

DISTANCE LEARNING 2023: TRENDS, CHALLENGES, PROBLEMS

ENSINO A DISTÂNCIA 2023: TENDÊNCIAS, DESAFIOS, PROBLEMAS

EDUCACIÓN A DISTANCIA 2023: TENDENCIAS, RETOS, PROBLEMAS



Andrii RYBALKO¹

e-mail: ryb@ukr.net



Iryna KOCHETKOVA²

e-mail: kiv20@ukr.net



Olena KIN³

e-mail: kin_f@ukr.net



Svitlana LIULCHAK⁴

e-mail: svitlanal2016@gmail.com



Nataliia KHMIL⁵

e-mail: nkravc0@gmail.com

How to reference this paper:

RYBALKO, A.; KOCHETKOVA, I.; KIN, O.; LIULCHAK, S.; KHMIL, N. Distance learning 2023: Trends, challenges, problems. **Revista on line de Política e Gestão Educacional**, Araraquara, v. 27, n. 00, e023044, 2023. e-ISSN: 1519-9029. DOI: <https://doi.org/10.22633/rpge.v27iesp.2.18583>



| **Submitted:** 15/02/2023

| **Revisions required:** 21/04/2023

| **Approved:** 25/07/2023

| **Published:** 21/08/2023

Editor: Prof. Dr. Sebastião de Souza Lemes
Deputy Executive Editor: Prof. Dr. José Anderson Santos Cruz

¹ National University of Water and Environmental Engineering, Rivne – Ukraine. Doctoral degree in Pedagogy. Associate Professor in the Department of Chemistry and Physics. Institute of Agroecology and Land Management.

² Taras Shevchenko National University of Kyiv, Kyiv – Ukraine. Doctoral degree in Geography Associate Professor in the Department of Geography. Faculty of Geography.

³ H. S. Skovoroda Kharkiv National Pedagogical University, Kharkiv – Ukraine. Doctoral degree in Pedagogy. Associate Professor in the Department of Pedagogy.

⁴ Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Vinnytsia – Ukraine. Doctoral degree in Pedagogy. Associate Professor in the Department of Innovation and Information Technology in Education. Educational and Scientific Institute of Pedagogy and Psychology. Training of Highly Qualified Specialists.

⁵ Municipal Establishment “Kharkiv Humanitarian-Pedagogical Academy” of the Kharkiv Regional Council, Kharkiv – Ukraine. Doctoral degree in Pedagogy. Associate Professor. Professor in the Department of Computer Science. Faculty of Social and Pedagogical Sciences and Foreign Philology.

ABSTRACT: This article provides a comprehensive analysis of the latest research in distance education, addressing crucial elements of trends, challenges, and issues associated with remote teaching. It emphasizes the role and relevance of contemporary technologies in enhancing the quality of distant learning. The methodology employed involves the analysis of scientific research. Based on the literature review, technological innovations aimed at improving the learning process are examined. Furthermore, the importance of dynamic interaction between teachers and students in the virtual context is highlighted. The conclusions emphasize the need for future research to enhance distance education and the learning process continuously. The analysis in this article offers profound insights into contemporary challenges and prospects regarding advancing distance education.

KEYWORDS: Modern education. Digital education. Distance learning tools. Professional training. Higher education.

RESUMO: *O presente artigo proporciona uma análise abrangente das pesquisas mais recentes no domínio da educação a distância, abordando os elementos cruciais das tendências, desafios e questões associadas ao ensino remoto. Destacam-se o papel e a relevância das tecnologias contemporâneas no aprimoramento da qualidade do ensino remoto. A metodologia empregada envolve a análise de pesquisas científicas. Com base na revisão da literatura, são examinadas as inovações tecnológicas voltadas para o aperfeiçoamento do processo de aprendizado. Ademais, ressalta-se a importância da interação dinâmica entre professores e alunos no contexto virtual. As conclusões destacam a imperatividade de futuras pesquisas com vistas ao aperfeiçoamento contínuo da educação a distância e do processo de aprendizado. A análise deste artigo oferece um discernimento profundo sobre os desafios contemporâneos e as perspectivas relativas ao avanço da educação à distância.*

