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# THE ROLE OF DIGITAL COMPETENCIES IN CREATING AN INCLUSIVE EDUCATIONAL ENVIRONMENT

# O PAPEL DAS COMPETÊNCIAS DIGITAIS NA CRIAÇÃO DE UM AMBIENTE EDUCATIVO INCLUSIVO

**YULIIA HOLOVNIA**
State University of Trade and Economics, Kyiv, Ukraine
y.golovnia@knute.edu.ua

**ALLA LISNYCHENKO**
Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Vinnytsia, Ukraine
alla.lisnychenko@gmail.com

**TAMILA DOVHALIUK**
Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Vinnytsia, Ukraine
amilat35@gmail.com

**YULIIA FALSHTYNSKA**
Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Vinnytsia, Ukraine,
j.falshtynska@vspu.edu.ua

**INNA SAMOILENKO**
Berdyansk State Pedagogical University, Berdyansk, Ukraine,
inna.sechina93@gmail.com

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**Corresponding author:**
y.golovnia@knute.edu.ua

**Abstract:** The purpose of the article is to try to specify digital competencies that ensure integrative and inclusive learning. By its functional characteristics, the digital environment mainly updates the format of adaptation of students. The task of the current research is to reorient the purpose of the digital arsenal, which contributes to adaptation of educational institutions. Digitalisation assumes the formation of inclusive educational environment through the use of innovative learning platforms and improved participants' communication. The methodology of the article is typical for a review type of article and involves the analysis (systematic and comparative) of scientific works on the peculiarities of using digital resources in inclusive education. The sources of scientific research were the scientometric databases Web of Science, ResearhGate, Google Scholar, from which the relevant studies of the last five years were extracted. The results of the article indicate that digital competencies for inclusive learning are currently in search of an optimal status in the modern educational paradigm. The unaltered use of digital resources or their complete disregard in educational activities does not comply with the principles of inclusive education. Therefore, the scientific discourse identifies the use of synergistic approaches that will offer the interaction of traditional and innovative inclusive learning formats, in which digital competencies will become an effective mechanism for removing any obstacles to functioning of the inclusive educational environment. Digitalisation makes it possible to develop relevant competencies for all participants in the educational process, which ensures continuity, mobility, and accessibility of education.

**Keywords:** Digitalisation of education. Inclusive educational environment. ICT. Digital competencies.

**Resumo:** O objetivo do artigo é tentar diferenciar e especificar as competências digitais que garantem uma aprendizagem integradora e inclusiva. Pelas suas características funcionais, o ambiente digital actualiza sobretudo o formato de adaptação alunos. A tarefa da presente investigação é reorientar a

finalidade do arsenal digital, que contribui a adaptação das instituições de ensino. A digitalização pressupõe a formação de um ambiente educativo inclusivo através da utilização de plataformas de aprendizagem inovadoras e de uma melhor comunicação entre os participantes. A metodologia do artigo é típica artigo do tipo revisão e envolve a análise (sistemática e comparativa) de trabalhos científicos sobre as peculiaridades do uso de recursos digitais na educação inclusiva. As fontes de pesquisa científica foram as bases de dados cientométricas Web of Science, ResearhGate, Google Scholar, das quais foram extraídos os estudos relevantes dos últimos cinco anos. Os resultados artigo indicam competências digitais para a aprendizagem inclusiva estão atualmente em busca de um estatuto ótimo no paradigma educativo moderno. A utilização inalterada dos recursos digitais ou a sua total desconsideração nas actividades educativas não está acordo com os princípios da educação inclusiva. Por conseguinte, o discurso científico identifica a utilização de abordagens sinérgicas que proporcionem a interação de formatos aprendizagem inclusivos tradicionais e inovadores, quais as competências digitais se tornarão um mecanismo eficaz para remover quaisquer obstáculos ao funcionamento processo educativo no ambiente educativo inclusivo. A digitalização permite desenvolver competências relevantes para participantes no processo educativo, o que garante a continuidade, a mobilidade e a acessibilidade da educação.

