nations and ethno-social groups are erased, ignoring the folk traditions, customs, rituals, i.e. the historically and culturally established values that distinguish one nation from another, on the one hand, and enrich the multinational culture of their country, on the other hand. The purpose of the study is to reveal the conditions for the formation of ethnocultural identity and the factors influencing it. The works by G.H. Mead, C.H. Cooley, E. Goffman, J. Habermas and other authors were analysed within the framework of the research. The study

revealed that the formation of ethnocultural identity involves assimilation of the values, norms, beliefs of “own” socio-cultural community, which is possible in the process of social interaction, in the course of meaningful communication in terms of symbolic interactionism.

**Keywords:** ethnocultural identity, formation of ethnocultural identity, symbolic interactionism, social interaction, interpersonal communication.

## Resumen

El artículo aborda el problema de la identidad etnocultural en el contexto de la investigación de representantes del interaccionismo simbólico. El problema de la identidad etnocultural adquiere relevancia en la época de la globalización, cuando se borran las diferencias entre naciones y grupos etno-sociales, ignorando las tradiciones, costumbres, rituales populares, es decir, los valores histórica y culturalmente establecidos que distinguen a una nación de otra, en, por un lado, y enriquecer la cultura multinacional de su país, por otro. El propósito del estudio es revelar las condiciones para la formación de la identidad etnocultural y los factores que la influyen. Las obras de G.H. Mead, C.H. Cooley, E. Goffman, J. Habermas y otros autores fueron analizadas en el marco de la investigación. El estudio reveló que la formación de la identidad etnocultural implica la asimilación de los valores, normas, creencias de la comunidad sociocultural “propia”, lo cual es posible en el proceso de interacción social, en el curso de la comunicación significativa en términos de interaccionismo simbólico.

**Palabras clave:** identidad etnocultural, formación de identidad etnocultural, interaccionismo simbólico, interacción social, comunicación interpersonal.

## 1. Introduction

The process of search for ethnocultural identity in modern socio-cultural conditions requires philosophical, social and psychological justification. Nowadays of foremost importance is the problem of preservation of ethnocultural identity, the process of formation of ethnocultural identity, the correlation of individual and group components of ethnocultural identity in the context of social evolution. The research in this area was carried out actively by such representatives of symbolic interactionism as George Herbert Mead (1972), Charles Horton Cooley (1907, 1909), Erving Goffman (1961), Jürgen Habermas (1971).

The concept of symbolic interactionism is based on the premises that all forms of human interaction in the society suppose communication based on certain social symbols – language, gestures, cultural symbols, intonation. It is through meaningful communication, i.e. interaction with the help of meaningful symbols of which the most important are contained in the language, that a person acquires identity, including ethnocultural identity. According to the concept of symbolic interactionism, the formation of man’s ethnocultural identity in fact takes place in the situations of mutual, joint action with other people. The

mechanism of ethnocultural identity formation is the result of correlation of two processes: a person's awareness of own "Self" as an object (i.e. how the others see this person) and one's "Self" as a subject (i.e. how a person sees himself). Ethnocultural identity, thus, being formed in the course of social interaction, is a person's holistic perception of himself<sup>2</sup> and the social environment. This understanding of ethnocultural identity as a certain entirety determines the individual's aspiration towards being able to perceive himself as an integral whole within a harmonious bond with the surrounding world, which contributes to the formation of positive ethnocultural identity.

Despite the fact that the role of symbols is substantial in the concept of symbolic interactionism, when the human behaviour in situations of social interaction and the whole range of social relations is conditioned by symbolic, denotative interpretation of such situations and relations, nevertheless, an important fact is that symbolic interactionism, that raised the issue of social determinants of interaction and of its significant role in the formation of human personality, makes it possible to consider the problem of ethnocultural identity from the position of active social interaction, since ethnocultural identity is realised through actions and interaction. Man's positive acceptance of himself as an integral part of his ethnos, being primarily expressed in ethnocultural identity, is exteriorised by his social actions and interaction.

Therefore, the purpose of this article is studying the problem of ethnocultural identity from the position of representatives of symbolic interactionism and identification of key factors contributing to the formation of ethnocultural identity on this basis. To pursue this goal, the following objectives were set: to study the theoretical aspects of the problem of ethnocultural identity in the scholarly works of adherents of symbolic interactionism and to identify the psychological conditions contributing to the formation of ethnocultural identity. The use of the concept of symbolic interactionism makes it possible to reveal the in-depth nature of integral interrelation and interdependence of socio-cultural and personal factors contributing to the formation of ethnocultural identity that is really significant in the context of interethnic relations in the multicultural space.

## 2. Literature Review

The problem of a person's ethnocultural identity in the contemporary world, being conditioned by search for vitally important determinants, value orientations in the conditions of modern socio-cultural transformations, has been a subject of research undertaken by a number of scientists: Andreeva, Bogomolova & Petrovskaya (2002), Arutyunyan (2010), Parhomenko (2014), Skorodumova (2010), Tancheva (2017), Katartzi (2017). This enables the authors to consider the ethnocultural identity formation problem as a systemic personal characteristic in the context of integrity of man's personal development.

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<sup>2</sup> [hereinafter the use of masculine gender encompasses the feminine gender: he=she, his=her, him=her, himself=herself – translator's note].

According to Eng & Tram (2021) and Shastina, Shatunova, Bozhkova (2018), the formation of ethnocultural identity is influenced in the first place by the primary social group, namely, cultural socialisation in the family.

The interdependence of ethnocultural identity and the folk, ethnical, cultural sphere that form the environment for person's socialisation is discussed in the studies of: Markus & Kitayama (1991), Adams & Markus (2001), Hakim-Larson & Menna (2016).

The ethnocultural identity raises a person's self-esteem, thus engendering positive psychological consequences, as discussed by Cast & Burke (2002) and Shamionov (2014).

Of special interest is the study of ethnocultural identity formation issues in the context of symbolic interactionism that accentuates such factors as social interaction resulting in self-identification of a human subject as a member of a certain ethnocultural community, since ethnocultural identity is realised through social actions and interaction. Among the scholars exploring this domain are primarily: Mead (1972), Cooley (1907, 1909, 1922), Goffman (1959, 1961, 1963), Habermas (1971, 1976, 1999, 2001, 2004), Romanucci-Ross & De Vos (1995), since their studies of the problem of man's self-identification in the process of social interaction served as a kind of impetus addressing the problem of ethnocultural identity as an integral part of social identity, revealing the conditions facilitating the formation of this systematically-, personally- and socially significant quality. A person builds his own life strategy, his stable and relatively predictable social interactions on the basis of his ethno-cultural identity, which contributes to constructive interethnic interaction in the conditions of multicultural space.

### **3. Methodology**

The methodological basis of this study is represented by the ideas and conclusions concerning psychological conditions for formation of ethnocultural identity in terms of the concept of symbolic interactionism. To handle the objectives of the study, a number of theoretical research methods were used: analysis of psycho-pedagogical, sociological, philosophical literature on the problem in question; general scientific methods: analysis and synthesis, comparison and correlation of different approaches to the study of the problem of ethnocultural identity.

### **4. Results and Discussion**

Mead (1972), exploring the problem of relationship between social determination and individual freedom, distinguishes between perceived and unconscious identity. Perceived identity manifests itself through cognitive processes, when an individual begins to reflect on himself and his behaviour. Unconscious identity is based on unconsciously accepted norms, values, attitudes, on the complex of expectations imposed by the ethno-social community to which a person belongs. The transition from unconscious to perceived identity takes place as a result of reflection. Thus, according to Mead (1972), a person,



by reflecting about himself, perceives his identity. It is essential that this conceptualisation takes place by means of language in the course of social interaction (Arutyunyan, 2010). This means, in the context of the given research problem, that a person who has acknowledged his identity, his “Self” from the position of the characteristics accepted in his community, becomes able to define his place in the socio-cultural space, orientate himself freely in the surrounding world, construct his life activity in a due way, as well as his behaviour and relations with partners in interaction.

In accordance with the general characteristics of the interactionist school, ethnocultural identity is viewed as a social phenomenon formed in the course of social interaction. Ethnocultural identity is a holistic perception of one’s self and the social world, therefore the structure of ethnocultural identity includes not just the cohesion of elements, but also connections between one’s Self and the whole (Mead, 1972). Furthermore, ethnocultural identity is the result of communication with conjugate people which forms the role-play behaviour in this process. This means that man strives to achieve experience of himself as a whole in a harmonious conjunction with the world around, with his ethno-social community. The fundamental premise of this provision is that the formation of the reflexive ethno-social “Self” takes place in the process of interaction with other people. The ability to cognise oneself is formed in social life through the aspect designated by Mead (1972) as “assuming the role of the other” or “accepting the relation of others to oneself”. The mediators in this process are meaningful other people (originally parents, close-minded friends and relatives). Talking of “generalised others”, Mead (1972) means a complex of impersonal settings – norms and values of the society. The stages of accepting the role of someone other, of others, of generalised others reflect the phases of transforming a physiological organism into a reflexive ethno-social “Self”.

Methodologically, this interpretation draws on James’s (1920) division of the personality structure into metaphysical integrity (the soul) and functional identity (“one’s Self”) and the concept of “mirrored (reflected) Self” (Cooley, 1922).

In elucidating the social nature of the human self, Mead and Cooley followed James in concluding that it is interpersonal interaction that plays a crucial role in the formation of this self.

The man himself as a subject of this interaction is understood not as an abstract individual, but, according to Cooley (1922), as a “part of the social whole”: “The Self is an active social force... Treating it apart from the society is blatant nonsense... There is not any meaning inherent in “Self” that would not have notional correlation with “You”, “He” or “They”. The “human nature” cannot be narrowed down to its biological substructure, the so-called set of “instincts, shapeless impulses, indefinable abilities”, but is interpreted as a social substance that is “produced through simple forms of close, personal interaction”. Personal interaction results in psychological correlation of the individual with the ethnic community with which he shares certain norms, values and attitudes (Cooley, 1922).

According to Cooley (1922), a person perceives his own self through reflection in others. Therefore, it is of great importance how a person is perceived by the others, what ethnic community he is associated with. In the process of social interaction and communicating with others, we look into the others' perception of ourselves, like looking in a mirror, and judge ourselves by this reflection (Cooley, 1922). Mead (1972) also recognises that self-identification of the individual, as a performer of a particular role, takes place through awareness and acceptance of perception of him by the others.

In addition, Cooley (in the 1920s) and Mead (in the 1930s) demonstrated that personal identity is not an a priori of human behaviour, but it emerges from properties generated in the course of social interaction ("social interaction"). Identity is fundamentally a social morphosis; one sees himself in the way he is seen by the others. In fact, "Self-identity" and "the Other" are fundamentally inseparable for Cooley and Mead. Identity is a generalised, integrated "Other".

One can conclude, based on the premises put forward by Cooley and Mead, that identity is not a property (i.e. something inherent in the individual), but a certain attitude. It is formed, gets established (or, on the contrary, is modified, transformed) only in the process of social interaction. This conclusion, in our view, correlates with the semantic field of ethnocultural identity in the sense that ethnic identity is most often formed not as a result of some national quality or a surname having an expressed ethnic imprint, but in the process of individual self-identification.

Cooley and Mead's ideas about the problem of identity, in particular ethnocultural identity, were synthesised in E. Goffman's "dramatic model" of social interaction. Goffman (1963) considers identity in the context of plurality of social roles.

Proceeding from Mead's (1972) provision on existence of two known types of identity – socially predetermined identity and identity reflecting person's individual properties – I. Goffman (1963) distinguishes three types of identity:

- 1) social, involving typification of a person in terms of congeniality with other people, as based on the attributes of social community he belongs to;
- 2) personal, correlated with person's individual characteristics (unique phenotypic attributes of a person, on the one hand, and the unique combination of facts and dates of his life history);
- 3) "Self"-identity, i.e. a person's subjective perception of his life situation, his continuity and originality.

Social identity carries the greatest functional load. It represents a set of identities, i.e. social roles, "masks" that constitute the content and forms of human behaviour. Goffman (1963) defines personal identity as a social phenomenon, since the perception of personal identity takes place on the condition that the information about the facts of a person's life – on the previous experience of interaction with other people, on the person's environment – is known to his interaction partner. According to Goffman's (1963)

dramaturgical approach focused on the idea of drawing an analogy between the social world and the theatre world, where the social roles are comparable to theatrical roles played in order to produce a certain impression on the communication participants and to yield response to their expectations, the prevailing role of the social setting makes a person play roles continually, to interpret situations with regard for established limits, to build strategies for due adaptation and achievement of desired goals.

Goffman (1963) accepts James's (1920) concept of social personality as a starting point in his analysis of interactive microsystems. Goffman (1963) is willing to study these masks, the guise of social actors, that eventually fuse with the face and become a more authentic "Self" than the "Self" imagined and sought by these people. The mask, the role is justified by life. A person's conception of his role becomes a second nature and a part of the personality. When Goffman (1963) talks occasionally about "the mismatch between our natural self and our social self" he contemplates about this not in terms of contraposition of the biologically and socially nurtured identity, but rather from the position of different social demands posed in different social settings. Some social environments expect certain "bureaucratisation of spirit" and discipline of action from us, regardless of bodily condition, while the others allow for impulsiveness and dependence of our performance on ill-health (Goffman, 1959).

Goffman (1959) defines ethnocultural identity as the one that is "socially created, socially maintained and socially transformed". It is in social micro-entities that a certain kind of activity takes place in terms of managing impressions and assessing situations. He proceeds from the fact that the individual constructs his own ethnocultural identity from the material conceived by the culture in which he lives.

Abstracting from the holistic personal characteristics of the individual, Goffman considers him only as a bearer of various roles set outwardly, unrelated, not connected with one's personal features or one's activities or with some objective socio-historical conditions. At the same time, Goffman believes that man in the process of social interaction is capable not only to view himself through the eyes of his partner, but also to adjust own behaviour in accordance with the expectations of others in order to create most favourable impression of himself and gain maximum benefit from this interaction (Andreeva et al, 2002). Stated differently, Goffman considers social interaction partners in terms of how they position themselves before each other in order to set the frame of interaction (own and reciprocal).

Developing the idea of the ways in which ethnocultural identity and the surrounding world ("Umwelt") interact, Goffman (1959) suggests that it is the surrounding world that is the basis for the development of ontological security and trust without which ethnocultural identity is impossible. Every person is rooted in the everyday time and space flow, in the life cycle, in the stream of institutional time, in the supra-individual structuring of social institutions. Ethnocultural identity is a certain horizon which can be treated by the individual in a different way, but abandonment of this horizon is not possible. In these

terms ethnocultural identity is a characteristic of a person's attitude to himself, his "self-affiliation", on the one hand, and a person's belonging to a certain ethno-social community, on the other hand (Heffe et al, 2009).

It should be noted that symbolic interactionism shifts the accent to the question of how the individual's ethnocultural identity is formed in the course of social interaction and how it is represented in the surrounding world, with the preservation of uniqueness and singularity of the individual's personality.

It should be emphasised that the positive message of Mead's (1972) concept captured attention of many scholars engaged in the study of ethnocultural identity (e.g. De Vos & Suarez-Orozco, 1990; Romanucci-Ross & De Vos, 1995; Hsu, 1983; Habermas, 2004). Among the researchers dealing today with identity issues, in particular ethnocultural identity, a German philosopher and sociologist Jurgen Habermas, who presented the concept of "identity balance" (Habermas, 1999), should be mentioned.