PALAVRAS-CHAVE: *Educação moderna. Educação digital. Ferramentas de ensino a distância. Treinamento profissional. Ensino superior.*

RESUMEN: *El presente artículo proporciona un análisis exhaustivo de las investigaciones más recientes en el campo de la educación a distancia, abordando los elementos cruciales de las tendencias, los desafíos y las cuestiones asociadas a la enseñanza remota. Se destaca el papel y la relevancia de las tecnologías contemporáneas en el mejoramiento de la calidad de la educación a distancia. La metodología empleada implica el análisis de investigaciones científicas. A partir de la revisión de la literatura, se examinan las innovaciones tecnológicas orientadas al perfeccionamiento del proceso de aprendizaje. Además, se resalta la importancia de la interacción dinámica entre profesores y estudiantes en el contexto virtual. Las conclusiones subrayan la imperatividad de futuras investigaciones con el fin de mejorar continuamente la educación a distancia y el proceso de aprendizaje. El análisis de este artículo ofrece una comprensión profunda de los desafíos contemporáneos y las perspectivas relacionadas con el avance de la educación a distancia.*

PALABRAS CLAVE: *Educación moderna. Educación digital. Ferramientas de enseñanza a distancia. Entrenamiento profesional. Educación superior.*

Introduction

The relevance of distance education in 2023 stems from the growing popularity and the demand for a high level of technological proficiency among participants in the learning process. While the COVID-19 pandemic has accelerated the spread of remote education, unresolved challenges persist in its implementation. Distance learning presents new opportunities and constantly evolving challenges and issues in this context.

One of the primary trends in remote education is the increasingly frequent use of interactive technologies such as video conferencing, online games, and virtual reality, making the learning process more efficient and engaging for students. However, alongside these technological opportunities, challenges emerge, such as technical issues, lack of access to the internet and suitable devices, and concerns about protecting personal data confidentiality (MELNIK, 2019).

Another significant trend is the proliferation of online courses and remote teaching programs, offering students a broader range of disciplines and the opportunity to receive education from anywhere in the world. However, this also raises the issue of limited interaction between students and teachers, with potential implications for the quality of education.

Furthermore, distance education is expanding into new domains, such as corporate training and professional development. This allows companies and organizations to effectively enhance their employees' skills, reduce training costs, and ensure they are prepared for the challenges of the job market. However, it also faces challenges related to motivating students for self-directed learning and the need to assess learning outcomes (PARK; FAERMAN, 2018).

One of the fundamental challenges of remote teaching is ensuring the quality of the content and knowledge offered. Distance education programs often involve numerous students, which can result in less individual attention and fewer opportunities for personalized learning. Additionally, ensuring an adequate number of faculty and experts in specific fields may pose a limitation on the development of new training programs and the expansion of the range of available disciplines (PEARLSTEIN, 2019).

To successfully develop distance education, seeking new solutions and approaches to address emerging challenges is imperative. One viable solution is to enhance interaction between students and teachers through interactive platforms and online conferences. It is crucial to diligently work on promoting student motivation, mainly through the creation of personalized training programs and an assessment system that stimulates students' interest in the study material (ADANAN; ADANAN; HERAWAN, 2020).

Remote education will remain relevant in 2023, as evidenced by the increasing number of online courses and educational platforms and the growing contingent of students opting for this learning method. However, it is vital to recognize that this method faces significant challenges and issues that require a proactive approach from educational institutions and experts in the field of distance education (ALMAZOVA; BARINOVA; IPATOV, 2018).

This format's growing popularity requires exploring new approaches to address emerging problems and challenges. It is crucial to develop new teaching methods, adopt new technologies, ensure that teachers and experts are adequately trained, and seek opportunities for improvement through collaborations with other educational institutions and partners. Only through these actions can distance education maintain its relevance and effectiveness in the future.

This article aims to analyze current trends in remote teaching development and identify the unresolved challenges and issues in this field, proposing solutions.

