

ORIGINAL

## Personalized Educational Routes with Integration of Media Communication Space

### Itinerarios educativos personalizados con integración del espacio de comunicación mediática

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#### ABSTRACT

**Introduction:** the growing practical impact of innovative media and communication technologies on the educational environment is currently gaining particular relevance. The dynamics of educational needs within modern higher education and the new challenges of global social digitalization require the development and implementation of individual learning paths. The research is devoted to the formation and development of individual learning trajectories for students of the third (educational and scientific) level of higher education (field of knowledge 01 “Education/Pedagogy”, specialty 011 “Educational, Pedagogical Sciences”) through innovative media and communication opportunities. The purpose of the article is to provide an extended analysis of the potential benefits and challenges of modern media and communication technologies in the higher education environment.

**Method:** analysis and synthesis were used for a comprehensive study of scientific approaches to the definitions, essence and functionality of the media and communication environment in higher education.

**Results:** the technology of forming individual learning trajectories in the media and communication environment is considered. A pedagogical experiment with the use of innovative educational tools was conducted. The main advantages of introducing media and communication elements in higher education are determined, including increasing the motivation of students, increasing the level of learning, individualizing learning and developing inclusiveness. The essential foundations of modern communicative and cultural social progress are highlighted. It has been established that the active use of the media and communication environment allows the formation of individual learning trajectories and contributes to the improvement of the digital competence of participants in the educational process. The main challenges of the studied process are identified, including the insufficient digital competence of teaching staff, uneven resource provision and a unified strategy for digital education upgrade.

**Conclusions:** the practical significance of the research results is seen in proving the effectiveness of the strategy of individualization of higher education through the active integration of media and communication tools.

**Keywords:** Innovative Educational Technologies; Individual Learning Trajectories; Media and Communication Environment; Students; Professional Training; Trajectory, Individual Trajectory; Media Environment.

## RESUMEN

**Introducción:** el creciente impacto práctico de los medios innovadores y las tecnologías de la comunicación en el entorno educativo está cobrando especial relevancia en la actualidad. La dinámica de las necesidades educativas dentro de la educación superior moderna y los nuevos retos de la digitalización social global requieren el desarrollo y la implementación de trayectorias individuales de aprendizaje. La investigación está dedicada a la formación y desarrollo de trayectorias individuales de aprendizaje para estudiantes del tercer nivel (educativo y científico) de educación superior (campo de conocimiento 01 “Educación/Pedagogía”, especialidad 011 “Ciencias Educativas, Pedagógicas”) a través de medios innovadores y oportunidades de comunicación. El propósito del artículo es proporcionar un análisis ampliado de los beneficios potenciales y los retos de los medios modernos y las tecnologías de la comunicación en el entorno de la educación superior.

**Método:** se utilizó el análisis y la síntesis para un estudio exhaustivo de los enfoques científicos de las definiciones, la esencia y la funcionalidad del entorno de los medios y la comunicación en la educación superior.

**Resultados:** se considera la tecnología de formación de trayectorias individuales de aprendizaje en el entorno de los medios y la comunicación. Se llevó a cabo un experimento pedagógico con el uso de herramientas educativas innovadoras. Se determinan las principales ventajas de la introducción de elementos mediáticos y comunicativos en la enseñanza superior, como el aumento de la motivación de los estudiantes, el incremento del nivel de aprendizaje, la individualización del aprendizaje y el desarrollo de la inclusividad. Se destacan los fundamentos esenciales del progreso social comunicativo y cultural moderno. Se establece que el uso activo del entorno mediático y comunicativo permite la formación de trayectorias individuales de aprendizaje y contribuye a la mejora de la competencia digital de los participantes en el proceso educativo. Se identifican los principales retos del proceso estudiado, como la insuficiente competencia digital del personal docente, la provisión desigual de recursos y una estrategia unificada para la mejora de la educación digital.

**Conclusiones:** la importancia práctica de los resultados de la investigación se observa en la comprobación de la eficacia de la estrategia de individualización de la educación superior a través de la integración activa de medios y herramientas de comunicación.