Habermas proposes to use the term "Self-identity" as an aggregate of personal and social identities which are viewed by him as two dimensions: the notion of balancing "self-identity" is realised in them. The personal and social identities are correlated as a vertical and horizontal dimension, where the vertical (personal identity) is in charge of coherence of a person's life history, while the horizontal (social identity) provides a possibility to meet various requirements in the role-playing systems to which a person belongs. The individual's "self-identity" arises within a balance between personal and social identities. The establishment and maintenance of this balance takes place in a system of certain social relations with the help of interaction techniques among which language is of exclusive importance. A person manifests his identity in interpersonal communication by seeking to meet the normative expectations of the interaction partner. At the same time, the individual seeks to express his uniqueness (Habermas, 1976).

According to Habermas, the essential characteristic of interpersonal communication is primarily represented by mutual understanding. It is the accent on reaching mutual understanding between different social actors that is viewed by the scholar as the fundamental difference between communicative action and all other types of social action. According to Habermas, a genuine communicative action is a real mechanism for maintaining mutual understanding as the main factor of solidarity and stability in the society. These ideas acquire special significance in modern sociocultural conditions, when one of the global challenges is the problem of mutual understanding between people, establishment of a dialogue of different cultures: "The norms which often are recognised by many citizens and officials only rhetorically are gradually transformed into internal beliefs through participation in discussions and enforcement of new legal standards. The same way nation-states learn to perceive themselves as members of larger political communities" (Habermas, 2004).

Proceeding from the above, Habermas believes that one's ability and opportunity to identify himself with a particular social group is an essential condition of his ethnocultural

identity. Thus, ethnocultural identity is a milieu in which personal reflection and inter-subjective recognition overlap, which reflects the substance of true ethnocultural identity. Referring to Georg W. F. Hegel's dialectic, Habermas notes a paradoxical feature of ethnocultural identity: absolute individualisation and absolute generality as two significant aspects in terms of conceptualisation of one's self, which should be perceived abstractly and at the same time holistically. Habermas associates the establishment of ethnocultural identity with the formation of industrial society, considering national consciousness to be a way towards cultural integration as a specific feature of the New Age (Habermas, 2001). Exploring possible environments for "self-identity" formation in complex societies, Habermas concludes that the orientation at the European culture as a standard of universal human values and as a basic foundation of "self-identity", including ethnocultural identity, proved to be a failure at the end of the eighteenth century, leading to the idea of plural identities, their fundamental incompatibility with each other and impossibility of a dialogue on equal footing. The establishment of capitalist society in the nineteenth century is characterised by shifting the emphasis in the interpretation of the ethnocultural identity concept towards legal framework. The specific identity is conditioned by the particularity of legal norms; a person identifies himself, in the first place, as a citizen entitled with a certain set of individual freedoms (Skorodumova, 2010). People's ties with their historical homeland weaken with the development of industrial society and the transition to post-industrial society. At that period, the theme of estrangement, including from one's ethnocultural identity, becomes one of the main subjects in the philosophy of Freudism, existentialism, Marxism, etc. The development and spread of mass culture leads to the idea of formation of a certain common mentality which emerges "out of identification with consciously accepted traditions of a particular politico-cultural society" (Habermas, 2001).

Habermas believes that the most reasonable substantiation of the above is the so-called universal identity which will make it possible to withdraw from state-, national-, partisan- and other types of identity as historically obsolete. Moreover, the political practice of the democratic state does not allow for any privileged ethnocultural form of living in a social state (Parhomenko, 2014).

The new universal identity, which has a supranational character, represents a continuous process of learning and at the same time the awareness of citizens' equal chances to participate in it, this reflecting its collectivist substance, which makes it possible to talk of immersiveness (Habermas, 1999; Habermas, 2004). Thus, the universal identity is determined by the peculiarities of communication process, which ultimately leads to the situation when the communication process actor determines his "nationality" himself.

In this regard, Habermas' idea that the emergence of the "global citizen" status is quite possible seems to be noteworthy, since the contours of global citizenship have been already outlined to a significant extent. In his view, global citizens will be able to get organised globally and create a democratically elected government in the future. Moreover, the normative cohesion of world citizens will be based on understanding of the

moral and legal framework of the society. This means that the regulatory boundaries of the cosmopolitan society are set only by the legal norms of moral nature, “moral universalism” of the global citizen’s rights.

Habermas’ appeal to the search of universal identity as a certain universal basis capable to consolidate the fragmented society is quite understandable. Habermas, considering the crisis of partisan identity on a global scale, notes the failure of the state to consolidate the society as well as the absence of institutes in the modern world capable of ensuring mutual understanding and integration of social subjects. Nevertheless, according to some researchers (Parhomenko, 2014), formation of a universal global civic identity is a utopia for several reasons. First, the world community is something abstract, and it is quite difficult to outline its universal values. Second, citizenship is a special reality which is associated with a certain territory and state; therefore, imparting a universal character to it, Habermas, though resolving the contradiction between the universal “Self-identity” and the collective identity, deprives it of the institutional character (Habermas, 2004).

It should be noted, with respect to the problem of the given research, that the nature and content of ethnocultural identity are distinguished by dynamics and multiplicity, especially in composite societies; however, Habermas mentions some common feature: “The society has an identity ascribed to it not in the trivial sense as an object may have: the latter can be identified by different observers as the same object, even if they perceive it and describe it in a different way. The society generates its identity in a certain way, and the fact that it does not lose its identity is due to its own efforts” (Habermas, 1999).

## 5. Conclusions

Generalising the views of representatives of symbolic interactionism considering the problem of ethnocultural identity, it should be emphasised that this area is distinguished by profound analysis of the ethnocultural identity phenomenon and the ways of its formation. The scholars have identified the notions of perceived and unconscious identity, dependence of identification on social space and time and the system of social institutes. By changing the paradigm of exploring the human personality and making it closer to the personality analysis in a social context, the representatives of symbolic interactionism open a perspective in the study of ethnocultural identity: organic interaction of the socio-cultural environment and the individuum. They showed that the emanation of culture and of individual “Self” takes place in the recurrent process of people’s social interaction. The individual fathers himself in the process of interaction with other people. The formation of ethnocultural identity is possible only in community with others and as a result of incessant interaction. The research studies of the representatives of symbolic interactionism are distinguished by the spirit of activity and comprehension of significant role of man as a proactive subject of his vital activity.

The problem of ethnocultural identity acquires particular relevance in the epoch of globalisation, when the differences between nations and ethno-social groups are erased, along with ignoring the folk traditions, customs, rites, i.e. the historically and culturally

established values that distinguish one nation from another, on the one hand, and that enrich the multinational culture of their country, on the other hand.

One of the key conditions for the formation of ethnocultural identity is assimilation of values, norms, beliefs of “own” socio-cultural community, which is possible in the process of social interaction, meaningful communication in terms of symbolic interactionism, on the condition of maintaining the uniqueness and singularity of the individual’s personality.

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## **Networking of educational institutions and commercial enterprises**

### **Establecimiento de redes de instituciones educativas y empresas comerciales**

**Natalia Kuzmina**

kuzminaprepodavatel@mail.ru

<https://orcid.org/0000-0002-0598-5422>

PhD in Pedagogy, Associate Professor, Far Eastern State Transport University, Russia.

**Valentina Shirokova**

appa1953@mail.ru

<https://orcid.org/0000-0002-8388-319X>

PhD in Pedagogy, Associate Professor, Far Eastern State Transport University, Russia.

**Svetlana Sitnikova**

lera\_9968@mail.ru

<https://orcid.org/0000-0002-2172-058X>

PhD in Pedagogy, Associate Professor, Far Eastern State Transport University, Russia.

**Valentina Eltsova**

Eva-40@yandex.ru

<https://orcid.org/0000-0001-5530-5686>

PhD in Pedagogy, Associate Professor, Far Eastern State Transport University, Russia.

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#### **Abstract**

Currently, in Russia there is a systemic gap between the educational service market and employers' requirements for a university graduate. Employers are not satisfied with the educational system, which cannot close this gap on its own. This situation requires access to an open educational system, which implies involvement in the training of both the educational institution and employer. As part of the research, a hypothesis about the greater efficiency of future specialist training in the format of network interaction between educational institutions and commercial companies was put forward. The purpose of the research is to prove that future specialist training in the format of networking between educational institutions and for-profit companies is more effective than the classical student training programme in Russia. As part of the research, with the case method, the essence of network interaction between educational institutions and for-profit entities and their optimal format were discovered by the example of communication between the Far Eastern State University of Communications and Russian Railways JSC. In addition, an

experiment to confirm or refute the hypothesis put forward was conducted. As a result of the research, the essence of networking between educational institutions and for-profit entities. The experiment carried out confirmed the hypothesis about the greater efficiency of future specialist training for the railway sector in the format of networking between educational institutions and the Russian Railways company.

**Keywords:** network education, universities, educational system, vocational education.

## Resumen

Actualmente, en Rusia existe una brecha sistémica entre el mercado de servicios educativos y los requisitos de los empleadores para un graduado universitario. Los empleadores no están satisfechos con el sistema educativo, que no puede cerrar esta brecha por sí solo. Esta situación requiere el acceso a un sistema educativo abierto, lo que implica la participación en la formación tanto de la institución educativa como del empleador. Como parte de la investigación, se planteó una hipótesis sobre la mayor eficiencia de la futura formación de especialistas en el formato de interacción en red entre instituciones educativas y empresas comerciales. El propósito de la investigación es demostrar que la futura formación especializada en el formato de redes entre instituciones educativas y empresas con ánimo de lucro es más eficaz que el programa clásico de formación de estudiantes en Rusia. Como parte de la investigación, con el método del caso, se descubrió la esencia de la interacción en red entre las instituciones educativas y las entidades con fines de lucro y su formato óptimo mediante el ejemplo de comunicación entre la Universidad Estatal de Comunicaciones del Lejano Oriente y Russian Railways JSC. Además, se realizó un experimento para confirmar o refutar la hipótesis planteada. Como resultado de la investigación, la esencia del trabajo en red entre instituciones educativas y entidades con fines de lucro. El experimento realizado confirmó la hipótesis sobre la mayor eficiencia de la futura formación especializada para el sector ferroviario en el formato de networking entre instituciones educativas y la empresa Russian Railways.

**Palabras clave:** educación en red, universidades, sistema educativo, formación profesional.

## 1. Introduction

The Russian railway system is under the control of a railway transportation monopoly, the company Russian Railways JSC (hereinafter Russian Railways). Russian Railways is a Russian state-owned vertically integrated company, owner of the public infrastructure, and largest carrier of the Russian railway network. The company was founded in 2003 on the basis of the Russian Ministry of Railways; 100% of its shares belong to the Russian Government.

In the Russian railway industry, despite the sanctions pressure (Nusratullin et al, 2020; Nusratullin et al, 2021), the most sophisticated projects are being implemented, on which

the future of the national transport system in particular and the country's economy as a whole depend. Such projects include upgrading the Baikal-Amur Mainline and the Trans-Siberian Mainline, the development of approaches to the southern and northern ports of Russia, the construction of the Crimean bridge, approaches to it, and others. With that in mind, the level of challenges facing the Russian Railways company requires appropriate qualifications of employees, who should not only have the appropriate knowledge but also be capable of applying it in practice. However, there is currently a shortage of professional staff in the railway industry. In this regard, the transport universities of Russia face an objective need to solve the problem: how to arrange for professionally oriented skills of future specialists in the field of railway operation during their professional training at railway universities?

Within the framework of this research, a hypothesis about the greater efficiency of future specialist training for the railway industry in the format of networking between educational institutions and the Russian Railways company was put forward. The purpose of the research is to prove that future specialist training in the format of networking between educational institutions and for-profit companies is more effective than the classical student training programme in Russia.

To achieve the goal of the research, the following challenges were set:

- 1) determination of the essence of networking between educational institutions and for-profit organisations;
- 2) determination of the format of networking between educational institutions and the Russian Railways company for the railway specialist training;
- 3) conducting an experiment to assess the effectiveness of the networking implementation at a railway university.

## 2. Literature Review

Adamsky (2002) understands networking in education as "a set of educational activity entities providing each other with their own educational resources in order to increase the effectiveness and quality of education." Networking is carried out in order to meet the needs of an individual, educational organisations, society and contributes to the development of professional skills of future specialists that meet the requirements of the knowledge economy, an increase in the level of self-esteem of personal and professional qualities in the modern labour market. This form of collaboration is an effective innovative mechanism for the integration of the stakeholders in the field of education and business (Kutuzov, 2011).

In the context of Russia's integration into the global world economy, one of the leading areas in the development of the scientific and technological complex is the design of models for the training of engineering and technical personnel based on the communication between educational institutions that implement network forms of

educational programmes and social partners represented by potential employers that ensure the combination of theoretical training with practical training in production (Neretina, 2013).

It should be noted that in Russian engineering education there has long been a collaboration between a university and a large enterprise in order to improve the learning process. However, networking in the modern sense implies much closer cooperation (Loschilova, 2015).

In the implementation of educational programmes that involve networking, along with organisations carrying out educational activities, organisations that have the resources necessary to carry out training, conduct educational and industrial practices, and carry out other educational activities provided for by the corresponding educational programme can also participate. Due to networking, it is possible to receive a more diverse range of educational services and build an individual trajectory of development. The exchange of experience and competition between network enterprises are aimed at improving the quality of education in general (Kuzmina, 2017).

A condition for successful networking between the university and business is the maximum approximation of programmes for student progress monitoring and their intermediate certification to the conditions of future professional activities. For this, in addition to teachers of special disciplines, business representatives should be actively involved as external experts (Ling et al, 2021).

In Russia, an enterprise that participates in the educational process of a university is called a "base enterprise" for the purpose of future specialist training. The base company, as a future employer, is a party interested in the training results of a student, as well as a customer and an evaluator of the quality of education. When developing and implementing graduate training programmes, universities should focus on the needs of the base enterprise as a future employer and create mechanisms to respond to these requirements in the context of the content and quality of education (Roy, 1972).

The starting point of networking is the identification and coordination of the interests of the participants, which makes it possible to formulate a strategic goal and determine the final result of this networking, based on the existing potential capabilities of the network participants (Ehrismann & Patel, 2015). In turn, the coordination of the interests of networking participants in the field of education is based on the observance of certain principles:

1. The principle of integrity. It means achieving consistency in actions to solve the assigned tasks between all networking stakeholders, as well as in the possibility of using each other's resources. This principle is implemented through the development by the base enterprise of real topics by students for term papers and theses with the award of grants following the completion of these projects, providing its production resource capacity, provides all possible assistance in the ability to conduct

experiments on its equipment and testing grounds. The base enterprise supplies the latest technical equipment for university laboratories, in which students consolidate theoretical training with practical exercises as close as possible to real production settings (Shuklina & Pevnaya, 2018).

2. The "leading link" principle implies the presence of an integrator participant who is prepared to incur additional transaction costs for maintaining the network functioning (which pay off in the long term). The university provides intellectual resources for the development of projects and programmes relevant to the enterprise. 2. The base enterprise receives competent specialists who, without preparation or adaptation, begin their immediate duties after graduation, and during the internship, students work in paid workplaces, since there is no need to retrain them additionally and confirm their qualifications (Davydova & Fedorov, 2013).
3. The principle of voluntariness implies an independent determination of the structure of networking with other entities in the specific task implementation. This principle presupposes the freedom to choose the network form of relations between the participants as an institutional and organisational alternative (Vasilenko, 2014).
4. The principle of congruence (coordination of action). Network partners are different entities, each of which has its own leadership; therefore, interaction will be successful only when mechanisms for its coordination and coordination are developed, which can occur through the coordinating organisation or collegially in the case of cooperative ties, for example, through the board of organisations, network partners (Kutuzov, 2011).
5. The principle of freedom, that is, the ability to determine priorities in their own activities with responsibility for the ultimate outcome. The priority activity of the university is the development of a list of competencies among students, future specialists. The university develops educational programmes, implementation mechanisms, assessment tools, and assessment criteria to achieve the ultimate outcome. The priority goal of the base enterprise is to obtain graduates from the university who have shaped knowledge, skills, and abilities according to the qualification characteristics of the specialty. To achieve this goal, the base enterprise sets up for the university an order for targeted student training in specific specialties, to fill specific positions in certain areas of work. Targeted training of students or future specialists allows the company to develop its staff according to the development plans. At the same time, the targeted training of students or future specialists makes it possible for the university to plan its educational activities for training in certain specialties, and, based on those goals, develop its personnel potential, facilities, and resources (Elagina et al, 2017).
6. The principle of feedback. Reflection is one of the most important stages of any activity; understanding how the process is going, what helps and what hinders its optimization, contributes to the timely elimination of its risks; therefore, reflection "on the ground" and regular analysis by the coordinating body of the details of the process on the basis of the established features of practical activity help to adjust the organisational, technological, and content sides of an activity (Kozyr et al, 2021).