Literature Review

In the study by Kostenko *et al.* (2023), the authors address remote education as an integrated approach to dealing with contemporary challenges. In this research, the main trends, challenges, and issues related to advancing distance education in 2023 are identified and analyzed in-depth. The article comprehensively explains the current context and explores strategies to address these challenges. Furthermore, a detailed analysis of trends in distance education is provided.

Sherman *et al.* (2022), investigate the future perspectives of remote teaching, focusing on the Ukrainian context as a case study. This study analyzes the impact of the military conflict on the evolution of distance education, highlighting specific implications for the Ukrainian educational system.

In Tytova and Mereniuk (2022), attention is centered on analyzing digital literacy among future teachers amidst a large-scale military conflict, using the Ukrainian experience as a research basis. The researchers examined in detail how the military conflict has affected the development of digital literacy among future educators, considering obstacles such as limited technology access, disruptions in education, and loss of communication, among other challenges.

Prokopenko (2021) is dedicated to exploring the technological issues that must be overcome for the future digitization of education. This study analyzes the key trends and issues related to technology use in the educational context. Finally, in the article by Zinchenko, Ostapenko and Udovichenko (2021), the authors investigate the use of innovative information and communication technologies in the education of occupational therapists in Ukraine. This research offers a detailed analysis of innovative practices and tools applied to enhance the quality of education and communication effectiveness in this field.

In Liu, Chen and Crabbe (2021) an examination of multimedia and virtual technologies in the context of arts education is conducted. The research explores the potential of these technologies to enhance the learning process and foster students' creativity. Arthur-Nyarko, Agyei and Armah (2020) emphasize the operation of digitizing distance learning materials and assess students' willingness to use such resources. This study examines both the benefits and challenges of digital learning and addresses strategies to overcome potential obstacles.

Kononets, Ilchenko and Mokliak (2020), investigate implementing a resource-based learning system in higher education institutions in Poltava, focusing on training future teachers. In detail, the approaches and methods employed in this system are explored, along with the results obtained from its application.

In light of this, the conclusions suggest that the advancement of distance education is a pressing issue that attracts the attention of various researchers. The studies emphasize the urgency of reforming and modernizing the educational system, including introducing innovative technologies and adopting digital transformation practices. These new approaches and technologies have the potential to elevate the quality of education and prepare professionals capable of meeting the demands of the contemporary job market.

Materials and Methods

This article investigates the development of remote teaching in contemporary circumstances. To achieve this objective, a comprehensive methodology was adopted, involving the analysis of scientific research, regulatory acts, statistical data, and consultation with experts in the field (PROKOPENKO, 2021). Throughout the study, the method of analyzing scientific research was applied, which involved reviewing and evaluating a wide range of scientific publications related to the development of distance education. Over 20 scientific studies and publications were thoroughly examined, focusing on their relevance,

methodology, and scientific innovation. The organization of this research encompassed three distinct stages.

In the first stage, a review of relevant scientific and methodological literature on the topic in question was conducted, along with exploring experiences related to the implementation of distance education. In this context, research areas and methods were identified, following a similar approach to that employed by Arthur-Nyarko, Agyei and Armah (2020). The second stage adopted a modeling methodology, providing a detailed analysis of existing models of remote teaching, as well as organizational and pedagogical conditions, criteria, and effectiveness indicators. In the third stage, the collected data were processed and analyzed, culminating in conclusions from the research results. Notably, this methodological model is widely recognized in Ukrainian scientific research, gaining popularity among academics (TYTOVA; MERENIUK, 2022).

Results

Considering associated challenges, the study highlights the imperative need to enhance technical infrastructure and expand access to distance education. The lack of stable internet connectivity, insufficient technical support, and equipment deficiencies can hinder learning effectiveness. Overcoming this challenge requires improving the technical infrastructure of educational institutions, providing necessary equipment, and offering adequate technical support to students and faculty.

It is evident that many students experience feelings of loneliness and a lack of social support. Therefore, creating opportunities for students to interact in groups and share experiences is paramount. Establishing virtual forums, discussion groups, or collaborative projects can foster social interaction and student engagement. Furthermore, it is essential to provide proper support to students, primarily through the availability of counseling services, psychological support, and technical assistance.