**Palabras clave:** Tecnologías Educativas Innovadoras; Trayectorias Individuales de Aprendizaje; Entorno Mediático y de Comunicación; Estudiantes; Formación Profesional; Trayectoria; Trayectoria Individual; Entorno Mediático.

## INTRODUCTION

The active development of communications and media creates favorable prerequisites for the dynamics of the concepts of individualization of higher education. Digitalization is currently positioned as an objective requirement for the development of the information society, and thus online learning, personalization of education and interactive platforms are gaining special significance. Innovative educational solutions help to optimize the communication process, develop social and digital competencies, and increase the motivation of students to master competencies.

This issue has received considerable attention from researchers. The authors<sup>(1)</sup> analyze the technological capabilities of media resources and communication platforms in the context of higher education. And explore the advantages of the integrated implementation of digitalization in higher education and the introduction of digital technologies for personalizing the learning process in higher education institutions. At the same time, Bešić<sup>(2)</sup> identifies innovations themselves as a way of integrating digital virtual media communication content into the physical educational environment, offering their variability in terms of programs and tools.

It is reasonable to assume that the use of the media and communication environment is a universal and effective method of digital transformation of higher education towards the formation of individual educational pathways. At the same time, this hypothesis needs to be tested in practice in a real pedagogical experiment.

The purpose of this article is to determine the level of effectiveness of modern media and communication technologies in higher education.

Scientists are actively exploring the possibilities of individualizing higher education, making it strategically important. Manca,<sup>(3)</sup> Mendoza and Heymann<sup>(4)</sup> detail modern concepts of integrating online platforms as adaptive personalized learning systems. Van Mieghem et al.<sup>(5)</sup> analyze the possibilities of distance learning and the development of students' communication competencies using media tools.

Tugtekin and Koc,<sup>(6)</sup> Rivas et al.<sup>(7)</sup> focus on the issue of sustainable development of education through the integration of digital technologies in higher education. The authors consider the potential of online learning from the perspective of developing creativity, verbal and communication skills, critical thinking, and increasing

the involvement of students. At the same time, Bešić<sup>(2)</sup> explores the possibilities of forming personalized educational trajectories using big data analysis and artificial intelligence.

The studies of Botelho,<sup>(8)</sup> Park et al.<sup>(9)</sup> focus on the possibilities of using architectural visualization and animation, interactive learning to create an adaptive and inclusive educational environment. The scientists thoroughly analyzed the necessary tools, benefits, and related risks of the process of introducing educational innovations, and substantiated its priority in crisis conditions.

The publications by Cho et al.<sup>(10)</sup> and Graham<sup>(11)</sup> focus on the innovative potential of the media landscape. The authors explore the implications of using digital tools to improve students' media literacy and develop an inclusive educational environment. Dolanbay<sup>(12)</sup> develops interactive teaching methods that take into account different types of information perception, increase the interest of students, develop critical and creative thinking, and media literacy.

The use of media and communication learning technologies for the development and implementation of personalized educational trajectories is studied by Dudley et al.<sup>(13)</sup> The authors highlight a number of advantages: adaptation of to the individual needs of students, expansion of educational content, and progress tracking. Moriña,<sup>(14)</sup> Nilholm<sup>(15)</sup> identify the main contexts of the media and communication environment: visualization, interactivity, and project orientation.

Kutlu-Abu and Arslan<sup>(16)</sup> argue that the use of media and communication educational technologies opens up a significant prospect for the practice of a personalized learning model. The authors explore the possibilities of cloud-based educational systems as platforms for personalizing educational services.

At the same time, Celik et al.,<sup>(17)</sup> Piddubna et al.<sup>(18)</sup> outline the main directions of forming a sustainable and innovative educational environment, outline the key competencies necessary to effectively support different categories of students in terms of inclusiveness and quality assurance of higher education.

Modern research convincingly shows that the innovative transformation of the higher education system requires comprehensive approaches to implementation, with the active involvement of the media and communication field. At the same time, the problem of creating a universal model of individualization of higher education remains unresolved. Practical developments in this direction are seen as necessary.