In higher education, networking takes place not only between the educational process participants but also between the customers of the educational service, such as employers, on the one hand, and universities, on the other. The purpose of networking is to train a student, future specialist according to the requirements for the specialty and taking into account the requirements of a particular enterprise for the qualitative characteristics of a specialist in the professional field. With such networking, the employer or the base company, along with the university, are a party to the specialist training. The networking possibilities are determined and depend on the usefulness that this organisation of the educational process provides for each party to the network.

By summarising the implementation of the principles of networking between the university and the employer, the base enterprise, one can conclude that during networking, all the prerequisites are created for the implementation of professional and educational goals for training students or future specialists with obtaining significant professional educational results (Rayevnyeva et al, 2018). As part of education upgrading, it is expedient to rethink the basic forms of professional training of future highly qualified specialists. One of the most effective areas is the integration of employers into the educational process as social partners of educational institutions that implement a network form of communication. The involvement of employers in young specialist training through the provision of conditions for professional trials, industrial practice, and engagement in the labour collective contributes to the acquisition of knowledge about the production process and skills at educational institutions with a lack of facilities, resources, or production sites for practical training, as well as the creation of supra-professional competencies for future specialists (Usmanov et al, 2021).

### **3. Methods**

As part of the research, with the case method, the essence of networking between educational institutions and for-profit entities and their optimal format were revealed by the example of collaboration between the Far Eastern State University of Communications and Russian Railways. In addition, an experiment to confirm or refute the hypothesis about the greater efficiency of the future specialist training for the railway industry in the format of networking between educational institutions and the Russian Railways company was carried out. For this, groups of students of 128 people were selected and called control ones for reference (67 people) and experimental ones (61 people). The control group studied during the academic year according to the classical educational programmes, while the experimental one did so according to the programmes jointly made by the Far Eastern State University of Railways and Russian Railways JSC. At the beginning and at the end of the academic year, questionings were conducted to determine the readiness of students or future specialists for professional activities according to the following criteria:

- 1) a positive attitude towards professional activities and motivation to study at a technical university;
- 2) management skills and abilities;

- 3) design and engineering skills and abilities;
- 4) The ability to solve professional problems.

#### 4. Results and Discussion

Networking between the Far Eastern State University of Railways and Russian Railways is manifested in the educational and scientific fields. In the educational field, networking is manifested as follows (Kuzmina, 2015):

- in determining the real topics of terms papers and final qualification papers of students/future specialists as ordered by the base enterprise. The development of real topics of terms papers and final qualification papers allows students/future specialists during theoretical studying at a university to immerse themselves in a professionally oriented environment, collect material for research directly at an enterprise, and get to know production technologies, tools, equipment. The development of real topics makes it possible for students to engage in not abstract educational activities but real practice-oriented activities;
- in the engagement of the heads of the base enterprise in the activities of state examination commissions with an expert assessment for final qualifying papers;
- in organising and conducting internships for students at the base enterprise, developing requirements for the goals and outcomes of internships with the determination of the required list of learned practical professionally oriented knowledge, skills and practical experience.

In the academic field, networking of the Far Eastern State University of Railways and Russian Railways JSC is manifested as follows (Kuzmina, 2015):

- in organising and participating in scientific and practical conferences;
- in providing university teachers with resources and facilities for conducting scientific experiments.

The Far Eastern State University of Railways has developed a set of conditions and a regulatory framework in the form of local regulations, where the idea of networking is clearly indicated. The problem of the quality of specialist training is directly related to the content of education and the technology of implementation of curricula that allow graduates to engage in the performance of their immediate duties without any additional preparation and adaptation to the conditions of real production. This interaction, which satisfies the principles of voluntary entry into the network, willingness to share resources, multiple levels of interaction based on a unifying goal, contributes to the formation of professionally oriented skills due to:

- joint determination of a list of real topics of term papers and final qualification works of students by order of the base enterprise;

- immersion of students in a professionally oriented environment and pedagogical support by a mentor from an enterprise of internship;
- jointly organising and holding research-to-practice conferences;
- using resources and facilities of the enterprise for conducting scientific experiments;
- participation of the heads of the base enterprise in the final state certification of graduates.

Networking of the Far Eastern State University of Railways and Russian Railways provides the opportunity:

- for Russian Railways to influence the quality of specialist training in determining the requirements for competencies, participation in the educational process and assessing the level of creation of the professionally oriented skills; using the intellectual potential of a university; experience in applied research and methodological work;
- for the Far Eastern State University of Railways to understand the real problems and features of the professional activities of railway transport specialists, participating in the solution of them and orienting the educational process towards their elimination; enriching teachers with promising technical and methodological ideas and stimulating the creation of new pedagogical technologies;
- *for students* – active participation in the process of learning and professional development, the formation of working skills in a team, and the acquisition of experience in solving professional problems.

All of the above determines the need to arrange for the engineering and technical personnel training, providing an effective result by combining theoretical training with the development of professionally oriented skills in production in the context of networking interaction educational institutions and base enterprises. Meeting the employer's graduate training requirements with professionally oriented skills is an urgent task of training future specialists.

To substantiate the tasks, it is necessary to proceed from the fact that the learning outcome will be achieved if the composition and content of professionally oriented skills are specified, a professionally oriented educational environment is created and joint pedagogical support of practices is organised by an experienced mentor. This is carried out at the stage of goal-setting with cooperation between the university and base enterprise as the key stakeholders in the process. The goals indicated in the form of the formation of the composition and content of professionally oriented skills are achieved in the conditions of the created professionally oriented educational environment. The variety of possibilities of this environment is determined by a set of working specialties which is chosen by the student taking into account personal needs and the design of a life situation. The three-level practices conducted (educational, station-technological, and production-technological) allow a student to present his/her activities in building a personality-oriented educational trajectory for shaping professionally oriented skills. The



professional orientation of the educational environment allows students to obtain theoretical knowledge, to form the required minimum of skills and abilities, to develop professional mobility according to the educational requirements and qualification characteristics of the specialty and affects the competitiveness of graduates.

The joint organisational and pedagogical support for practices by a qualified mentor adapts students to the conditions, content, and results of professional activities in the specialty according to the base enterprise's requirements. Pedagogical support is understood as providing assistance and support in overcoming difficulties arising in passing the internship. To do this, it is necessary to be accompanied by a teacher, on the one hand, pursuing the goal of consolidating theoretical knowledge, on the other hand, an experienced specialist mentor, emphasising the skills of practical activities and shaping the professionally oriented skills.

For this, internship programmes focused on the said goals are developed through competitive selection, qualified mentors motivated to improve the quality of specialist training are specially selected, and as a result, adapted to the conditions of real production of a student or a future specialist.

The network education is spreading at Russian Railways JSC; its integral part is the creation of basic departments at enterprises. In such a way, students are getting closer to production, which means that the percentage of real engineering solutions in graduation projects will grow. However, this process is still in its initial stage at the Far Eastern State University of Railways. The networked system provides a powerful research base and a host of opportunities for talented students. For example, students in their educational work can work out "bottlenecks" in the operations of the enterprise.

To confirm or refute the hypothesis about the greater efficiency of future specialist training for the railway industry in the format of networking between educational institutions and the Russian Railways company, an experiment was carried out. For this, groups of students of 128 people were selected and called control ones for reference (67 people) and experimental ones (61 people). The control group studied during the academic year according to the classical educational programmes, while the experimental one did so according to the programmes jointly made by the Far Eastern State University of Railways and Russian Railways JSC. At the beginning and at the end of the academic year, questionings were conducted to determine the readiness of students or future specialists for professional activities according to the following criteria: 1) a positive attitude towards professional activities and motivation to study at a technical university; 2) management skills and abilities; 3) design and engineering skills and abilities; 4) the ability to solve professional problems. The results of the experiment are presented in Table 1.

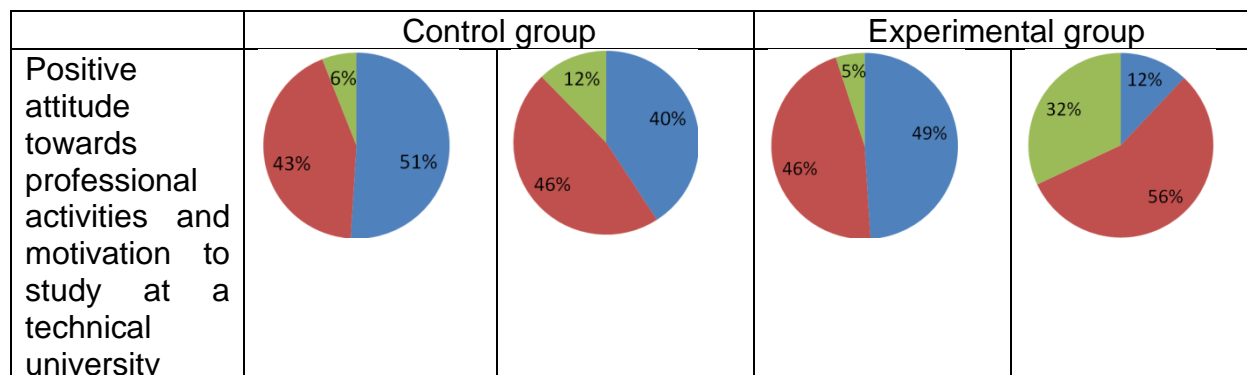
**Table 1.**

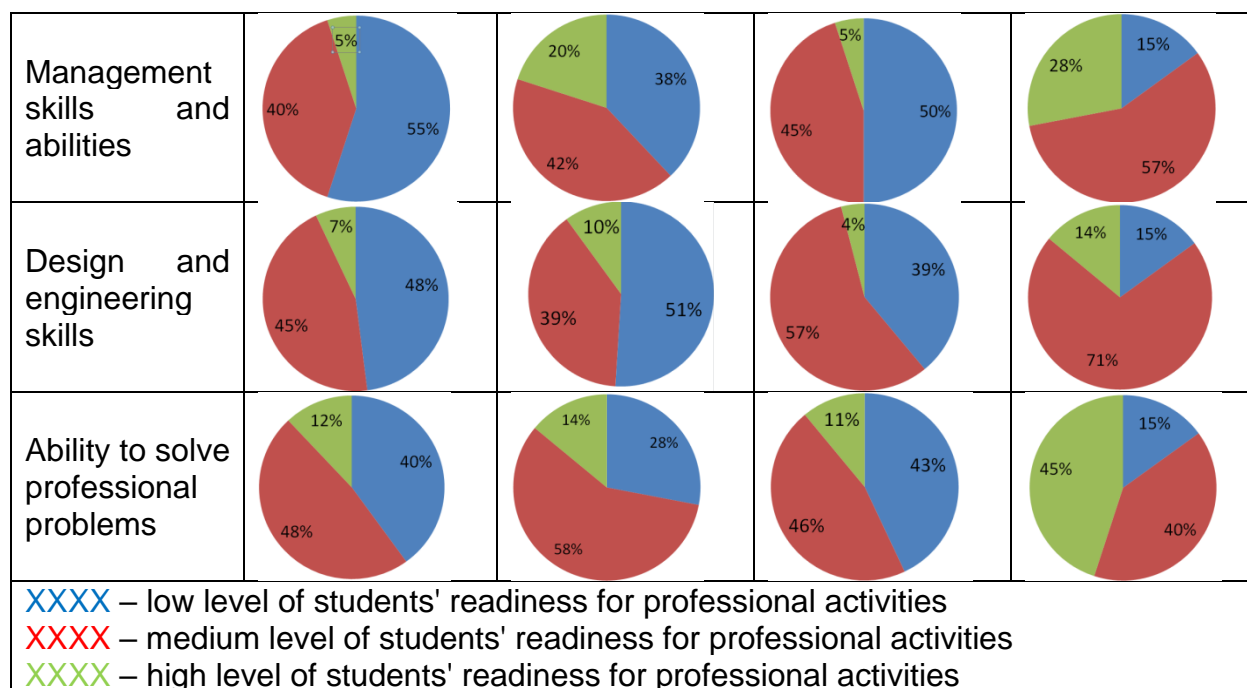
*Dynamics of the readiness of students or future specialists for professional activities at the beginning and end of the experiment.*

Criteria	Levels	Before experiment						After experiment					
		Control group			Experimental group			Control group			Experimental group		
		Low, %	Medium, %	High, %	Low, %	Medium, %	High, %	Low, %	Medium, %	High, %	Low, %	Medium, %	High, %
Positive attitude towards professional activities and motivation to study at a technical university		51	43	6	49	46	5	40	46	12	12	56	32
Management skills and abilities		55	40	5	50	45	5	38	42	20	15	57	28
Design and engineering skills		48	45	7	39	57	4	51	39	10	15	71	14
Ability to solve professional problems		40	48	12	43	46	11	28	58	14	15	40	45

Source: data obtained by the authors on the basis of a questionnaire

As part of the experiment, it can be seen that according to all indicators of the readiness of students or future specialists for professional activity (positive attitude towards professional activities and motivation to study at a technical university, managerial skills, design skills and abilities, the ability to solve professional problems), there is significant growth in the experimental group as opposed to the control group. This can be seen more clearly in Figure 1.





Source: data obtained by the author on the basis of a questionnaire

**Figure 1.** Dynamics of the readiness of students/future specialists for professional activities at the beginning and end of the experiment.

The conducted experiment showed that two groups, control and experimental, had approximately the same indicators at the beginning of the experiment. For example, according to the indicator “Positive attitude towards professional activities and motivation to study at a technical university” in the control group, 51% of students showed a low level of readiness for professional activities, 43% an average level and only 6% a high level. In the experimental group: 49% showed a low level of students’ readiness for professional activity, 46% – average and 5% – high.

However, the situation changes dramatically after the experiment. In the control group, the indicators slightly increased, 40% of students showed a low level of readiness for professional activities, which is 11% lower than the same indicator before the experiment, 46% of students showed an average level, which is 3% higher, 12% showed a high level, which is higher by 6%. The experimental group’s indicators are much better, 12% of students showed a low level of readiness for professional activities, which is 37% lower than the same indicator before the experiment, 56% of students demonstrated an average level, which is 10% higher, 32% showed a high level, which is higher by 27%.

A similar situation is developing in terms of such indicators as management skills and abilities, design and engineering skills, ability to solve professional problems. All this suggests that networking between educational institutions and the Russian Railways company leads to specialist training at much higher levels of readiness for professional activities than the classical student training patterns. Thus, the hypothesis about the

greater efficiency of future specialist training for the railway industry in the format of networking between educational institutions and the Russian Railways company has been confirmed.

## 5. Conclusions

Networking between universities and business is aimed at training a professional theoretically literate, professionally oriented, encouraged to network, and, as a result, a professional competitive in the labour market. Networking opportunities open up new prospects for further cooperation between educational institutions and social partners in the implementation of advanced training.