The research emphasizes the need for a systemic approach to distance education. This signifies that the success of distance education is intrinsically linked to a comprehensive strategy for organizing the process, encompassing teacher training, the development of technical infrastructure, student engagement, and continuous evaluation and improvement. Furthermore, it is crucial to consider students' individual needs and design flexible curricula to ensure their success and satisfaction.

Another crucial aspect is ensuring the accessibility of distance education for all students. It is essential to pay attention to diversity, including people with disabilities, migrants, and individuals from less privileged social strata, among other groups. Facilitating access to technology and addressing their needs will help mitigate disparities in access to education. Providing teachers and students with the necessary skills and resources for effectively using remote tools is fundamental. This goal can be achieved through training programs, webinars, educational tools, assessment techniques, and communication guidance.

Given this landscape of challenges and issues, universities, educational institutions, and organizations need to concentrate on evolving and improving distance education. Continuous self-assessment, obtaining feedback from students and teachers, and effective collaboration among all stakeholders in the educational process are crucial elements for the success of remote teaching. Considering that students may have different learning styles, study paces, and distinct personal circumstances, it is vital to develop individualized curricula, offer opportunities for independent work, allow for the choice of topics and tasks, and ensure the availability of online resources and materials for independent study.

Ethical and privacy aspects in distance education must also be fully considered. Ensuring data protection, the confidentiality of students' personal information, and adherence to ethical standards in teaching are issues of significant importance. The success of remote education depends on active engagement and collaboration of all involved in the teaching and learning process. This collaboration requires appropriate resources, teacher training, student preparation, and continuous monitoring and improvement of the process.

Remote teaching has the potential to expand access to education and create new opportunities for students in different parts of the globe. However, for this aspiration to be achieved, it is essential to devote proper attention to developing and improving methods, technologies, and strategies that align with the demands of the contemporary educational context. This includes establishing standards and regulations that govern distance education and creating quality control mechanisms. Such measures will contribute to ensuring the uniformity and standardization of the learning process, safeguarding students' interests, and providing them with quality education. It is also imperative to provide adequate training to teachers to effectively use remote teaching technologies. Teachers need to acquire knowledge about pedagogical techniques, using digital resources, and understanding the nuances of interacting with students in a virtual environment.

It should be noted that student assessment is an integral and crucial component in the realm of distance education. Therefore, it is imperative to formulate effective assessment methods characterized by impartiality, reliability, and objectivity. In this context, assessment methods include open-ended tasks, online tests, project development, and paper review, among other approaches. Therefore, assessment must accurately reflect the knowledge and skills acquired by students throughout the process of distance education.

The future of distance education substantially rests on how these challenges will be addressed and the assured quality of the virtual educational process. This goal requires close cooperation and sharing experiences among various stakeholders, including educational institutions, teachers, students, families, authorities, and society. Additionally, it is imperative to conduct research and academic studies to investigate effective practices in distance education, develop new methodologies and approaches, and assess the results and impact of remote teaching on students.

Discussion

This study has exposed some of the intrinsic complexities of the distance education modality. Specifically, the research identified challenges related to sustaining student motivation, limited interaction between instructors and students, and the need to enhance the effectiveness of learning assessment strategies. Details regarding the advantages associated with distance education are presented in Table 1.

Table 1 – Advantages of distance education

Advantages of Distance Education	Description
Flexibility in Study Hours	Distance education gives students the advantage of autonomy in managing their study schedules, allowing them to select convenient times for academic tasks and study material review. This flexibility proves particularly beneficial for those with additional commitments, such as professional obligations or family responsibilities.
Global Access to Education	Distance education enables individuals to access education from anywhere, regardless of geographical location. This allows students to enroll in higher education institutions and obtain certifications from reputable academic entities, even when they are situated on different continents.
Expansion of Opportunities for Self-Directed Learning	Distance education promotes student autonomy and self-discipline, encouraging them to regulate their learning pace, review study materials, complete supplementary tasks, and conduct independent research. This, in turn, empowers students to absorb information more deeply and develop self-organizational skills.
Increased Access to Educational Resources	Students enrolled in distance education programs have comprehensive access to a wide range of digital resources, including e-books, video lectures, journals, databases, and virtual libraries. This access facilitates students in obtaining up-to-date and diverse information and enables them to utilize various sources in their research and academic projects.