## METHOD

The main research materials were publications for 2020-2025, which are indexed in leading scientific databases (Web of Science, Scopus). The keywords used for the search were “innovative educational technologies, individual learning trajectories, media and communication environment, students, professional training”. The main criteria for excluding and including scientific papers and publications in the methodological sample of the study are the level of reliability and validity of information, as well as the spatial and temporal indicator in the context of its representativeness. The sample size is representative in terms of scientific and statistical power.

Analysis and synthesis were used for a comprehensive study of scientific approaches to the definitions, essence and functionality of the media and communication environment in higher education. The method of induction made it possible to generalize the trends in the development of the phenomenon under study, while deduction made it possible to test them on specific examples. The most significant aspects of the problem were identified through abstraction. Generalization allowed us to develop a conceptual educational model. The method of abstraction made it possible to formulate recommendations for the effective use of modern innovative educational approaches, models and strategies in this context.

Within the framework of the pedagogical experiment, the key research methods were: questionnaires, comparison and statistical evaluation of the results. The pedagogical experiment involved the creation of a model of an individualized learning trajectory involving the media and communication environment. The experiment was conducted on the basis of Lesya Ukrainka Volyn National University, the educational trajectory of applicants for the third (educational and scientific) level of education (field of knowledge 01 “Education/ Pedagogy”, specialty 011 “Educational, Pedagogical Sciences”). The sample was formed on the basis of voluntary participation. The control experiment was conducted to evaluate the effectiveness of the proposed training elements. The results of the survey were summarized and processed using quantitative analysis methods (calculation of averages, graphing and comparative analysis). The method of comparative analysis was used to interpret and compare the results.

The criteria for selecting respondents were: representativeness of the participants, the possibility of regular attendance to ensure the reliability and completeness of the experiment. The chosen duration of the study was a prerequisite for the success of the experimental research, as it is related to practice. The participants provided informed consent. Also, the confidentiality of information about the research results was ensured.

The experiment identified independent, dependent, and controlled variables. Among the independent variables were teaching methods, teaching materials, forms of organization of the educational process, and the content of teaching materials. Dependent variables included academic achievement, motivation to learn,

and the development of specific skills. Controlled variables included initial level of knowledge, time allocated for learning, and learning conditions.

Data processing in a pedagogical experiment includes systematization, classification, and analysis of quantitative indicators obtained as a result of the experiment in order to identify patterns.

The total sample of participants was 64 students, during three academic months in the 2024-2025 academic year.