Networking is carried out in order to meet the needs of individuals, educational institutions, society and contributes to the creation of professional competencies of future specialists that meet the requirements of the knowledge economy, increase the level of self-esteem of personal and professional qualities in the contemporary labour market. This form of networking is an effective innovative mechanism for integrating the participants in relations in the field of education and production.

As part of the research, the essence of networking between educational institutions and for-profit entities has been determined, and the optimal format for such networking has been determined. The experiment carried out confirmed the hypothesis about the greater efficiency of future specialist training for the railway industry in the format of networking between educational institutions and the Russian Railways company.

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## How to improve online assessment procedures in high school?

### ¿Cómo mejorar los procedimientos de evaluación en línea en la escuela secundaria?

**Ye. Yu. Orekhova**

orehova\_eju@surgu.ru

elena8778@mail.ru

<https://orcid.org/0000-0002-4954-9518>

PhD, Associate Professor

Department of Foreign Languages, Surgut State University, Surgut, Russia.

**S.M. Sysoev**

sysoev\_sm@surgu.ru

smsysoev57@mail.ru

<https://orcid.org/0000-0002-5180-571X>

PhD, Associate Professor

Department of Experimental Physics, Surgut State University, Surgut, Russia.

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#### Abstract

At present blended learning provides an opportunity to get an education regardless of external circumstances, such as pandemics and quarantine. Still, increasing student motivation to master new material and level of acquisition of knowledge is one of the challenges faced by teachers as the field of teaching online is subject to constant changes. This study aimed to elaborate the model of enhanced assessment in an e-learning course "General English" when teaching English as a second language at university to increase student educational achievements. The effectiveness of the model of enhanced assessment in the learning process was measured with the methodology for calculating statistical indicators of the quality of education: knowledge quality, level of student proficiency, progress, and average grade. The results of the initial and final control of the statistical indicators of the quality of education showed a significant difference between the control and the experimental groups. It is concluded that the replacement of formal types of assessment with the model of enhanced assessment is the key to increasing student educational achievements.

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**Key Words:** higher education, blended learning, the English language, e-assessment, e-learning course.

## Resumen

En la actualidad, el aprendizaje combinado brinda la oportunidad de obtener una educación independientemente de las circunstancias externas, como las pandemias y la cuarentena. Aún así, aumentar la motivación de los estudiantes para dominar nuevos materiales y el nivel de adquisición de conocimientos es uno de los desafíos que enfrentan los docentes, ya que el campo de la enseñanza en línea está sujeto a cambios constantes. Este estudio tuvo como objetivo elaborar el modelo de evaluación mejorada en un curso de e-learning "Inglés General" al enseñar inglés como segundo idioma en la universidad para incrementar los logros educativos de los estudiantes. La efectividad del modelo de evaluación mejorada en el proceso de aprendizaje se midió con la metodología de cálculo de indicadores estadísticos de la calidad de la educación: calidad del conocimiento, nivel de competencia del alumno, progreso y nota media. Los resultados del control inicial y final de los indicadores estadísticos de la calidad de la educación mostraron una diferencia significativa entre los grupos control y experimental. Se concluye que la sustitución de los tipos formales de evaluación por el modelo de evaluación mejorada es la clave para aumentar los logros educativos de los estudiantes.

**Palabras clave:** educación superior, semipresencial, idioma inglés, e-evaluación, curso de e-learning.

## 1. Introduction

In 2019 - 2021 Coronavirus crisis affected the way of our life globally. The system of education was modified to survive and to provide students with the opportunity to master the learning material and to get consulting support from teachers. The transition from traditional to blended or distance learning was under necessity but due to digitalization, it was possible as many educational institutions actively use modern information and communication technologies in teaching (Orekhova, 2017). Nevertheless, in the pandemic period, some students were not psychologically prepared for e-learning courses/resources. They experienced difficulties due to lack of live communication with the teacher; lack of sufficient experience of independent work; low level of preparation for working in an electronic environment. Working at a distance, lecturers do not contact a student in person, and cannot track his/her problems and difficulties arising in the course of learning (Gökbulut, 2020). Teaching English in an e-learning course in high school requires more support and interaction to help students adapt to new ways of teaching (Fishman, 1993; Hattie, & Timperley, 2007; Appiah, & Tonder, 2018; Kushnyr, 2018). Therefore, there is a high demand for ways and means of teaching and assessing student educational achievements in electronic resources (Brink & Lautenbach, 2011).



How can we control the evaluation of knowledge and skills learned at a distance and their relevance? Can electronic assessment be effective? Does electronic assessment allow to motivate students?

The issue of assessment and control in e-learning has been studied in different scientific and methodological works (Jacques, Ouahabi, & Lequeu, 2021; Jiang, Wu, Cheng, Wang, Xie, & Fitzgerald, 2021). “E-assessment includes the use of any technological device to create, deliver, store and/or report students’ assessment marks and feedback” (Howarth, 2015). Laptops, desktop computers, smartphones, iPads, Android tablets, and other devices can be used to create and implement e-assessment tasks. Different media formats such as Word documents, portable document formats (e.g., pdf), videos, images, simulations, or games may be used to support e-assessment (Crisp, 2011). E-assessment (the electronic delivery of assessment) is an element of e-learning that has the potential to become a preferred form of assessment, as opposed to the traditional way of assessing students (Gray, 2016).

According to M. Appiah and F. Tonder (2018), the benefits of e-assessment can not be denied whether it is used for formative or summative purposes. Firstly, “in e-assessment, many students can be assessed within a given timeframe, especially if their answers are marked automatically”. Secondly, it includes immediate student and lecturer feedback. Thirdly, there is an automated possibility to repeat and randomize tests. Fourthly, computer-marked assessment is consistent and fair. In addition, students have a chance to complete assessments anywhere and at any time, thus e-assessment is time-saving.

Besides, students have an opportunity to take responsibility for their learning (Howarth, 2015). One more benefit, indicated by Howarth (2015) is cost-effectiveness. The researcher admits that there is no need to hand out question papers and mark them afterward; students with special needs or disabilities can adjust the font size and change colors; voice notes can be created for students to listen to, using their headphones; automated tests are delivered securely, and marking is more reliable (Howarth, 2015).

On the other hand, the benefits of e-assessment may turn out to be its disadvantages. To begin with, in e-assessment immediate automated results and feedback are not enough as some learners cannot do self-correction independently. It takes them much time and effort to complete e-assessment and analyze their mistakes (Noyes, Garland, & Robbins, 2004). One more difficulty is assessing low-order skills only and a limited set of options.

Thus, the acquisition of new material may be poor and the knowledge may be superficial. Thirdly, scientists, Osuji (2012) and Craven (2009) show that e-assessment is not cost-effective as the cost of a computer or laptop, Internet cost (cost of buying data) are high enough. High-speed Internet infrastructure and cameras in assessment rooms are also expensive. Another benefit, time-saving, is true for students and a challenge to lecturers as designing “e-assessment activities requires time and experience since the lecturer

needs to ensure that the activities continue to be of a high standard” (JISC, 2006). Ideally, assessment tasks must be challenging, consistent, transparent, and practical.

Summarizing the above, digitalization of the modern educational system has brought forward the replacement of traditional assessment with e-assessment in all disciplines, educational structures, and at all educational levels. The English language is on the list of academic disciplines that are partially placed in e-learning resources. Teaching English through an e-learning resource in high school requires much support to help first-year students adapt to e-assessment. Lack or deficiency of live communication is fatal for teaching foreign a language. Therefore, a new approach to organizing assessment in the educational process in an electronic resource is needed.

At present most educational institutions in Russia place their assessment tasks on servers for students to access at any time and from anywhere, provided they have access to a server. Universities can use e-assessment facilities that are already built into a learning management system (LMS) for example Modular Object-Oriented Dynamic Learning Environment (Moodle), Blackboard, etc. (Osuji, 2012; Winkley, 2010). Typical assessment tasks supported by the Moodle LMS include a variety of questions: calculation questions, calculated multi-choice questions, calculated simple questions, cloze questions, etc. Besides, the educational platform Moodle can be customized to meet the particular institution’s needs, policies, regulations, and peculiarities of certain academic disciplines (Moodle, (n/d)).

## 2. Methodology

The hypothesis of the research is the use of the model of enhanced assessment in the e-learning resource “General English” increases student educational achievements in studying English as a second language.

This research included 54 students (41 females and 13 male aged 16 - 23) of the 1 course of the Medical Institute and the Institute of Economics and Management and was conducted at Surgut State University in Surgut, Khanty-Mansi Autonomous Okrug – Yugra, Russia. The research design was carried out with an experimental study including three stages: the initial stage, the experimental stage, data collection, and the final stage.

The first stage was to search and select the relevant literature sources; to analyze and compare the approaches of different scientists to e-assessment and its functions. The analysis of scientific articles was carried out in electronic databases Web of Science, Scopus, E-library. The second stage included a pedagogical experiment carried out within the real educational process. The purpose of the experiment was to test, obtain the data required, analyze the results of the implementation of the model in student groups and confirm or reject the hypothesis. The study included experimental and control groups. The conditions and content of the educational program in both student groups were identical, except for using different pre-testing tasks.

The experiment was conducted during one semester. In the first two months, the student groups had no difference in the course elements. In two months, in the middle of the experiment, both groups studied three themes (“About myself”, “University. Student Life”, “Surgut State University”, passed three tests, and completed three projects. After that, the statistical indicators of the quality of education (Simonov, 1999) such as knowledge quality, level of student proficiency, progress, average grade were measured.

In the next two months, the experimental group did enhanced assessment tasks. The enhanced assessment showed the students both the results of their work and feedback about the task, processing of the task, and self-regulation (comments, recommendations, suggestive questions, explanations, references) answering three major questions of effective feedback:

In the second part of the experiment, the students of both groups studied two next lectures (“My Homeland”, “Education in Russia and abroad”), passed three tests, and completed three projects. At the end of the course (in 4 months), the statistical indicators of the quality of education were measured for the second time.

In the study, such methods of statistical analysis as statistical observation, summary, grouping, and analysis of data, presentation of statistical material were used. Calculation of the average value of the quality of knowledge, the level of student proficiency, progress, and the average grade was automatically carried out in the program Excel.

### **3. Results and Discussion**

The research aimed to enhance the process of e-assessment by making computer-based assessments more viable, including both low and high-order skills assessments, combining computer and teacher-based assessments.

The academic discipline “General English” is taught for first-year students of non-linguistic specialties according to the blended learning model, the interaction of teachers and students in the e-learning course takes place remotely at the educational platform LMS Moodle. The academic course working program includes practical studies, 2 academic hours per week. When compiling the scenario of the discipline, the technology of the inverted class was used. Thus, reproductive tasks were placed into the e-learning course, for example, studying new vocabulary when reading or listening to a text. Grammar tasks, including studying new grammar material, performing simple tests for correct use of a form, identifying use cases, finding errors were placed into the e-learning course. The tasks of the productive level, such as a presentation of rendering an article, a presentation with commentary, an oral monologue on the topic, were conducted in the classroom. Each task in the e-learning course was assessed automatically and a short commentary was in most cases provided to motivate students to do the tasks properly and in time.

Both formative and achievement tests were used to understand how well students learned the course material; to decide whether or not to teach the same module; to give students short feedback on their strengths and weaknesses in the course material.

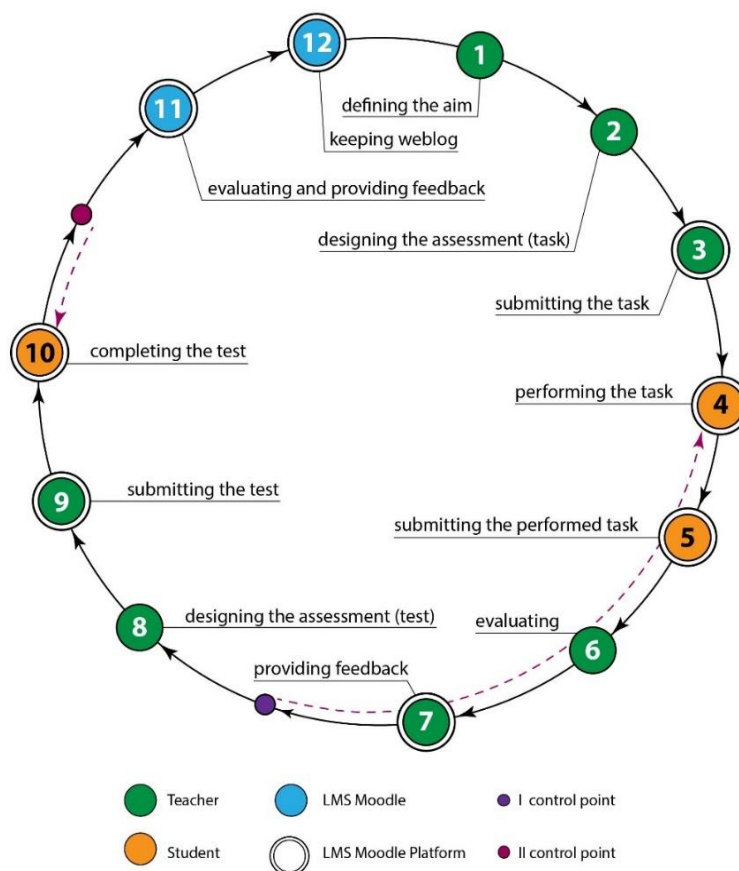
The proposed model presents an assessment cycle showing the stages of the assessment process in the e-learning resource "General English". The structure of the model is constituted by four components: Lecturer, LMS Moodle, Assessment, and Student. Additionally, the model is supplemented by the Teacher-Student Feedback Flow and two Control Points.

The model can be applied to formative e-assessment and to any scale of learning from a two-year degree to a one-week course. It can cover grammar and vocabulary aspects in reproductive tasks in receptive language activities such as listening and reading.

The assessment cycle includes 12 stages and 2 control points. The assessment cycle includes 12 stages and 2 control points:

1. defining the aim of the assessment (task) by the teacher;
2. designing the task by the teacher;
3. submitting the task in LMS Moodle by the teacher;
4. performing the task by the student;
5. submitting the performed task in LMS Moodle by the student;
6. evaluating by the teacher;
7. providing feedback in LMS Moodle by the teacher/student;
8. 1 control point
9. designing the assessment (test) by the teacher;
10. submitting the test in LMS Moodle by the teacher;
11. completing the test in LMS Moodle by the student;
12. evaluating and providing feedback in LMS Moodle by LMS Moodle;

2 control point keeping weblog in LMS Moodle by LMS Moodle (See Figure 1).



**Fig.1.** Presents the model of enhanced assessment in the e-learning resource “General English” when teaching English as a second language in high school.

Defining the aim of the assessment task, designing the assessment task, submitting the task in LMS Moodle, evaluating and providing feedback, designing the assessment test, submitting the test in LMS Moodle are the responsibilities and responses executed by the teacher. The student is responsible for performing the task, submitting the performed task in LMS Moodle, providing feedback in LMS Moodle, completing the test in LMS Moodle. LMS Moodle serves the delivery platform at most stages of the cycle and assesses the test automatically by the parameters placed by the teacher, provides immediate feedback on the result.

The innovation of the proposed model is including of non-computer-based assessment at the beginning of the cycle when the student is given a task, for example, to read the information about new grammatical phenomena/use of new lexical units/about the system of higher education in Britain and to design a test (10 questions) of his/her own by the sample. Each question must include 2-4 answers where one answer is correct and the others are not. Each option should be explained why it is correct or not.