Source: Elaborated by the authors

Recommendations have been formulated to enhance its quality to overcome the challenges identified in the realm of distance education. Notably, there is a suggestion to employ interactive teaching methods, actively engage educators in supporting students, and improve the assessment system. Furthermore, an analysis of student perceptions regarding distance education was conducted, revealing that the majority of students evaluate this experience positively. They emphasize the convenience and accessibility of learning materials and the ability to manage the educational process (BAGUZINA, 2020; BAKER; UNNI, 2018).

However, it was observed that some students faced challenges in organizing their studies and maintaining effective communication with instructors. Additionally, it was noted that distance education may be less effective in fields of knowledge where practical components play a fundamental role (BRAUN; CLARKE, 2019; DANDASHLY; BARBAR; ANTOUN, 2019; GÜRGIL; ÜNAL; AKSOY, 2019). These common disadvantages associated with the use of distance education are presented in Table 2.

Table 2 - Disadvantages of Distance Education Use

Disadvantage	Description
Limited Personal Interaction	One of the inherent characteristics of distance education is restricting direct communication among students, their instructors, and peers. This peculiarity can lead to reduced opportunities for exchange, debate, and the development of interpersonal skills.
High Technological Requirement	Distance education is intrinsically linked to using technological resources, such as computers, the internet, and other technical devices. Insufficient access to essential technological infrastructure can pose additional challenges for a specific segment of students throughout the learning process.
Self-Discipline	Distance education demands a high degree of self-discipline and self-organization from students. The absence of supervision and the structure intrinsic to traditional education can lead to decreased motivation and unsatisfactory academic performance.
Constraints on Practical Training Opportunities	Certain disciplines and skills may require practical experiences or the use of laboratories, and these opportunities may be limited or even nonexistent in distance learning contexts. This limitation can potentially restrict students' ability to apply the acquired knowledge practically.
Lack of Supervision and Its Effects on Motivation	In distance learning contexts, it is essential to note that students do not benefit from direct teacher supervision, a condition that can lead to decreased motivation and, consequently, compromise the quality of the learning process. In this scenario, the responsibility for educational success primarily rests on the students themselves.

Source: Elaborated by the authors

The overall conclusion of the research emphasizes the feasibility of distance learning as a practical component in the educational process, provided that innovative technologies and efficient organizational management are employed. However, it is imperative to recognize and address the challenges inherent in this context, ensuring adequate support and promoting collaboration between educators and students (HALBERSTADT *et al.*, 2019).

As this mode of education becomes increasingly widespread and famous, it is crucial to continue research and introduce new perspectives and approaches to ensure quality education. Due to space limitations, we present a synthesis of the analytical results of this study. Notably, these conclusions are based on methodologically sound data and research analysis, lending them a high degree of reliability (KULICHENKO; POLYEZHAYEV, 2020).

The recommendations and findings from this work can be applied to enhance the learning process, create a conducive teaching environment, and elevate the quality of education in the digital age. Additionally, the research identified some of the key challenges and issues faced by both educators and students in the context of distance learning.

One such challenge lies in the need to effectively support students and provide a conducive learning environment for their success. It was observed that many students experience a gap in interpersonal connection with their instructors and peers, which can have an adverse impact on motivation and learning outcomes. Therefore, it becomes essential to establish effective communication mechanisms among participants in the educational process and develop student support strategies.

Another challenge relates to the application of interactive teaching methods and contemporary technologies. While these tools can effectively promote student engagement and encourage active participation, it is essential to recognize that their implementation requires proper training and education of educators. The lack of proficiency among teachers in using these technologies can limit their effectiveness and result in student dissatisfaction. Therefore, the training of educators in integrating these resources is a crucial aspect to be addressed in the context of distance education.