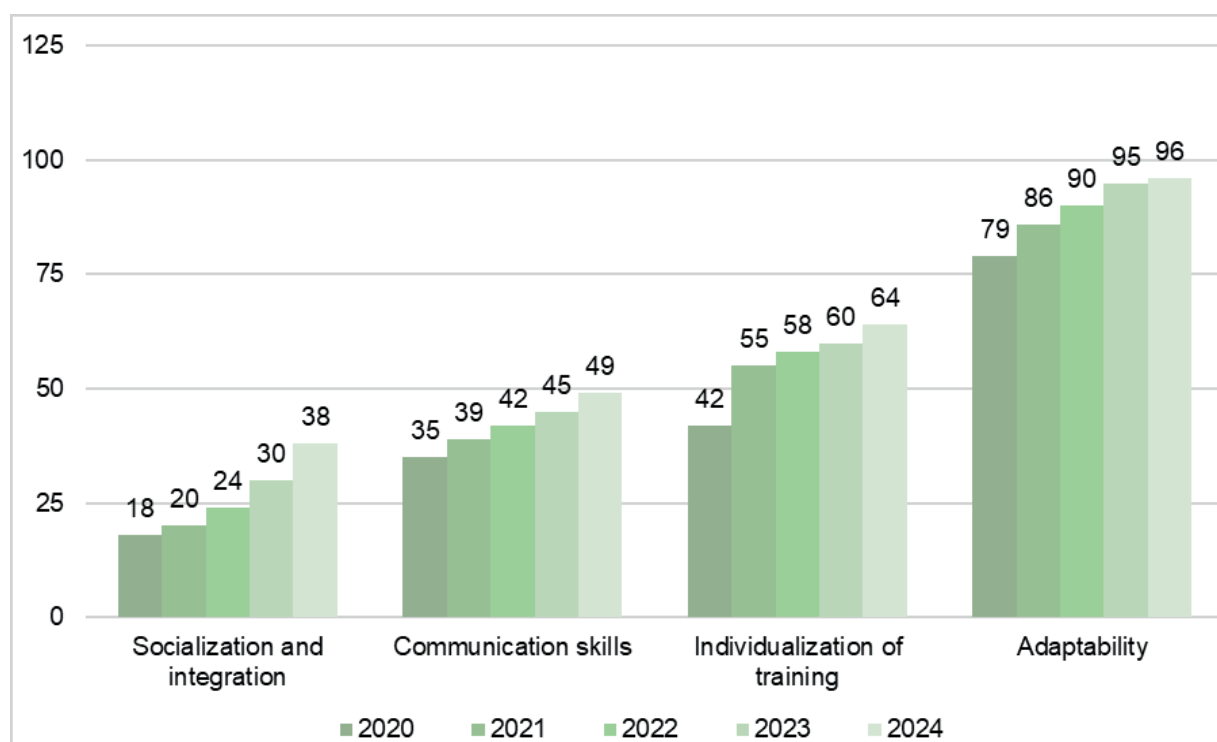
Before contacting potential participants, as they represent a vulnerable population, the approval of the university ethics committee was obtained.

At the end of the experiment, students were asked whether they had observed improvements in competencies and skills, as well as increased motivation to learn. In five questions (Appendix A), students were asked to provide answers in points on a 10-point scale. The responses were then processed statistically.

## RESULTS

The information and communication environment is seen as a means of effective interaction of all participants in the educational process in the higher education environment. The main functionality of modern media and communication systems in education is the implementation of new teaching tools, individualization of learning, and the formation of the information and educational environment of the institution.<sup>(19, 20)</sup>

The development of media competencies in students involves the formation of stable skills in critical analysis, the ability to determine the consequences of influence, and the formation of logical conclusions. At the same time, the process of developing critical thinking and media literacy requires the involvement of the cognitive and socio-cultural spheres, which is most effective in the process of forming individualized educational technologies. Noting the importance of ensuring the inclusiveness of higher education, it is worth highlighting the vectors of influence of media and communication technologies in higher education in the European Union countries (figure 1).



**Figure 1.** The impact of media and communication technologies on higher education in the European Union countries, 2020-2024, level of efficiency, % of students  
Source: systematized by the author based on <sup>(21)</sup>

As Figure 1 shows, media and communication technologies in the European higher education environment have the greatest impact on the aspects of adaptability and individualization of learning (by 23 % from 2020 to 2024 for adaptability, by 22 % for individualization over the same period).