In case several students write the same question, the first performed task submitted in LMS Moodle is evaluated. The rest of the students are asked to supplement the task with new questions. The pass percentage is 60%, that is the task is considered completed if the questions have not been previously presented by anyone and no more than 40% of mistakes in the work are admitted. When the conditions are not met, the student is asked to complete the given task again. Evaluation and feedback are performed by the lecturer. The second part of the cycle includes the teacher designing the assessment test (not a task) by selecting and using the questions presented by the students in the previous assessment task. The test may include 15-20 questions and the pass percentage is 60%. Evaluation and feedback are performed by LMS Moodle. When the conditions are not met, the student is asked to complete the given test again. Evaluation, feedback, and keeping weblog are performed by LMS Moodle.

## **Experiment**

The experiment was carried out to prove the model's capability to increase students' educational achievements when formative assessment is organized in an e-learning resource and serves as an assessment for learning (Richards, 2015, 677; Black, Lee, Harrison, Marshall, 2004). The experiment was composed of the model implementation in teaching first-year students English as a second language and evaluation of the model effectiveness. The quality of education is a comprehensive characteristic of educational activities and educators, the corresponding degree of their compliance with state educational standards, educational standards, federal-state requirements, and (or) the needs of an individual or legal entity in whose interests educational activities are carried out, including the degree of achievement of the planned results of educational programs (Federal Law No. 273, 2012; Orekhova et al., 2018; Orekhova et al., 2019; Orekhova et al., 2020). To evaluate the effectiveness of the proposed model the statistical indicators: knowledge quality, level of students' proficiency, progress, and average grade were considered and calculated by the calculation formulae for the quality of education.

## **Model implementation**

The implementation was achieved by designing the assessments in the second part of the first semester in the experimental group according to the proposed model. Firstly, the students and teachers were given detailed instructions about the changes in the assessment within the e-learning resource at the beginning of the course. Secondly, the teachers monitored the results of the assessment in the experimental and the control group, considering students' knowledge quality, level of students' proficiency, progress, average grade; students' satisfaction with studying in the e-learning resource in both groups was also taken into account.

The examples of employing the model of enhanced assessment in the e-learning resource when teaching English as a second language in High School are demonstrated below.

To check the understanding of the text read or listened to, as well as to check the understanding of the grammatical and lexical material studied, audio and video materials, the following tasks were designed:

### **Example 1.**

*Dear Students! Read the text "Surgut State University" and make a test (10 sentences) of Your own by the sample. Types of questions are multiple-choice and/or true/false and/or finding the equivalent. In multiple-choice sentences, 3 options must be suggested. In true/false statements two options are available. In finding the equivalent sentence one option is needed. Each option should be explained why it is correct or not.*

*In case several students write the same question, the first performed task submitted in LMS Moodle is evaluated. The rest of the students are asked to supplement the task with new questions.*

*The pass mark is 6, i.e. at least six questions must be new, used, and written correctly. You are welcome to ask questions in the comment section. Good luck! The deadline is...*

### **Surgut State University**

Surgut State University is one of the leading and largest Universities in Khanty-Mansi Autonomous Okrug – Yugra. Surgut State University was established on the 26th of May in 1993 as the first classical university in our region. Nowadays Surgut State University has become a significant scientific, educational and cultural center in Surgut District and the whole region.

The university implements programs of higher education of all levels on a wide range of areas and specialties on the basis of six educational and scientific institutions: Humanitarian Education and Sport, the State and Law, Natural and Technical Sciences, Economics and Management, Medical and Polytechnic Institutions. The principles of continuous education are being introduced, and training clusters "school - college - university - enterprise" are built. Professional retraining and further training of specialists are carried out.

The priority areas of the research activities of the University are IT technologies, Oil chemistry, Nature management, Ecology, Medicine of the North. The University has the largest scientific library in the region with a fund of over 600 000 volumes. The university research complex includes dozens of specialized laboratories, scientific and research centers, and innovation infrastructure, and a research library. The University campus includes 3 comfortable dormitories for students and staff.

The highly qualified academic staff of Surgut State University includes 600 lectures; among them, there are about 110 Doctors of Science and Education and about 300

Associate Professors, PhDs (Candidates of Science). About 9000 students get higher education at SSU.

The University Education Plan provides academic programs to get Bachelor's and Master's Degrees. Students have an option to get full-time or part-time education. Diploma programs focus on developing practical, scientific, and language skills. Students can get significant career prospects in the chosen industry or profession. Surgut State University also offers postgraduate courses in various specialties for postgraduate students and young scientists.

Surgut State University allows its graduates to get a Certificate of English language translator in the sphere of professional communication, which can be very useful in their future careers. Lecturers and students of Surgut State University have a great chance to learn foreign languages and take international language exams at the university Language Test Center. Here the students can also find information about various educational exchange programs (Surgut State University, (n/d)).

*Examples:*

1. *Surgut State University is translated «Сургутский государственный университет». – True/false (The answer is True. Surgut State University is translated «Сургутский государственный университет»).*
2. *Khanty-Mansi Autonomous Okrug – Yugra is translated*
  - a) *«Ханты-Манси Автономный округ – Югра»,*
  - b) *«Ханты-Мансийский Автономный округ – Югра»,*
  - c) *«Ханты-Мансийский Автономный округ – Угра».*

*Option a) is not correct as “Манси” is used to name Ugrian indigenous people living in Khanty-Mansi Autonomous Okrug.*

*Option b) «Ханты-Мансийский Автономный округ – Югра» is correct.*

*Option c) is not correct as the write spelling of “Yugra” is «Югра»)*

3. *Find the English equivalent in the text: «ведущий университет» (The answer is “leading university”).*
4. *Give the Russian equivalent: “Certificate of English language translator in the sphere of professional communication” (The answer is «сертификат переводчика в сфере профессиональной коммуникации»).*

Having checked the students' answers, the lecturer gives feedback about the results of the task, processing of the task, and self-regulation (comments, recommendations, suggestive questions, explanations, references). If the sentences/questions have not been previously presented by anyone and no more than 40% of the shortcomings in the work are admitted, which are presented in the feedback by the teacher and analyzed and



corrected by the student. In case the pass percentage is more than 60% (errors have been analyzed and corrected by the student) and the sentences/questions are new the task is considered completed. When the condition(s) are not met, the student is asked to complete the given task again. Evaluation and feedback are performed by the lecturer.

After analyzing the results of students 'works in terms of assessing their level of knowledge acquisition and providing students with feedback, the lecturer selects and uses the sentences/questions presented by the students in the previous assessment task to design the assessment formative test. The number of questions in a test can be 15-20. One right answer – 1 score. The pass percentage is 60%.

The instruction of the assessment test is presented in the following way:

*Dear Students! Read the text “Surgut State University” again and do the test. There are 20 questions in the test. You will have 40 minutes to complete the test. The pass mark is 12. Good luck! The deadline is...*

**The analysis of** the results of the initial and final control of the statistical indicators of the quality of education showed the difference in the results of achievement tests in the control and experimental groups at the final control (See Table 1).

**Table 1.**  
*The results of the pedagogical experiment.*

Test	initial		final	
	control	experimental	control	experimental
Type of group	control	experimental	control	experimental
Number of students	25	24	25	24
Knowledge quality	48%	46%	60%	83%
Level of student proficiency	46%	44%	60%	73%
Progress	72%	71%	84%	87,5
Average grade	3	2,9	3,7	4,3

At the first stage of the experiment, there was no considerable difference in the course assessment elements. However, it should be mentioned that four statistical indicators of the quality of education were below the average level, knowledge quantity in particular. According to the criteria for assessing learning indicators, knowledge quantity below 33% is “critical”, from 33% - 49% is accepted, from 50% - 74% is optimal, from 75% - 100% is high. In the first part of the experiment, the indicator’s level was “accepted”. The average grade in both groups was 2.9 – 3, which can be explained by the fact that some students had never studied electronic regular university courses before, their self-control was not

sufficient enough. Besides, foreign students also had difficulties with understanding the content of the course as both languages English and Russian are foreign for them.

At the second stage of the experiment, according to the data presented in Table 1, the indicators of the quality of education including knowledge quality, level of students' proficiency, progress, and average grade showed a visible difference in the control and the experimental groups. At the end of the semester, the difference in knowledge quality was 23%, level of students' proficiency – 13%, progress – 3.5%, average grade – 0.6 scores. The inconsiderable difference in indicator of progress can be explained by the fact that it included the number of students who mastered the educational program with no difference in the score. All the above-mentioned allows concluding that enhanced assessment tasks in the e-learning course can have the potential to support and improve student learning results.

#### **4. Discussion**

Summing up the data obtained, the proposed model can be implemented in all forms of education: traditional, blended, and distance education; it can be used in formative assessment; it can be applied to academic disciplines, including lectures and practical studies. The use of enhanced assessment tasks serves several goals: to assess, to improve, to support, to promote self-regulation, and to increase students' learning achievements. In addition, lack of live communication with the teacher is compensated by providing pedagogical feedback.

However, the study indicates that effective implementation of the proposed model at the beginning of the course is ensured by sufficient time input. At the beginning of the first year, students need more lecturer's support and control as the system of higher education differs from school education greatly. On the other hand, teachers do not spend long hours designing tests as the assessment test includes the statements/questions done by the learners. Greater time input at the beginning of the course is compensated by students' increased self-control, satisfaction with the results of studying the academic discipline "General English" and educational achievements at the end of the course.

#### **5. Conclusion**

Digitization of the educational system has brought forward partial or complete replacement of traditional assessment with e-assessment in most disciplines. The English language as an academic discipline is partially placed in e-learning resources. Deficiency of live communication, the insufficient experience of independent work, and other factors are critical for teaching foreign languages, especially during the first year. Accordingly, teaching English through an e-learning resource in high school requires much support to help first-year students adapt to e-assessment.

The present research aimed to elaborate the model of enhanced assessment in an e-learning resource "General English" when teaching English as a second language. in high

school and to evaluate the model efficiency. The paper affirms that the proposed model of enhanced assessment has the potential to support, motivate and improve student learning, provided that the assessment tasks are properly designed.

The novelty of this research was turning the process of assessment in an e-learning resource into communicative interaction using Teacher-Student Feedback Flow that is especially relevant for successful English language teaching. Firstly, assessment tasks with enhanced control and feedback speed the process of acquiring new knowledge by students, secondly, give learners a feeling of live communication with the teacher, thirdly, support them in the experience of independent work. Thus, the elaborated model can make students more active, satisfied with their educational results, become motivated, and find learning engaging.

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# Enfoque interpretativo en la corrección de artículos científicos

## Interpretive approach in the correction of scientific articles

**Elsy Medina**

emedina@uc.edu.ve

<https://orcid.org/0000-0001-9165-2984>

Universidad de Carabobo, Valencia, Venezuela.

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### Resumen

En este trabajo se expone un enfoque interpretativo sobre la escritura en el contexto del artículo científico. Metodológicamente el análisis documental está orientado al aspecto de forma lo que implica mirar a través del lenguaje sobre las posibilidades de elementos básicos y su imbricación con la escritura. Como punto de partida se estudió el corpus lingüístico extraído de diez artículos analizados. Seguido de un apartado basado en las proposiciones ontológicas de Echeverría (2010), las características y tipo oracional, según la UNESCO (1983). Un tercer apartado está constituido por el enfoque interpretativo que ofrece una ruta de lectura para la valoración de la especificidad lingüística dispuesta en los componentes intrínsecos al proceso de corrección de estilo.

**Palabras clave:** Escritura, artículo científico, corrección de estilo.

### Abstract

This work presents an interpretive approach to writing in the context of the scientific article. Methodologically, documentary analysis is oriented to the aspect of shape, which implies looking through language about the possibilities of basic elements and their interweaving with writing. As a starting point, the linguistic corpus extracted from ten refereed articles was analyzed. Followed by a section based on the ontological propositions of Echeverría (2010), the characteristics and type of sentence, according to UNESCO (1983). A third section constituted by the interpretive approach that offers a reading route for the assessment of the linguistic specificity arranged in the intrinsic components of the style correction process.

**Keywords:** Writing, scientific article, proofreading.

## 1. Introducción

Este trabajo tiene como objetivo ofrecer una perspectiva interpretativa del lenguaje en el contexto de la escritura de un artículo científico. Por la amplitud y complejidad le subyace un número infinito de características y aspectos propios de esta disciplina. Sin embargo, con el afán de brindar algunas especificidades de acceso lingüístico, el enfoque recae sobre tres apartados que permitirán al investigador construir su propia conciencia lingüística y su respectiva aplicación en la producción escrita.

La comunicación representa un poderoso medio de divulgación del conocimiento en medio de una cultura digital, cuyas redes de conexión han superado la imaginación de cualquier futurólogo. Autores de todo el mundo hacen pública sus investigaciones con argumentos que han sistematizado tras un procesamiento de información; tengamos presente que todo ocurre según el orden de un discurso estructurado para una validación de la comunidad científica.

Consecuente con lo antes expuesto y por representar una importante contribución en consideración del tema en estudio, se destaca la rigurosidad de la escritura, especialmente lo relacionado con el estilo de los artículos científicos señalados por la Unesco 1983, cuyo privilegio es otorgado a la categoría y forma textual; características de estilo de los artículos científicos y la tipología oracional, descritos en lo sucesivo.

Para el presente estudio se empleó la interpretación en el sentido de favorecer la importancia que sobre el lenguaje recae cuando se deja por escrito una publicación como prueba testimonial de un proceso investigativo.

La revisión documental y la sustentación ontoepistémica que fundamenta el interés de esta investigación determinó la posibilidad de sistematizar, en tres apartados, una ruta de lectura que conduce a la valoración de elementos lingüísticos, tales como la metódica, proposiciones ontológicas y el enfoque interpretativo. Se configuran en el momento conclusivo los aspectos intrínsecos de la escritura como orden del discurso y que sin duda se cierne en lo formal, tal como veremos en la importancia atribuida a la corrección de estilo. En su aspecto conceptual, se entiende el valor que tiene la escritura como medio de expresión y su contexto de significación para ordenar las ideas que ocurren en el lenguaje.

## 2. Metódica

En esta investigación de carácter documental se aplicó el análisis, según Berelson (1952); por su consideración descriptiva y sistemática del contenido manifiesto en las comunicaciones y su objetivo de interpretarlas. Es conocido que el interés de este tipo de análisis se debe a la importancia de la información según la unidad de análisis seleccionada y que justamente exige un tipo de interpretación.

El objetivo metodológico permitió aplicar la hermenéutica para llegar al entendimiento como medio de articulación de la comprensión basado en el aspecto conceptual de Gadamer (2006), “La lectura como un hecho semántico, propio y concluso”. En este sentido, contribuyeron en el análisis los tipos de lectura exploratoria y secuencial a través de las cuales se estudiaron los textos para la contextualización teórica de carácter interpretativo y los elementos de la corrección de estilo. En este proceso resultó fundamental la información recogida del corpus lingüístico -breves fragmentos de textos- de donde se obtuvieron los errores frecuentes.

La unidad de análisis central fue la tesis de la escritura y los elementos presentes en la corrección de estilo, de allí que se contextualizó con el nivel ontológico de Echeverría (2010). Igualmente, fueron consideradas las características y tipo oracional, según la UNESCO (1983). Por su importante vinculación temática se asumieron además como postura ontoepistémica los aportes de Gadamer (2006), King, (2001) y Ricoeur (2003).

En cuanto al diseño de la investigación, el propósito estuvo centrado en estudiar el contenido de las teorías, además del corpus lingüístico con miras a la interpretación de los fenómenos emergentes. Otra acción metodológica se dedicó a la organización de los artículos a los que se le aplicó el criterio de selección por su relevancia con el tema en estudio y actualización del contenido. La triangulación teórica y el resultado del análisis dieron lugar al momento conclusivo al que hemos llamado componentes intrínsecos al proceso de corrección de estilo.