**Palavras-chave:** Digitalização da educação. Ambiente educativo inclusivo. ICT. Competências digitais.

## 1. Introduction

Modern educational strategies are focused on achieving a high level of education coverage for all members of society. This approach requires a clear organisational and pedagogical understanding of the functioning of the educational environment. Ensuring accessibility of education at all educational and qualification levels requires quite significant resources, so society is looking for innovative formats that will reduce the material and financial burden and allow for the implementation of inclusive education while maintaining fundamental educational principles.

The study by VAN MIEGHEM; VERSCHUEREN; PETRY *et al.* (2020) identified 5 key topics of inclusive education: attitudes towards IE, professional development of teachers in IE, IE practices, student participation in IE, and critical reflections on IE research. The educational community faces a pressing question: what helps to implement the principles of inclusion? On the one hand, it is the worldview and mental readiness of participants in the educational process (administration, teachers, students, people with disabilities) to positively perceive inclusion (KRISCHLER; POWELL; PIT-TEN CATE *et al.*, 2019). On the other hand, these are professional competences that ensure the practical implementation of inclusive education (QIAN; RONG, 2023). Along with the fundamental and flexible skills that are relevant in the inclusive environment, digital competences are also distinguished, which contribute to the improvement of this environment (FERNÁNDEZ-

BATANERO; MONTENEGRO-RUEDA; FERNÁNDEZ-CERERO *et al.*, 2022). The modern technological society requires educational development in the context of digital activity (HÄMÄLÄINEN; NISSINEN; MANNONEN *et al.*, 2021), without dividing education into humanities or sciences, traditional or innovative, or mainstream or inclusive.

The purpose of the research is to clearly characterise the status of digital competencies and algorithms for their use in inclusive education. The objectives of the article are to clarify the following aspects:

- the role of digital resources in the inclusive education system;
- interaction of digital and traditional learning elements in an inclusive environment.

The scientific aim of the article is focused on the issue of positioning digital competences in the organisation of an inclusive educational process. Given the contradictions between innovative learning formats and the principles of participation and inclusion of all in the educational process, there is an urgent need to clearly distinguish between the positive manifestations and challenges of applying digitalisation for the development of inclusive education in particular.

## 2. Theoretical framework and literature review

The scientific and educational discourse on the role of digitalisation in inclusive education has become controversial due to the specifics of the educational process based on innovative digital platforms. The philosophy of inclusion implies the removal of any restrictions and boundaries in the provision of education for people with special needs or people who have faced life challenges. Also, digital resources promote integrative educational strategies, according to which the dominant dimension of adaptation of the educational process is the participants, not the institutions.

Among the key aspects of scientific discourse that characterise the peculiarities of the formation of digital competences in inclusive education are the following:

- development of AI potential for creating curricula and methods for inclusive education (PERMINOVA; VASYLYUK-ZAITSEVA; SHAPKA *et al.*, 2023);
- the controversial use of virtual pedagogy (SHEVCHUK; FILIPPOVA; KRASNOVA *et al.*, 2023), adaptation of blended learning (GUILLEN-GAMEZ; MAYORGA-FERNÁNDEZ; DEL MORAL, 2020), VR and AR

(QUINTERO; BALDIRIS; RUBIRA *et al.*, 2019) in inclusive education (SALNYK; GRIN; YEFIMOV *et al.*, 2023);

- innovative cognitive activity in the cluster of inclusive education, driven by digital potential (KHANDELWAL; KOLTE; PAWAR *et al.*, 2022), innovative technologies of pedagogical excellence (KRYVOSHEIN; VDOVENKO; BURIAK *et al.*, 2022);
- peculiarities of the functioning of the electronic library (KOUNALAKIS, 2023), mobile learning applications (MIRZAKHMEDOVA; OMONOV; RIKHSIYEVA *et al.*, 2023);
- specifics of studying certain disciplines: foreign (English) language (SEIS, 2023), natural sciences (ATAEVA, 2022), medical (TSEKHMISTER; VIZNIUK; HUMENIUK *et al.*, 2022) and socio-medical knowledge (TSEKHMISTER; CHALYI; CHALYY, 2009), pharmacy (TSEKHMISTER; GONCHARUK; DATSIUK et al., 2021);
- socio-cultural elements of understanding inclusion and perception of this format through information and digital technologies (MAZURKEVICH; TKACHENKO; KHARKOV, 2022); National trends in the digitalisation of inclusive education (MUÑOZ-ARTEAGA; LÓPEZ-TORRES; MUÑOZ-ZAVALA, 2023);
- the formation of a new system of educational values in the course of acquiring knowledge in innovative ways (RUDENKO; PIESHEV; LAZAREVA *et al.*, 2022), ethical aspects of digitalisation in inclusive education (NOVELLA-GARCÍA; CLOQUELL-LOZANO, 2021).