Final consideration

Thus, the conclusions of this study hold practical relevance for both the faculty and the administration of educational institutions, as they provide guidelines of considerable importance for optimizing distance education. Suggestions aimed at providing support to students and improving communication can play a crucial role in the effectiveness and satisfaction of all involved in the learning process.

Therefore, based on the conclusions of this study, various recommendations can be formulated for the practical implementation of distance education. Ensuring proper training for the teaching staff and offering ongoing support for their professional development in distance teaching approaches is imperative. Providing access to the necessary technical infrastructure and making technical expertise assistance available is essential.

The development of interactive teaching methodologies and the adoption of contemporary technologies, coupled with the promotion of social interaction and student support, represent fundamental aspects for advancing distance education. To this end, interactive platforms and tools can be implemented, such as web conferences, virtual laboratory environments, and group projects, among other possibilities. Furthermore, it is essential to establish transparent evaluation criteria and provide feedback to students to enhance their learning process further.

This study offers a valuable contribution to our understanding of distance education and its application in contemporary educational practices. The recommendations and findings presented provide valuable insights that can be incorporated to optimize the educational process, foster a conducive learning environment, and elevate the quality of education in the digital age.

Many students have expressed feeling distant from their instructors and peers, which has had an adverse impact on their motivation and learning performance. Therefore, ensuring efficient communication among all parties involved in the educational process and developing student support mechanisms is imperative. While these tools can potentially engage students and enhance their involvement, their implementation requires proper training and capacity building for educators. The lack of proficiency among teachers in handling these technologies can compromise their effectiveness and lead to student dissatisfaction.

Thus, this study sheds light on the inherent complexities of distance education and provides valuable guidance for improving educational practices in the digital era. Addressing the challenges and capitalizing on the opportunities offered by technology will undoubtedly lead to a more productive and rewarding remote teaching experience for educators and students.

REFERENCES

ADANAN, H.; ADANAN, M.; HERAWAN, T. M-WebQuest Development: Reading Comprehension of Senior High School Students in Indonesia. **International Journal of Emerging Technologies in Learning (iJET)**, v. 15, n. 03, p. 74, 18 Feb. 2020. DOI: 10.3991/ijet.v15i03.10628.

ALMAZOVA, N.; BARINOVA, D.; IPATOV, O. Forming of information culture with tools of electronic didactic materials. *In*: ALMAZOVA, N.; BARINOVA, D.; IPATOV, O. INTERNATIONAL DAAAM SYMPOSIUM, 28., 2018. **Proceedings** [...]. [S. l.]: DAAAM International Vienna, 2018. p. 0587-0593. DOI: 10.2507/29th.daaam.proceedings.085.

ARTHUR-NYARKO, E.; AGYEI, D. D.; ARMAH, J. K. Digitizing distance learning materials: Measuring students' readiness and intended challenges. **Education and Information Technologies**, v. 25, n. 4, p. 2987-3002, 15 Jan. 2020. DOI: 10.1007/s10639-019-10060-y.

BAGUZINA, E. Webquests: Fostering Foreign Language Learning in a University Environment. **SSRN Electronic Journal**, 2020. DOI: 10.2139/ssrn.3552707.

BAKER, D. Mc A.; UNNI, R. USA and Asia Hospitality & Tourism Students' Perceptions and Satisfaction with Online Learning versus Traditional Face-to-Face Instruction. **E-Journal of Business Education and Scholarship of Teaching**, v.12, n. 2, p. 40-54, 2018.

BRAUN, V.; CLARKE, V. Reflecting on reflexive thematic analysis. **Qualitative Research in Sport, Exercise and Health**, v. 11, n. 4, p. 589-597, 13 June 2019. DOI: 10.1080/2159676x.2019.1628806.

DANDASHLY, N. A.; BARBAR, A.; ANTOUN, M. The effects of using blogs and webquests in teaching education postgraduate courses. **Global Journal of Information Technology: Emerging Technologies**, vol. 9, no. 1, p. 12-19, 30 Apr. 2019. DOI: 10.18844/gjit.v9i1.4018.

GÜRGIL, F.; ÜNAL, M.; AKSOY, B. Social Studies Preservice Teachers' Views on and Experiences with WebQuest. **Journal of Education and Training Studies**, vol. 7, no. 4, p. 131, 14 Mar. 2019. DOI: 10.11114/jets.v7i4.4061.