### **3. Propositiones ontológicas**

La interpretación se fundamenta en lo ontológico y para ello se asume lo señalado por Echeverría, E. (2010), quien define la ontología desde el “*dasein*” como el modo particular del ser como somos los seres humanos. Por su pertinencia con este escrito, asumimos el primer postulado básico de la ontología del lenguaje en el que se conceptualiza que interpretamos a los seres humanos como seres lingüísticos que viven en el lenguaje y es justamente ese lenguaje el que resulta clave para comprender los fenómenos humanos. El segundo postulado, igualmente de carácter ontológico, enfatiza que el lenguaje no solo nos permite hablar de las cosas, sino que hace que las cosas sucedan y de allí que el ya referido Echeverría insista en llamarlo generativo porque además de permitir hacer una descripción de la realidad, también la crea. En el marco de enfatizar que el lenguaje es acción volvemos a la premisa de que el lenguaje crea realidades. Por su parte, el tercer postulado señala que los seres humanos se crean a sí mismos en el lenguaje y a través de él. Este postulado resulta muy interesante al distinguir que el interés de la lingüística y la filosofía del lenguaje se enfocan en el mismo lenguaje a diferencia de la ontología que, centra su foco de atención en los seres humanos (Echeverría, 2010).

En torno al estudio y evolución sobre la universalidad del lenguaje se entiende que la lengua y el pensamiento guardan relación con el mundo real, de allí su constante búsqueda por comprender la naturaleza y el pensamiento humano. Sustenta esta afirmación lo expuesto por el lingüista estadounidense Jackendoff (2002), al presentar



tres apartados; el primero se lo dedica a la teoría de la competencia como una caracterización funcional de las estructuras de datos almacenadas y ensambladas en la mente durante el curso del lenguaje. El ya referido autor, en un segundo apartado, atribuye a la teoría de desempeño una caracterización funcional del uso de estas estructuras de datos mientras ocurre la percepción y producción del lenguaje; un tercer lugar es otorgado a la teoría de la instanciación neuronal que anuncia cómo las estructuras de datos son ensambladas y realizadas en el cerebro.

La interpretación de los seres humanos como seres lingüísticos nos conduce al planteamiento relacionado con el principio de conexión a través del cual el escribiente podrá armar el rompecabezas del tejido escritural consciente de que el lenguaje es un sistema de signos y que por medio de éste podrá significar el conocimiento y la abstracción del saber. Ahora bien, en el contexto de escribir un artículo se entiende que ya hemos cubierto de la investigación: la aplicación de instrumentos, tenemos los hallazgos, la discusión y el cierre. Es así, entonces, que estamos en la fase de divulgación.

#### 4. Características y tipo oracional

Para lograr lo señalado en el párrafo anterior han sido considerados los aportes de la Unesco (1983), especialmente cuando define como publicación de carácter primario aquella forma textual análoga con el artículo de investigación, artículo científico y artículo de reflexión. En cuanto a las características de estilo en los artículos científicos refiere la *claridad* en relación con la sencillez y su pretensión se basa en procurar una rápida comprensión. La *precisión* es llevada al plano de exactitud para evitar la ambigüedad. En este mismo sentido, hay una mención importante que apunta a la *sobriedad* inclinada hacia la moderación en clara oposición a la verbosidad o exceso de palabras en una oración. Por su parte, la *fluidez* resulta en un orden lógico contrapuesto a la fragmentación ya que pretende la cohesión entre las ideas. Distingue también en este contexto, la *efectividad*, relacionada con la persuasión orientada a alcanzar sus objetivos. Siguiendo con la Unesco (1983), se destaca el tipo de oración, un ejemplo (Ej.) y la sugerencia (s) de aplicación en el marco del orden de un discurso escrito.

- *Oración declarativa afirmativa.* Ej: la corrección de estilo garantiza la escritura exitosa en la divulgación de un artículo científico. S: Definitivamente este tipo de oración debe predominar a lo largo del escrito. Dado que estamos en el escenario de divulgar un hallazgo o el producto de una consulta documental, se entiende que el mismo lo convierte en una contribución al conocimiento científico. En cualquier caso, escribiremos de forma afirmativa.
- *Oración declarativa negativa.* Ej: el diseño de la corrección de estilo no hace sino corroborar la importancia de la revisión. S: Por el nivel de ambigüedad y carencia de consistencia entre las ideas expuestas, se sugiere no utilizarlas en el escrito.
- *Oración interrogativa.* Ej: ¿La mayoría de quienes escriben un artículo conocen el diseño de la corrección de estilo? S: Una pregunta puede resultar interesante en

medio del escrito, pero la sugerencia es que seamos discretos en su uso para evitar excesos que alejen el orden del discurso de la elocuencia o fluidez jerárquica de las ideas.

- *Oraciones exclamativas*. Ej: se reconoce la importancia de la corrección de estilo. ¡Vaya que es importante! S: Dado su carácter expresivo su presencia resulta tácita; más aún porque es perfectamente detectable por el requisito de incluir los signos de admiración. Utilizar los signos de forma adecuada nos evita dar explicación más allá de lo que deseamos expresar.
- *Oraciones dubitativas*. Ej: quizás conocer el diseño de corrección de estilo determinaría, para el lector, la importancia de saber aplicarlo. S: Esta modalidad refleja aquello que pueda o no realizarse, que pueda o no ocurrir. Funge de apoyo lo expresado por González (2001), cuando precisa que este tipo de aseveración de carácter dubitativo representa juicios de posibilidad o probabilidad, incluso plantea que es un acto de habla aseverativo atenuado.
- *Oraciones exhortativas y desiderativas*. Ej: se hace un llamado a la comunidad para que conozca los elementos básicos de la corrección de estilo. Veamos una segunda oración a modo de ejemplo: se espera que los tres apartados de este artículo representen un aporte para cada lector. S: En concreto, usualmente este tipo de oraciones presenta un fundamento para persuadir. Especialmente, cuando se utiliza como estrategia comunicativa guiando al lector hacia la apropiación de una idea nuclear en torno a la temática en estudio.
- *Oraciones imperativas*. Ej: usa el diseño de la corrección de estilo para optimizar tu propia escritura. S: En una comunicación para divulgar unos resultados es evidente que el discurso no puede ser un mandato, por el contrario, estamos frente a una comunicación compuesta por espacios dedicados a una fundamentación teórica, metodológica, de discusión y hallazgos.

El proceso de escritura en el contexto de un artículo científico requiere el orden del discurso que permita, de forma expedita, el entendimiento de las ideas. De allí que, la vinculación de las categorías oracionales con el tema del estilo tiene la intencionalidad de ejemplificar, dentro del mismo texto, aquello que por descuido o desconocimiento dejamos de lado cuando divulgamos el resultado de una investigación. Una pregunta de Gadamer (2006) es oportuna en este contexto ¿Hay un lenguaje propio de la ciencia que sea preciso escuchar? Por una parte, la ciencia fija sus propios medios lingüísticos para el entendimiento comunicativo en el proceso de investigación. Por otra parte, la ciencia utiliza un lenguaje que pretende llegar a la conciencia pública.

## 5. Enfoque interpretativo

En aras del rigor epistemológico que se merece el proceso de escritura, resulta imprescindible el reconocimiento de una literatura que aborda el aspecto conceptual en estudio, como señala Mari Mutt (2013). “El artículo científico es un informe escrito que comunica por primera vez los resultados de una investigación. Los artículos científicos publicados en revistas científicas componen la literatura primaria de la ciencia”.

El planteamiento anterior sirve de sustento para vincularlo con los elementos comunicativos presentes en el orden del discurso, entre los que destaca la organización jerárquica para presentar los datos relacionando las ideas, oraciones principales y secundarias, párrafos y texto completo. Se aborda esto, en el contexto de una sociedad digital en la que se evidencia la presencia del hipertexto y del que sabemos que la información puede resultar en una escritura discontinua o expresamente sucesiva. En definitiva, se trata de una escritura que expresa un resultado producto de la utilización de medios comunicativos, según la valoración que hagamos de nuestro entendimiento lingüístico.

El escritor de un artículo científico se propone divulgar un contenido para ser comprendido y, en ese sentido tiene conocimiento explícito del significado de comunicar por medio de un sistema de signos. De acuerdo con esta realidad, el escritor debe analizar la forma cómo anuncia sus ideas. Según su propósito, tiene cuidado en combinar las palabras y presta atención a la construcción de la oración con núcleo y sus respectivos sustentos. Posee la conciencia lingüística de que la ortografía, desde su nivel micro, tiene que ser perfecta. Tener un error ortográfico se convierte para el árbitro en un criterio de rechazo. Podrían estar pensando ¿Qué pasa si se trata de un error tipográfico? En este caso, la responsabilidad igual recae en su autor dada la omisión en el proceso de revisión. Previo a la presentación pública le acarrearán serios problemas de credibilidad con el comité evaluador.

King (2001), por su parte, presenta el culmen en torno a este privilegiado tema con dos notables sentencias “Escribir es humano y corregir divino” “El corrector siempre tiene razón”. Desde el enfoque atribuido al factor humano podríamos entender que es posible escribir y equivocarnos, es entendible admitir que cometemos errores; pero allí es donde debemos tener presente la importancia de revisar nuestros propios escritos o pedir ayuda a los amigos que sabrán valorar el tiempo y el esfuerzo implicado en el proceso de escribir.

Es perfectamente atribuible el diseño de la corrección de estilo a lo señalado por King (2001) al darle la razón al corrector. En la revisión de la literatura sobre los aspectos conceptuales y característicos del estilo hay opiniones divididas y que incluso afirman categóricamente que un corrector de estilo “modifica” la intención del autor. Estoy totalmente en desacuerdo con esa afirmación, el diseño de corrección de estilo se inserta en lo formal y no en el contenido mismo del documento. En ese sentido, no puede ni debe darse una intervención de quien corrige. Ahora bien, tener en cuenta por ejemplo la revisión sintáctica de una oración, es decir, el orden específico de una oración puede corresponderse con un estilo particular de quien escribe, claro está, sin alterar el orden significativo de lo que necesitamos expresar por medio de la escritura.

El trabajo de un corrector de estilo implica la sutileza de resguardar el significado completo del texto e intención de su autor. Éste se pasea por los distintos espacios y recovecos del escrito. Ese recorrido conlleva vestirse como el propio investigador al

tiempo de reconocer aquello oculto culpable de oscurecer la integridad del lenguaje. Significa que el propio autor no detecta la telaraña que resulta de una palabra ausente o repetida. Puede ser que no advierta la inexistencia de un conectivo en su función cohesionadora impidiendo la articulación gramatical y léxica.

En un sentido interpretativo, el corrector asume lo señalado por Ricoeur (2003), “Toda comprensión óptica u ontológica se expresa, ante todo y desde siempre en el lenguaje. Por lo tanto, no es en vano buscar del lado de la semántica un eje de referencia para todo el conjunto del campo hermenéutico”. De acuerdo con esta sentencia, resulta esencial concebir la escritura desde una posición epistémica del lenguaje como medio de expresión a través del cual se distribuye un tejido de ideas a favor de un artículo científico.

De manera consecuente con el análisis interpretativo, seguimos con el ya referido Ricoeur (2019), quien señala “Hay un modo de ser que existe al comprender y sobreviene justo después de la interrogación al ser que es el “ahí” de todo ser, es el Dasein”. Desde una reflexión lingüística aplicada al aspecto de forma en la escritura, consideramos pertinente la contribución ricouriana cuando señala que la comprensión de expresiones multívocas o simbólicas es un momento de la comprensión del sí. Por su parte, el sujeto que se interpreta al interpretar los signos es un existente que se descubre puesto en el ser antes de que se sitúe y posea.

En este sentido, sirva el párrafo anterior para señalar que el proceso interpretativo se constituye en buscar la raíz ontológica de la comprensión como resultado del acontecimiento que ocurre en el lenguaje y es a través de éste que se alcanza el medio de una realidad universal que da lugar al todo ser de la comprensión. Este planteamiento se impone a la necesidad de apropiación suscitada al conocer los componentes intrínsecos de la escritura coadyuvantes en el proceso de la corrección de estilo a partir de su uso en la producción de un artículo científico.

## **6. Momento conclusivo. Errores frecuentes**

La corrección de estilo implicó una lectura analítica de las ideas expuestas en medio del orden discursivo de cada artículo. De esta manera se ha interpretado la valoración de la especificidad de acceso lingüístico dispuesto en los componentes intrínsecos al proceso de corrección de estilo, como podemos apreciar en las siguientes líneas.

De forma exagerada en el orden ortográfico se detectaron el uso inadecuado de mayúscula sostenida y palabras sin tilde. Entre los vicios del discurso se encontró el pleonismo, por ejemplo, se *indagó* para investigar. Un método jamás visto *antes*. También se ha identificado el uso extralimitado de pronombres relativos como: *los cuales, las cuales*. Otro error frecuente se refiere al uso reiterado del gerundio como inicio de párrafo y la inserción del mismo conectivo a lo largo de todo el trabajo.

En el análisis del corpus lingüístico se advirtió la confusión gramatical que se generó en el escribiente cuando usó el verbo “haber” previo al participio pasado, cuyas terminaciones son “ado” “ido”; específicamente omitieron o sustituyeron la letra “h” por la preposición “a”. Fueron errores: “Se a visto”. “Se a iniciado” en lugar de: Se ha visto. Se ha iniciado.

Resultó frecuente tropezar con expresiones que buscaban recalcar el significado de una palabra, pero en realidad lo que ocasionó fue la alteración de la calidad semántica de la oración. Algunos ejemplos: *más* importante; pandemia *mundial*; *buscó* indagar; las que tuvieron *más* realce; *verdaderamente* grande; *repetidas* veces; *surgidos* hallazgos; *tan* importante. De *todo este* planteamiento se dice que *esto* generó. Para este último caso se sugiere: A partir de este planteamiento. Ahora bien, fijemos la atención en las palabras con formato cursivo; sin duda son prescindibles para optimizar el significado de la expresión lingüística.

En torno al análisis, se encontró también un fenómeno lingüístico que se relaciona con el hipérbaton, que es definido como una figura retórica empleada en la poesía para alterar el orden lógico de un verso. Este mismo recurso, de carácter sintáctico, distorsionó la disposición de las palabras en medio de las oraciones. Por ejemplo: “*Se justifica esta investigación*”. “*Lo expresado en concordancia*”. En lugar de: Esta investigación se justifica. En concordancia con lo expresado.

### Otros errores comunes encontrados en el corpus seleccionado

- ✓ “La empresa pequeña, mediana y grande *empresas...*” La empresa pequeña, mediana y grande.
- ✓ “*Recogió* informaciones”. Recogió información.
- ✓ “Ya *han* transcurrido más de un año”. Ya ha transcurrido un año.
- ✓ “En base a informaciones recientes”. Con base en las informaciones recientes.
- ✓ “Se *toma* el enfoque interpretativo”. Se asume el enfoque interpretativo
- ✓ “*Datos evidenciales*”. Datos evidenciables.
- ✓ “Pérez y Arrieta *expresa* que”. Pérez y Arrieta expresan que.
- ✓ “Lo señalado por los autores *reflejan*”. Lo señalado por los autores refleja.
- ✓ “Refleja la información *señalada*”. Refleja la información.
- ✓ “El 20% *señalaron*”. El 20% señaló.
- ✓ “Los estudiantes de cuarto grado, *los cuales*”. Los estudiantes de cuarto grado quienes...
- ✓ “*Sobre todo*”. Especialmente
- ✓ “Los resultados muestran *muchas* inconsistencias”. Los resultados muestran inconsistencias.
- ✓ “*Las cuales* se realizarán” Que se realizarán
- ✓ “*Los cuales* se necesitan”. Que se necesitan
- ✓ “La palabra *más* relacionada con”. La palabra relacionada con.
- ✓ “Ese resultado tiene *muchas* connotaciones”. Ese resultado tiene connotaciones.