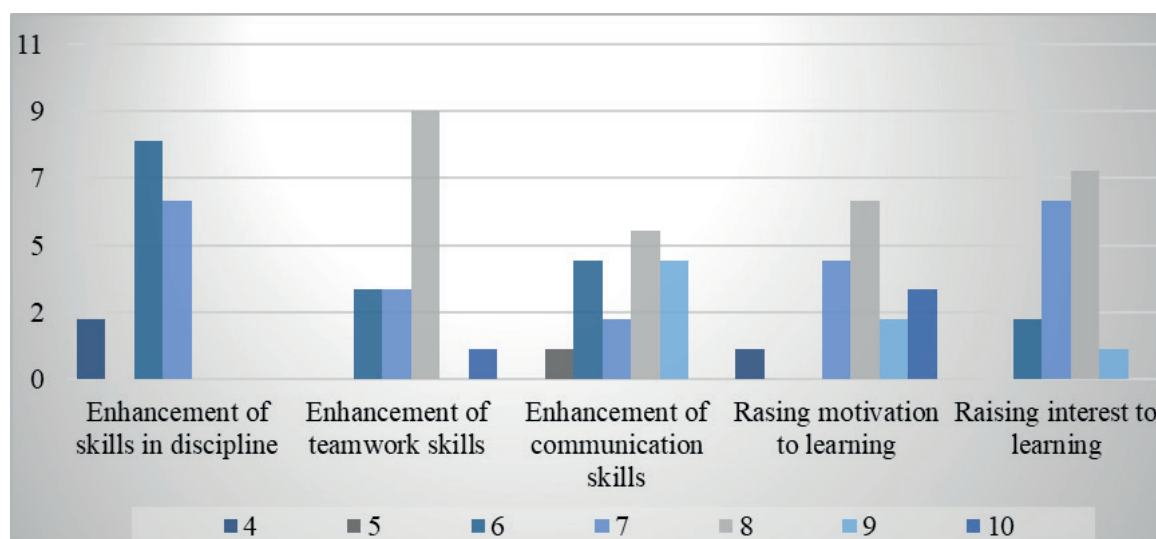
Educational concepts of individualized learning involve the formation of educational trajectories that include a system of techniques, methods and approaches for logical analysis of information, highlighting its context, forming reasonable conclusions, and developing critical thinking of media literacy (table 1).

**Table 1.** Vectors of using the media and communication environment to form individual learning trajectories

Vector		Conceptual impact
Interactive educational projects		<ul style="list-style-type: none"> <li>– Increasing motivation;</li> <li>– development of skills for in-depth analysis of large amounts of information;</li> <li>– development of critical thinking and a conscious desire to filter information;</li> <li>– the ability to organize concepts, ideas, and facts into a logical structure that allows one to visually display the relationships between different components of the information field through analysis and synthesis;</li> </ul>
Problem-oriented method		<ul style="list-style-type: none"> <li>– formation of variable paths;</li> <li>– mastering the method of leverage;</li> <li>– mastering the methodology of brainstorming;</li> <li>– development of a practice-oriented vision of the problem;</li> </ul>
Discussion training		<ul style="list-style-type: none"> <li>– critical evaluation skills;</li> <li>– ability to contradict personal logic;</li> <li>– skills of productive debate;</li> <li>– development of the ability to compare different conceptual points of view based on similarities and differences;</li> </ul>
Learning from mistakes		<ul style="list-style-type: none"> <li>– constructive analysis;</li> <li>– the ability to summarize positive results based on own mistakes, to identify ways of development</li> </ul>
Case method and project-based learning		<ul style="list-style-type: none"> <li>– mutual learning;</li> <li>– stimulus for creative thinking, development of analytical skills and improvement of communication processes;</li> <li>– development of initiative;</li> <li>– ability to defend one's own position.</li> </ul>

Among the practical educational developments in the media and communication space that should be included in individual learning trajectories are Massive Open Online Courses (further - MOOCs), seminars and workshops, targeted online platforms, initiatives to counter media manipulation, social networks and interactive tools. It is worth noting that reflection and motivation play an important role in the field of personalized education, as motivation determines the student's focus on active educational activities, and reflection allows for the formation of the correct positioning of the student towards himself/herself in education.<sup>(22)</sup>

The developed model of integration of communication and media tools was used in the classroom for two months, in the educational trajectory of applicants for the third (educational and scientific) level of education (field of knowledge 01 "Education/Pedagogy", specialty 011 "Educational, Pedagogical Sciences"). The learning tasks were focused on mastering professional competencies and communication skills. Afterwards, a survey was conducted. The results are presented in figure 2.



**Figure 2.** Graphical representation of the survey results after the pedagogical experiment, points on a scale from 1 to 10

As shown in figure 2, the use of media and communication technologies for individualization of education has demonstrated good results, increasing students' motivation and positively influencing the process of mastering competencies. Given the diversity of media communication tools in education, their use can be effective



for both students with disabilities and the general public, which creates great opportunities for the smooth improvement of inclusive practices in higher education institutions.