HALBERSTADT, J. *et al.* Skills and knowledge management in higher education: how service learning can contribute to social entrepreneurial competence development. **Journal of Knowledge Management**, v. 23, n. 10, p. 1925-1948, 9 Dec. 2019. DOI: 10.1108/jkm-12-2018-0744.

KONONETS, N.; ILCHENKO, O.; MOKLIAK, V. Future teachers resource-based learning system: Experience of higher education institutions in Poltava City, Ukraine. **Turkish Online Journal of Distance Education**, p. 199-220, 1 July 2020. DOI: 10.17718/tojde.762054.

KOSTENKO, L. *et al.* Distance learning as an integrative response to contemporary challenges. **Futurity Education**, v. 3, n. 1, p. 151-164, 24 Mar. 2023. DOI: 10.57125/fed/2022.10.11.12.

KULICHENKO, A.; POLYEZHAYEV, Y. Innovative information and communication technologies for ergotherapists applied during english learning in Ukraine. **AD ALTA**: 10/02, v. 10, n. 2, p. 228-233, 31 Dec. 2020. DOI: 10.33543/1002228233.

LIU, Q.; CHEN, H.; CRABBE, M. J. C. Interactive Study of Multimedia and Virtual Technology in Art Education. **International Journal of Emerging Technologies in Learning (iJET)**, v. 16, n. 01, p. 80, 12 Jan. 2021. DOI: 10.3991/ijet.v16i01.18227.

LUTSENKO, N. S.; SIDELNIK, E. A.; MELNIK, O. G. Webquest in teaching students. *In*: ALMAZOVA, N. I.; RUBTSOVA, A. V.; BYLIEVA, D. S. (ed.). **Professional Culture of the Specialist of the Future**. European Proceedings of Social and Behavioural Sciences. London: Future Academy, 2019. v. 73, p. 618-629. DOI: 10.15405/epsbs.2019.12.66.

PARK, H. H.; FAERMAN, S. Becoming a Manager: Learning the Importance of Emotional and Social Competence in Managerial Transitions. **The American Review of Public Administration**, v. 49, n. 1, p. 98-115, 3 July 2018. DOI: 10.1177/0275074018785448.

PEARLSTEIN, J. Team formation that models real life: Teaching students to form better teams in the capstone and beyond. **Journal of Education for Business**, v. 95, n. 6, p. 375-383, 8 Oct. 2019. DOI: 10.1080/08832323.2019.1665488.

PROKOPENKO, O. Technological challenges of our time in the digitalization of the education of the future. **Futurity Education**, v. 1, n. 2, p. 4-13, 25 Dec. 2021. DOI: 10.57125/fed/2022.10.11.14.

SHERMAN, M. *et al.* The future of distance education in war or the education of the future (the Ukrainian case study). **Futurity Education**, v. 2, n. 3, p. 13-22, 25 Sept. 2022. DOI: 10.57125/fed/2022.10.11.30.

TYTOVA, N; MERENIUK, K. Digital literacy of future teachers in the realities of large-scale military aggression (Ukrainian experience). **Futurity Education**, v. 2, n. 3, p. 43-54, 25 Sept. 2022. DOI: 10.57125/fed/2022.10.11.33.

ZINCHENKO, V.; OSTAPENKO, S.; UDOVICHENKO, H. Introduction of Academic Honesty as a Necessary Prerequisite and an Important Component of Quality Education for Future Economists. **Revista Romaneasca pentru Educatie Multidimensionala**, vol. 13, no. 1, p. 81-95, 16 Mar. 2021. DOI: 10.18662/rrem/13.1/361.

CRediT Author Statement

Acknowledgements: Not applicable.

Funding: Not applicable.

Conflicts of interest: No conflicts of interest.

Ethical approval: Not applicable.

Data and material availability: Yes.

Authors' contributions: All authors participated in writing the article.

Processing and editing: Editora Ibero-Americana de Educação.
Proofreading, formatting, normalization and translation.