✓ “Las ventajas más resaltantes”. Las ventajas.

En conclusión, la intención de este breve análisis ha sido ofrecer una ruta de lectura para la valoración de la especificidad lingüística dispuesta en los componentes intrínsecos al proceso de corrección de estilo. El corrector busca en las profundidades del lenguaje toda posibilidad de comprensión íntegra con el firme propósito de decantar el enjambre de oraciones cuyas palabras aparezcan desordenadas o duplicadas; así como expresiones típicas de la oralidad, errores ortográficos, la transposición de letras y todo fenómeno emergente en consideración de la dinámica del lenguaje.

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## **Socio-cultural design as a means of moral education of schoolchildren in the conditions of modern education**

### **El diseño sociocultural como medio de educación moral de los escolares en las condiciones de la educación moderna**

**Irina Aryabkina**

aryabkina68@inbox.ru

<https://orcid.org/0000-0002-8765-2153>

Doctor of pedagogical sciences, professor, Ulyanovsk State Pedagogical University, Ulyanovsk State University, Russian Federation.

**Irina Medvedeva**

<https://orcid.org/0000-0003-3132-4078>

Doctor of pedagogical sciences, Dean of the Faculty of Art and Music Education, Chuvash State Pedagogical University, Russian Federation.

**Alexander Bulynin**

<https://orcid.org/0000-0001-6107-2997>

Doctor of pedagogical sciences, professor, Ulyanovsk State University, Russian Federation.

**Natalia Lebedeva**

<https://orcid.org/0000-0001-8260-3371>

Doctor of pedagogical sciences, professor, Federal State Budgetary Educational Institution of Higher Education "Moscow State Linguistic University", Russian Federation.

**Galina Zharkova**

<https://orcid.org/0000-0002-5561-5219>

Doctor of pedagogical sciences, professor, Ulyanovsk State University, Russian Federation.

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#### **Abstract**

The purpose of the article is to analyze the features of socio-cultural design as a means of moral education of schoolchildren in the context of modern education. On the basis of an interdisciplinary analysis of scientific sources, the essence of socio-cultural design, its principles and role in the formation of the moral qualities of the younger generation are determined. The article presents the materials of a psychological and pedagogical experiment to determine the level of moral education of schoolchildren of different ages, as well as the pedagogical conditions identified and formulated by the authors in the form

of conclusions. The proposed diagnostic tools made it possible to determine the effectiveness of the application in educational practice of the Program for the sociocultural design of schoolchildren developed by the authors of this article.

**Key Words:** socio-cultural design, moral education, schoolchildren, modern education.

## Resumen

El propósito del artículo es analizar las características del diseño sociocultural como medio de educación moral de los escolares en el contexto de la educación moderna. Sobre la base de un análisis interdisciplinario de fuentes científicas, se determina la esencia del diseño sociocultural, sus principios y papel en la formación de las cualidades morales de la generación más joven. El artículo presenta los materiales de un experimento psicológico y pedagógico para determinar el nivel de educación moral de escolares de diferentes edades, así como las condiciones pedagógicas identificadas y formuladas por los autores en forma de conclusiones. Las herramientas de diagnóstico propuestas permitieron determinar la efectividad de la aplicación en la práctica educativa del Programa para el diseño sociocultural de escolares desarrollado por los autores de este artículo.

**Palabras clave:** diseño sociocultural, educación moral, escolares, educación moderna.

## 1. Introduction

In the conditions of technologization and informatization of all social life, it is especially important that education solves the task of forming moral qualities of a person. To do this, it is necessary to apply innovative forms, content and methods of education, a combination of new technologies and practical methods aimed at developing the subjectivity of the student as a creative, responsible and moral person.

Socio-cultural design is a specific technology, which is a constructive, creative activity, the essence of which is to analyze problems and identify the causes of their occurrence, develop goals and objectives, develop ways and means to achieve goals.

Socio-cultural design means the solution by means of culture of various social problems in situations of their maximum uncertainty and a very large number of their possible solutions. Socio-cultural design is aimed at creating models for solving specific tasks that have serious social significance, allowing you to develop models of what "should happen" with the use of available resources. That is why the training of the younger generation in socio-cultural design at different levels of the educational system is becoming so obviously relevant today that it actualizes the need to analyze the theoretical and philosophical foundations of socio-cultural design in modern education.



## 2. Theoretical framework

To solve the problem posed in this study, it is necessary to consider socio-cultural design as a concept that integrates various concepts ("project", " design ", "project activity", "social design ", "culture"), and then identify its impact on the moral education of schoolchildren in modern education.

First of all, it is necessary to find out what the term "project" is.

On the one hand, the project is a way of expressing tasks, ideas, actions aimed at achieving the intended goals, taking into account the necessary resources for the practical implementation of the plans.

On the other hand, the project is a special symbolic form of displaying the interests, needs, aspirations and attitudes of people, aimed at transforming their surrounding reality: nature, society, themselves.

The correlation of these definitions allows us to conclude that the project should be understood as a form of displaying ideas and aspirations of people, allowing them to manage activities provided they correctly set goals, develop steps for its implementation and implementation.

Under the design is today it is customary to understand the process of creating a prototype project, a prototype of an assumed or possible object, state.

Design is the process of developing and implementing a useful, socially significant product and has two main features: the ideal nature of the action and its focus on the appearance (formation) of something in the future. These features distinguish social design from other types and types of humanitarian technologies (for example, from research).

Project activity belongs to the category of innovative creative activity, since this type of activity involves the transformation of reality and is based on the appropriate technology, which can not only be mastered, but also improved.

Social design is one of the leading ways of modern organization of public life, management of society. Regardless of what kind of objects are being designed, they bear the features of the value-normative system of the initiator of the project.

Some scientists consider social design as a form of social management; scientifically based design of a system of parameters of a future social object or a qualitatively new state of an existing object (Genisaretsky, 1986).

Social design is one of the activities for the formation of a volumetric-informational analogue (project) of the social object being created. Social design as planning performs its specific functions in the development of a social object; at the same time, it should be taken into account that the plan determines the sequence of activities to achieve the result, and the project contains the necessary constructive characteristics of activities for the implementation of goals and objectives.

Thus, social design is an innovative method of social management in demand by modern reality, characterized by a focus on activities that transform society in the future. For the organization of social design, a detailed study of the scope and object of design is required, based on the selection of the most appropriate design principles for the intended goals and objectives.

To define the essence of the concept of "socio-cultural design", it is necessary to refer to the concept of "culture". This term originates in Ancient Rome and comes from Lat. Culture ("cultivation", "development", "veneration"). Today, this term has a lot of definitions. Let's consider some of those that are directly related to the subject of this study.

Culture in a broad sense can be defined as a way of organizing and developing human life and, at the same time, as its result. This concept includes everything created by people, the whole set of products of human activity, social forms of organization, processes, institutions, everything that has already been done, is being done and will be done by man in the future.

In a narrower sense, culture is a combination of the spiritual and material values of this society at a given period of time (Bulavina, 2007).

One of the options for defining culture may be this: culture is a behavior inherent specifically to a reasonable person, considered in an inextricable connection with material objects used as an instrumental part of this behavior.

The transformations of modern society and culture are based on the values that underlie modernist projects with their attempts to streamline symbolic forms and a system of social ties.

How can we comprehend the concept of "social design" from the standpoint of culture, i.e. come to an understanding of the essence of socio-cultural design?

Many modern scientists (Aryabkina, 2016; Markov & Birzhenyuk, 1997; Mikheeva, 2008, etc.) believe that the system of knowledge, experience, relationships, traditions developing in time and space as the "quintessence" of culture can be described in terms of social design, since design is a fundamental characteristic of culture and a mechanism of social inheritance.

Sociocultural design refers to a promising, on the one hand, and formalized, on the other hand, a kind of human activity for the transformation of cultural objects. Socio-cultural design is the realization of a person's ability to create in an ideal plan, to combine symbolic constructions (Bulavina, 2007).

In essence, socio-cultural design is a technology for solving problems in conditions of maximum uncertainty of tasks and variability of their possible solutions.

The analysis of the above-mentioned concepts allows us to conclude that socio-cultural design is a technology that allows us to qualitatively change the state of cultural development of different social groups, directly affect the position of certain cultural objects. This phenomenon is characterized by the need for a thorough study of the subject of design and its interaction with the environment, a clear statement of tasks and determination of steps for their implementation.

Socio-cultural design, of course, can be attributed to the category of complex knowledge-intensive technologies that combine the technologies of a number of sciences and at the same time are characterized by their own design tools. Working on a socio-cultural project, it is necessary to diagnose the existing problem from all sides, identifying the sources and nature of the existing shortcomings. It is necessary to find and work out various solutions to the existing problem, taking into account the resources that are available. Next, you need to choose the most optimal solution to the problem and arrange it in the form of a socio-cultural project. And finally, to develop mechanisms for the implementation of the project in social practice and to determine the material, technical, financial, legal conditions that ensure its implementation.

Thus, the socio-cultural project is a kind of target block implemented through a system of practical measures. At the heart of generating a project idea and developing conditions and ways of its implementation is a system of principles, i.e., "basic starting points, theoretical and ideological foundations and the most general standards of project activity" (State Pedagogical University, 2015).

Socio-cultural design should be based on the following principles

1) The principle of "critical modification threshold".

The implementation of this principle is based on taking into account the boundaries and possibilities of controllability of the object of socio-cultural design, the degree of correctness of socio-cultural processes and the assessment of socially significant consequences of such modifications. The basis for this principle is the idea of the possibilities and limits of intervention in the functioning of socio-cultural systems, since every complex system contains many ways of development that correspond to its nature (State Pedagogical University, 2015).

This principle seems to be the most significant at present, since its implementation makes it possible to maximize the energy of self-development of culture, while limiting the possibilities of administrative and incompetent interference in cultural life. In practice, it means providing the subjects of socio-cultural life with maximum organizational and legal independence, refusing violent transformation leading to the destruction of nature, man, the world, but most importantly - creating conditions for self-organization and self-development of the subject of socio-cultural life.

It follows from this fact that the semantic guidelines of design are not in the strict management of cultural processes or the development of culture in the sense of industry, infrastructure, but in the support of a self-organizing socio-cultural environment for which culture is a universal and pervading component.

2) The principle of optimization of the “zone of the nearest development” of the personality - the socio-cultural environment of its habitat.

The essence of this principle is that one of the main design guidelines is the self-development of a socio-cultural subject, which is understood as a person, community or society as a whole. For the success of socio-cultural design, it is important to develop conditions that would promote self-development by solving or preventing problems associated with unfavorable life circumstances.

In this regard, an essential aspect of the content of the socio-cultural project is the optimization of the human habitat, fundamental in socio-cultural design is the creation of conditions that would stimulate the personal development of each member of society.

The theoretical basis of this principle is the cultural and historical concept of personality development as a communication-mediated process of mastering and appropriation of cultural values by an individual. The "core" of this concept is the idea of L.S. Vygotsky about the development of personality as a cultural and historical process, his thoughts about the importance of art in the development of personality, about the "cultural ascent" and expansion of personality by mastering oneself through the sign and the text of culture, by overcoming the contradiction between the individual psychological and cultural-historical (Vygotsky, 1984).

According to the cultural and historical concept of personality development (Vygotsky, 2000), the richness of individuality is determined and ensured by the influence of historically developing culture; the success of socialization and individualization of personality is mediated by its socio-cultural context; at the same time, as an object of optimization of these processes, the zone of proximal development is considered, namely the socio-cultural environment as the leading space of human habitation, a condition for the formation and realization of its potentials.

In this regard, an urgent task of modern education is the optimization of the zone of immediate personal development, which is vital for the full development of cultural space.

Cultural space is currently understood as everything that surrounds a person on a daily basis. It is multidimensional and dynamic, pulsates and breathes like a living organism. Its content and quality have a direct impact on the spiritual world of the individual, the way of life of a person. Semantic and symbolic components of cultural space inevitably play the role of a reference point in value preferences, form a sense of family closeness, kinship of its constituent people, motivate the behavior of people in a wide range.

The socio-cultural environment is thus a multidimensional hierarchically constructed system education, which includes: the physical world, the system of existing relations between people and public institutions; culture, traditions and customs; "space" or "a set of public activities", conditions of direct life and chronotype.

A teacher in the conditions of modern education should take into account the influence of the socio-cultural environment on the development of the student's personality, on the formation of his moral qualities. At the same time, the socio-cultural environment should have a number of characteristics:

- stability;
- the ability to mutually connect different spaces in which the student's life takes place;
- The ability to encourage rather than prohibit activities;
- appropriateness, meaningfulness of all types of activities in which the student is included;
- the ability to encourage students to creative manifestations, self-realization, the embodiment of themselves and their aspirations;
- sufficient diversity and richness of various elements of the environment, encouraging the student to make a choice and giving the opportunity to find their socio-cultural niche;
- orientation to generally accepted general cultural norms and values, which the student takes for granted, which is a necessary condition.

The environment and socio-cultural environment affect the younger generation as a combination of social and natural conditions.

Note that the socio-cultural environment can have not only a positive, but also a negative impact on the human personality. Researchers have proved that the socio-cultural environment is capable of both shaping and deforming a person, filling or emptying (depending on what a person selects from it and what he opposes). For a child as a person at the stage of formation, the impact of the socio-cultural environment is a determining factor in his personal development.

In philosophy, the socio-cultural environment is defined as a combination of three components:

1. Megaenvironment – the modern social world surrounding a person, which determines the spiritual and socio-psychological atmosphere of the epoch. Here, the factors that form the personality of the student include the conditions of existence and the culture of all mankind, the culture that stores the programs of activity and communication in the form of various sign systems, "distributing" which a person becomes cultured.
2. Macroenvironment – the society, the country to which the individual belongs. The influence of the macro environment is very great. The macro-environment ensures the transfer of the cultural experience of one's country, native people through such factors as mass media and social institutions (kindergarten, school, cultural institutions).
3. Microenvironment – the immediate environment of the child in the person of three main groups: family, academic staff, friends. The specifics of each of these groups are determined by age differences (Khuzina, 1996).

Thus, the socio-cultural environment is understood as the totality of social and spiritual factors and conditions directly surrounding a person in the process of his life. The emphasis on the optimization of the socio-cultural environment is due to the fact that it is a fundamental factor determining human values, norms, ideals, etc.

The implementation of the principle of optimization of the zone of immediate personal development can be considered a practical embodiment of the environmental approach to socio-cultural design.

- 3) The principle of personification of the process and results of socio-cultural design.

This principle is based on free self-realization, the possibility of implementing and introducing alternative projects and ideas by means of cultural activities. It is known that without a person's self-activity, without his active assimilation of social norms and ideals, it is impossible to translate social values into personal ones.

The characterized principle also presupposes the restoration of the connection of cultural processes with the personality of the creator, the actualization of moral referents hidden in the national and world history.

It should be noted that this principle is based on a person's perception of culture as a special spiritual world and on understanding the problems of cultural development as a certain contradiction between the existing and desired value systems. This world is filled with images, meanings, ideas, and values that are significant for a particular person.

- 4) The principle of optimal orientation towards preservation and change (the proportionality of traditional and innovative mechanisms and processes of cultural dynamics).