A special place in the scientific discourse is occupied by the problem of the quality of education due to the active involvement of digital learning elements (TSEKHMISTER; KONOVALOVA; TSEKHMISTER, 2022).

## 3. Research design and methods

The study is conducted to identify potential problems of ensuring inclusive education when using a digital environment. Since digitalisation in some way violates the principles of participation in the educational process, it is necessary to analyse the existing algorithms for building digital educational platforms that will accompany inclusive education.

A comparative characterisation of digital activity in integrated and inclusive learning should be made.

The current study is qualitative and based on the analysis of scientific literature on the use of digital competencies in the inclusive education system. To find sources on these issues, scientometric databases were used: Web of Science, ResearchGate, Google Scholar, ScienceDirect. Given the intensity and dynamism of the digitalisation of education, the works published mainly in the last 5 years were selected for the study. The key phrases used to select the works for analysis were: digital competencies and digital educational environment, inclusive education.

The study used a set of general scientific methods, mainly analytical. The scientific and pedagogical methods made it possible to determine the specifics of the application of digital competencies in inclusive education. At the same time, synergistic methodological approaches were used to determine the principles of interaction between traditional and innovative educational formats in the inclusive dimension.

## 4. Results

Digitalisation has only recently begun to take hold in educational strategies, occupying its own niche in the educational, research, and upbringing processes. Therefore, the specifics of using digital resources are still mostly generalised for the educational environment. However, the rapidity with which the digital environment is conquering all spheres of modern society in the short term will allow us to identify all its characteristics and specifics of its use in education. This means that digital competencies will gradually gain the status of fundamental and become mandatory for participants in the educational environment.

Modern inclusive education is a synergy of "pedagogical, content, and technological knowledge that facilitates the integration of digital resources into teaching" (FALLOON, 2020). The digital environment in inclusive education redefines the roles of the teacher and the learner and aims to overcome the limitations of physical time and environment (XU, 2023).

At the same time, digital competencies occupy an important niche in the formation of worldview and mental beliefs, and psychological and emotional resilience of all participants in inclusive education. This is especially important for people with special needs

or people who have experienced discriminatory harassment. In these cases, the digital environment forms a kind of safety and security zone in which the student has the opportunity to activate their own potential for moral resilience, initiative, leadership (KONIARI; RAFTOULIS, 2023), etc. Digital competencies are also an important tool for psychological training of teachers in preparing them to work in an inclusive educational environment. An important function is performed by digital competencies in the communication dimension (ZAHORODNA; SAIENKO; TOLCHIEVA *et al.*, 2022).

It is worth noting that the until recently popular holistic principles of holistic education development (ISKAKOVA; KALDYGOZOVA; USSENOVA *et al.*, 2023) are gradually losing their relevance in a dynamic world. The educational paradigm is gradually acquiring the features of fragmentation and segmentation by various characteristics. Therefore, modern studies note a significant difference in the use of digital resources for different educational and qualification levels. In particular, MORINA (2018) notes that inclusive education in higher education has a number of features compared to primary and secondary education, so digital learning has its own specifics of use.