It is worth noting that the success of the formation of individual learning paths through media and communication technologies depends on the competence of the teaching staff and their willingness to actively interact with students, involving tutoring and coaching.<sup>(6)</sup>

Thus, higher education institutions should now be positioned as universal inclusive educational hubs. A quality approach to learning should be guided by the requirements of individualized learning, high standards of education, curriculum variability, and expanded communication opportunities.

## DISCUSSION

The position of a number of modern researchers, in particular, Fastrez and Landry,<sup>(23)</sup> is consistent with the findings of the current study, determining the use of the media and communication environment as an effective tool for improving the quality of learning and communication competencies of students. The current study proved the feasibility of integrating elements of digital media and communication learning into the traditional educational field.

At the same time, Cho et al.<sup>(10)</sup> analyze the potential of media education in the context of developing students' hard and soft skills in demand in the current labor market. The authors emphasize the need for complementarity between the concepts of higher education system development and the basic principles of inclusive learning paths.

The current study demonstrates the effectiveness of media and communication tools in improving the quality of education. Similar conclusions were reached by Castaño-Muñoz and Rodrigues,<sup>(24)</sup> focusing on the potential of immersive environments and interactive platforms to develop practice-oriented learning and improve learning. According to the authors, VR technologies in higher education contribute to practical generalization and spatial awareness of issues, the development of creativity and critical thinking.

Kryshtanovych et al.<sup>(25)</sup> investigate the prerequisites for the effective development of personalized educational trajectories through interactive tasks. The proposed concept includes a number of innovative tools: online educational platforms, interactive content, mobile applications, project-based learning, and case studies. Among the primary advantages, the authors highlight the expansion of access to educational materials, flexibility and adaptability of the learning environment, prompt feedback, and the development of students' resilience.

Mitchell and Sutherland<sup>(26)</sup> studied the multifaceted impact of social media on the development of the media and communication environment, which creates many opportunities and challenges. In particular, collaborative learning through media elements and social networks promotes dynamic interaction between participants in the educational process, allows for the inclusion of multimedia elements, increasing student engagement. Some tools allow sharing content, improving communication and social skills.

Papak and Mezak<sup>(27)</sup> note that digital media should become more important in the learning process, as they allow for individualized learning strategies, facilitating collaborative and project-based learning, as well as gamification. At the same time, Dudley et al.<sup>(13)</sup> actualize the potential of augmented reality technologies that generate virtual information to provide a more complete information experience. The design of immersive environments allows for the implementation of various simulations to create a realistic mixed experience.

It should be noted that the study has some limitations. First of all, the pedagogical experiment covered only one higher educational institution, which may limit the generalization of the results. Also, the duration of the experiment should be extended to one academic semester.

## CONCLUSIONS

The purpose of the article was to determine the level of effectiveness of modern media and communication technologies in higher education. The study found that the media space should be used to develop sustainable skills and competencies, master the skills of critical analysis of information and information hygiene, creativity, and universal social and communication skills. The study proves that effective inclusive education based on media and communication technologies increases student motivation, provides an individual approach to each student, and ensures the flexibility and adaptability of educational systems.

Authors see prospects for further research in the development of a practical strategy for modernizing higher education with the help of media and communication tools that demonstrate high adaptability for various universities.

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## CONFLICT OF INTEREST

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*Project management:* Tetiana Zhytnik.

*Resources:* Tetiana Nyzhnyk, Viktoriia Kuleshova.

*Software:* Tetiana Zhytnik.

*Supervision:* Tetiana Nyzhnyk.

*Validation:* Viktoriia Kuleshova.

*Display:* Viktoriia Kuleshova.

*Drafting - original draft:* Olena Shvetsova, Iryna Tamozhska.

*Writing - proofreading and editing:* Olena Shvetsova, Iryna Tamozhska.



## APPENDIX A

### Questions for testing the level of mastery of professional competencies and communication skills of students

1. Have you noticed any improvement in your disciplinary skills?
2. Have you noticed an improvement in your communication skills?
3. Have you noticed an improvement in your teamwork skills?
4. Have you noticed an increase in your motivation to learn?
5. Have you noticed an increase in your interest in learning?