The optimal correlation between the processes of reproduction of cultural heritage (actualization, demand for phenomena already existing in culture or pre-existing phenomena, values, norms, traditions, etc.) and the processes of cultural innovation presupposes the unconditional dominance of the first trend. Culture as a system of

accepted norms is something that opposes development, since it preserves and maintains the stability of the ontological picture of the world, is derived from it and creates normative institutions for its consolidation (Sycheva, 2004).

Consequently, within the framework of cultural development programs, the predominant orientation should be towards preservation (values, traditions, forms of life, etc.), i.e., the reproduction of culture as an integral and organic system, including the past, present and future on equal terms.

Change is a function of civilization, information technology culture, but not spiritual, humanitarian culture. This means that in the context of socio—cultural design, the most productive worldview is conservative, traditionally oriented. The task of the designer is to achieve the organicity of the human cultural environment through the project - by preserving, saving and recreating elements of culture as an integral system.

5) The principle of problem-target orientation is the leading technological principle of socio-cultural design. It implies, first of all, the targeted orientation of programs to solve specific problems, the carriers of which are a person, a social group, a certain territory or region, society as a whole; their focus on the self-realization of individuals and social groups, on the self-realization of a person in the socio-cultural sphere.

This principle is manifested and implemented at various stages of design in the form of:

- analysis of the main pain points and problems;
- search for various non-standard ways and ways to solve them;
- search for sources of financing and resources;
- involvement of all interested subjects of socio-cultural life in the project implementation process (State Pedagogical University, 2015).

The implementation of this principle requires teachers to have a broader understanding of the sphere of culture, significantly increases the range of cultural policy and the object area of design, shifts the focus from leisure issues to the development of culture in the broad sense of the word.

The organizational and managerial essence of this design principle lies in the need to find appropriate social forces interested in solving certain problems. And in the structure of cultural policy, each group of problems should have an addressee who verbalizes, evaluates and reflects them in the form of positions and goal-oriented solutions (including within the framework of a socio-cultural project).

The relevance of the problem-target principle of design is due to: understanding culture in a broad social context - as a system that covers all spheres of human activity; expanding the boundaries of culture as an object of cultural policy, i.e. going beyond leisure and moving to the design of cultural development processes in the broad sense

of the word; the need to abandon a rigid regulatory management system and transition to a "soft" regulatory system by providing appropriate conditions.

The advantages of this principle are as follows.

Firstly, there is no need for ineffective sociological research, which is also often quite lengthy and costly.

By virtue of this principle, problems are in the first place among the factors that need to be taken into account, and interests and needs act as something secondary. Of course, they are taken into account in the development and implementation of programs, but their role is such that the already available information about the interests and needs of various categories of the population, obtained earlier in the course of sociological studies conducted in almost every region, is quite sufficient. For a full-fledged study of the content block of the project, it is necessary first of all to know the problems that are typical for the social group acting as the audience of the program.

Secondly, the orientation of socio-cultural programs to solve a wide range of problems expands the field of socio-cultural activities, strengthens the social significance and prestige of culturological and socio-pedagogical professions (both in the eyes of the population and representatives of the mass media, public organizations, parties, government structures), guarantees their social relevance.

Thirdly, the problem orientation of projects and programs activates the participation of those to whom they are addressed - due to the correspondence of human interests and the target setting of the project.

More specific principles of socio-cultural design (mainly of a technological nature) are:

- the principle of proportionality of the projected changes, i.e. their compliance with the physiological, mental, environmental and socio-cultural nature of the person acting as the primary structural element of the project audience;
- the principle of social and personal expediency, the implementation of which consists in achieving compliance of the expected results with normative goals and personal needs, the development of organizational forms of experimental verification and the introduction of the most socially effective option from the proposed design solutions;
- the principle of complexity, which involves taking into account all the main directions and forms of human interaction with his natural, social and cultural environment;
- the principle of realism, which requires solving culturally significant problems based on real, measurable and usable resources (economic, personnel, information); calculating the economic feasibility and social effectiveness of the project; maximizing the use of positive ways already available in culture to solve similar or identical problems; attitude to innovation as a consistent modification of existing cultural patterns; substantiation of the limits of applicability and replicability of the project.



Thus, the fundamental principles of design are:

- the principle of the critical threshold of modification;
- the principle of optimization of the zone of immediate development;
- the principle of personification of the design process and results;
- the principle of optimal orientation to conservation and change;
- the principle of problem-target orientation;
- as well as the principles of proportionality of projected changes, social and personal expediency, complexity and realism.

These principles of socio-cultural design perform a twofold function: firstly, they determine the worldview of the designer, as well as the style and moral intonation of the concepts, projects, programs, initiatives developed by him, i.e. they provide a value-oriented level of design (especially the first four principles). According to the degree of their implementation (in the target and content part of the project), one can judge the organicity of the program, the extent of its creativity or destructiveness. Secondly, these principles form the theoretical basis of the technology of socio-cultural design, which will be disclosed in the following sections of the manual.

Socio-cultural design in our study is considered as a means of moral education of the emerging personality. According to numerous studies carried out by educators, sociologists, cultural scientists and psychologists, there are some metamorphoses in the consciousness of a modern person (such as the development of social pessimism, deterioration of social well-being, loss of internal guidelines of behavior and an increase in aggressiveness, tension). The research results show that society has proved unable to protect the child from the negative influence of the media and the lack of positive guidelines. A modern child develops in conditions of socio-cultural deprivation, when his most basic needs for cultural development, leisure, and socially approved means of self-realization are not met.

At the same time, in the modern socio-cultural situation, a special type of personality is in demand - free, autonomous, responsible, with a reflexive consciousness, capable of self-organization and self-development. This type of personality sets the target for modern education. Society dictates the need for the formation of a socio-cultural young person, therefore, modern education should be considered from the standpoint of specific pedagogical activity aimed at creating effective conditions for the development and self-development of the student, as well as opportunities for his free creative expression (Kotova & Afanasyeva, 2017; Troshin, 2016, etc.).

One of the fundamental characteristics of the "man of culture" is his ability to cognitive activity, i.e. productive imagination, creative and free transformation of reality based on his cultural needs. Modern cultural studies considers cultural and leisure activities as a process of creating conditions for a person's motivational choice of subject activity, and this process is also determined by the cultural needs of the individual, her interests.

The cultural needs of the individual are actually the human principle in a person, the focus of national values (beauty, goodness, truth, etc.) and means of life (ideas about the surrounding world and reality, ways of actively influencing the "second nature", manifestations of an emotional and evaluative attitude to what is happening in the "zone of proximal development"). In this regard, it is not accidental that researchers turn to a culturological approach when designing a socio-cultural space (Kolinko, 2011).

During the formation of a student's moral culture, such main forming personality traits as imagination and artistic and aesthetic creativity based on it, arbitrariness in the form of the ability to act independently, the child's need to actively act in the world are born and developed. On the other hand, cognitive needs correspond to transformative activity, value-oriented activity corresponds to value-oriented needs, communicative activity corresponds to communicative needs, etc., but they are all components of cultural needs (Rozhkov & Bayborodova, 2002).

It is important to note that the formation of social needs acquires a fully vital character, becomes an imperative of development. The complication of social ties reveals to a growing person the true content of the phenomenon of freedom as a key concept for characterizing the social sphere of being. Dependence on the actions of adults and the search for opportunities for personal self-affirmation are the launching pad for a much more complex process – self-determination among peers (Lipsky & Sikorskaya, 2013).

The discovery of one's "I" is made precisely in the socio-cultural sphere, and the emerging stereotypes of behavior in different situations begin to form the "core" of the personality – the cultural needs and culture of the child, and also lays down moral values.

Thus, socio-cultural activity in the form of socio-cultural projects in modern educational organizations should be aimed at satisfying cultural needs and interests, at the formation of moral qualities of the child. The comprehensive development of the child's personality is the goal of such activities, during which the student acquires the ability to socialize and adapt to different aspects of society; the external form of socio-cultural activity (as a result of self-reflection and self-identification) turns into the internal transformative activity of children, forms moral values.

At the heart of any project activity is the development of cognitive skills, the ability to independently design their knowledge, navigate the information space; the development of critical and creative thinking (State Pedagogical University, 2015). The practice of implementing socio-cultural projects can be considered as a special area of educational activity, extracurricular or extracurricular work, closely related to the main educational process and focused on the development of research, creative activity of children, as well as on deepening and consolidating their existing knowledge, skills and upbringing of moral qualities of the individual. This work is carried out individually or by a large group of children, and the terms of work on the project can also be different. Socio-cultural projects can have different durations.

Design training allows you to educate an independent and responsible personality, develops individuality, creativity and mental abilities of children, and, what is especially important in the modern world, promotes the education of their moral qualities, forms the right attitude to others. It is this kind of active activity that makes it possible to shift the focus from the process of passive accumulation of the amount of knowledge by students to mastering them in various ways of activity in conditions of availability of information resources, which contributes to the active formation of a creative personality capable of solving non-traditional tasks in non-standard conditions.

While preparing to work on a socio-cultural project, the student must understand that he is studying the culture of the country. If these are features of national culture, then it is necessary to learn more about the people who own certain cultural values. The student should realize that, for example, Russia is a multinational country, and each culture is an important part of the culture of his native country. In the process of working on the project, students form ideas about good and evil, about the correctness of actions, about the possibility of choosing actions, which, of course, contributes to the moral education of children.

The optimal relationship between the processes of reproduction of cultural heritage (actualization, demand for phenomena already existing in culture or pre-existing phenomena, values, norms, traditions, etc.) and the processes of cultural innovation presupposes the unconditional dominance of the first trend. Culture as a system of accepted norms is something that opposes development, since it preserves and maintains the stability of the ontological picture of the world, is derived from it and creates normative institutions for its consolidation.

Consequently, within the framework of cultural development programs, the predominant orientation should be towards preservation (values, traditions, forms of life, etc.), i.e., the reproduction of culture as an integral and organic system, including the past, present and future on equal terms.

If we consider the project activity on the part of the student, then it is an opportunity to maximize the disclosure of his creative potential. This is an activity that will allow you to express yourself individually or in a group, try your hand, apply your knowledge, benefit, show publicly the result achieved, gain invaluable experience in communicating with new people. This is an activity aimed at solving an interesting problem, often formulated by the students themselves in the form of a task, when the result of this activity - the found way to solve the problem is practical, has important applied significance and, most importantly, is interesting and significant for the "discoverers" themselves, starting from a young age (Matyash & Simonenko, 2007; Zabbarova, 2017).

Socially significant project activity is a modern effective pedagogical technology. It allows each of its participants not in words, but in fact to feel significant, necessary, successful, able to overcome various problematic situations. Its peculiarity is that it makes it possible

for every student to be successful, and this regardless of abilities, inclinations, character traits, socio-cultural design in the conditions of a modern school is considered as an integrative activity that synthesizes elements of gaming, cognitive, value-oriented, transformative, labor, communicative, educational, theoretical and practical activities.

One of the main features of project activity is that it unfolds in a problematic situation that is not solved by direct action.

The second feature of the implementation of socio-cultural projects is that their participants must be motivated. That is, in the project activity, not only the understanding of the problem should be realized, but also the very idea of the child.

The third important feature of such a design is its targeted nature. Since in the course of project activity the child expresses his attitude and personal meanings, he is always looking for the addressee - the person to whom his statement is addressed, framed in the form of a product. That is why project activity has a pronounced social connotation, and ultimately is one of the few socially significant actions available to a student.

The unity of children and adults on the basis of common interests makes them equal participants in communication, between whom trusting relationships develop, which contributes to the formation of moral ideals and the formation of a positive self-esteem in the child: "I myself!", "I could!", "I know!"

The subject of socio-cultural projects can be related to the subject content; it should have a practical orientation, affect the extracurricular interests of children. These can be both short-term individual projects and long-term collective multi-projects. The topics of the projects can be extremely diverse: helping nature, others, preserving natural monuments, getting to know the cultural values of the people, solving environmental problems.

Working in socio-cultural projects, students gain invaluable experience from communicating with interesting people. By visiting cultural objects and performing the tasks set by the project, children enrich themselves and acquire concepts of moral values. Creative projects that involve the appropriate design of their results in the form of drawings, presentations, works of decorative and applied art, baby books, albums and so on are in great demand at the moment.

It is advisable to conduct excursions, observation walks, social actions (surveys, interviews, etc.) with students in the process of working on the project. Of course, it is very important to create positive emotions in students in the process of socio-cultural design, then the effect of participation in this important activity will be greatest.

### **3. Methodology**

In our work, theoretical (analysis of psychological, pedagogical, methodological literature; theoretical generalization of research results) and empirical (observation - direct and

included, conversation, questionnaire, pedagogical experiment, processing of the data obtained) research methods were used.

To identify the effectiveness of the use of socio-cultural design as a means of moral education in modern educational practice, we have defined the criteria of moral education of younger schoolchildren (formation of moral concepts; moral self-esteem; ethics of behavior (tolerant behavior); moral motivation) and selected diagnostic methods to determine the levels of moral education of students (Pakhomov, 2012; Doronina & Korol, 2015).

#### **4. Results**

The interdisciplinary analysis of scientific literature carried out by us made it possible to develop and introduce into the educational practice of five schools of the Russian Federation (Ulyanovsk, Cheboksary and Moscow) a program of socio-cultural design for schoolchildren of different ages. 355 schoolchildren of different ages took part in the pedagogical experiment.

During the implementation of this program, its effectiveness was monitored according to the criteria and with the help of diagnostic techniques specified above.

The monitoring results indicate that, in almost every group of students included in our experiment, according to all four criteria identified by us, there was a positive dynamics in the levels of moral education of students (the greatest effect from the introduction of the Socio-cultural Design Program (in 85% of cases) we observed in primary school students, less pronounced performance in secondary school (the level of moral education in this age group of students increased by 64.7%). In high school, there are quite high results regarding the influence of socio-cultural design on the level of moral education of students (about 70%), which is explained by the greater awareness of 15-17-year-old schoolchildren of the social effects of their practical socio-cultural activities.

#### **5. Conclusion**

Moral education of the younger generation is one of the most difficult and, at the same time, urgent tasks of pedagogical science. For its successful solution, the teacher should possess a whole range of competencies.

During the analysis of the scientific literature on the problem of research, it was found that morality is not an innate quality, it is a property that a person acquires in the process of his formation through communication with society. The sooner a person's familiarization with moral values begins, the stronger and more firmly they will strengthen and establish themselves as personality traits, forming the moral image of a person.

Taking into account the unconditional advantages of socio-cultural design in relation to solving the problems of moral education of the younger generation, we come to the conclusion that it is advisable to use this type of activity at all levels of school education, starting from the lower grades.

The pilot study was conducted in the period from 2016 to 2021. It consisted of three stages:

Stage 1 - the ascertaining experiment (2016).

At this stage, the primary diagnosis of the level of moral education of schoolchildren of experimental and control classes was carried out.

Stage 2 - formative (2017-2020.)

At this stage, we organized an approbation of the developed Program of socio-cultural design for schoolchildren in order to test its effectiveness in educating moral qualities in students

Stage 3 - control (2021).

At this stage, a re-diagnosis of the level of moral education of students was carried out, an assessment of the effectiveness of moral education of schoolchildren through socio-cultural projects was carried out; methodological recommendations were developed for teachers to work in this direction; prospects for further work were outlined.

The diagnostic results at the third stage of the psychological and pedagogical experiment allow us to judge the positive dynamics of the levels of moral education of schoolchildren, i.e. the effectiveness of the Program of socio-cultural design for schoolchildren developed by us.

Thus, based on the results of the work carried out, it was concluded that effective moral education of schoolchildren through socio-cultural design is possible if:

- a nurturing socio-cultural environment has been created;
- education is carried out taking into account the orientation to the system-activity approach;
- the organization of the design is carried out with the introduction of the student into the world of moral values, with the possibility of moral choice.

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