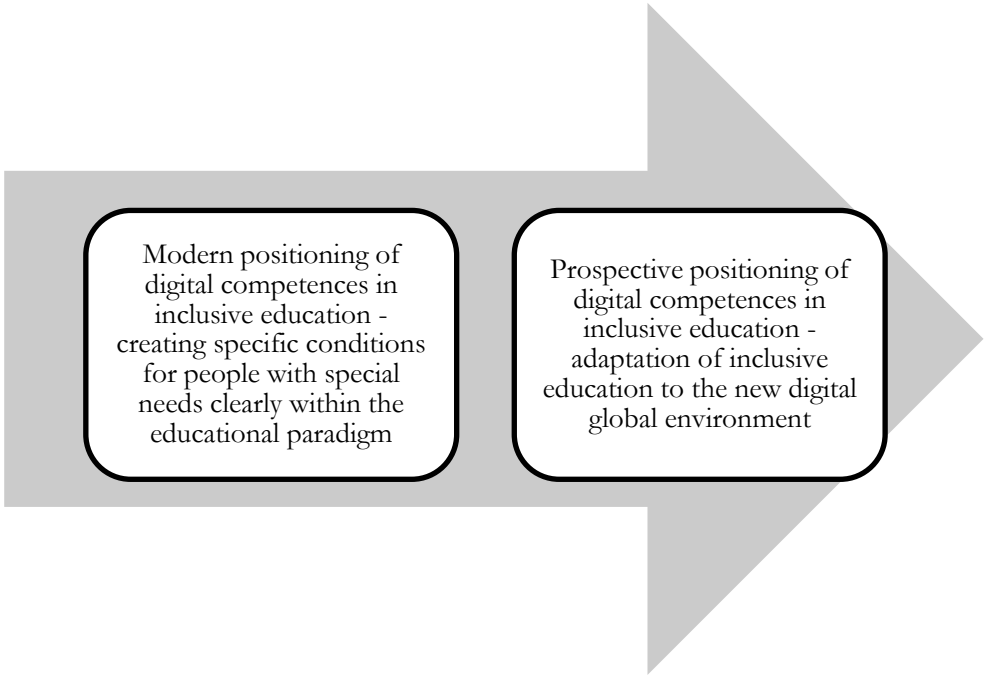
According to the data obtained in the study by KARACA; ASLAN BAĞCI (2023), the administration of educational institutions strongly supports training programmes for specialists focused on improving digital competencies. It is worth noting that the higher the level of digital literacy of a teacher, the lower the need for resource support for inclusive education. And those resources that are allocated specifically for the formation of an inclusive environment are classified as dimensions of the development and transformation of education in general.

The modern socio-cultural space dictates its own conditions for educational development. Digital literacy is emerging as an element that is positioned not only as a means of improving everyday life but also as a competence that contributes to the acquisition of an educational level. The scale and intensity of the involvement of digital technologies in the educational process necessitates the inclusion of these elements in educational plans and programmes. For inclusive education, the need to develop theoretical and methodological programme frameworks is also becoming more relevant (TOHARA; SHUHIDAN; SAIFUL BAHRY *et al.*, 2021). For inclusive educational strategies, the problem of digital competencies is distinguished into a special cluster. It is noted that digital competencies, unlike other fundamental educational competencies, are characterised by dynamism and the

need for updating virtually online (LEVANO-FRANCIA; SANCHEZ; GUILLÉN-APARICIO *et al.*, 2019).

The main contradiction of digital learning in an inclusive format is that all educational transformations to implement the paradigm of barrier-free learning have focused on classroom work. The new realities of educational development indicate the need to reorient to a distance format (WAY; WEIQIN, 2021). For inclusive education, these are new challenges, as the newly established system of inclusive education (which required quite powerful resources - financial, organisational, and ideological) has proved to be unclaimed. The current pragmatic approach to social development dictates the primacy of efficiency. In such circumstances, making powerful new investments in a new inclusive (now digital) environment seems illogical. Therefore, it is more likely that the inclusive digital environment will be adapted to the general educational paradigm in a digital format (see Figure 1).

**Figure 1: Prospective strategy for the digital format of inclusive education**




Source: authors' own development

This strategy is relevant for a human-dimensional approach to the development of inclusive education. Digital competencies are primarily the level of digital literacy among participants in the educational process. It is worth noting here the subject-specific and everyday experience of digital activity that the administration of the educational institution, teachers, and students have. Active use of digital resources in everyday life does not require learning the basics of digital literacy. If we look at the philosophy of inclusion in an innovative

socio-cultural sense, it is obvious that the digital cluster plays an important role in ensuring barrier-free human participation in all life and activity processes. In such realities, the possibility of focusing on purely educational digital competencies in an inclusive educational environment is becoming more relevant.

In the cluster of administrative and educational activities, digital competencies are expressed by the ability and initiative to use electronic administrative resources. The paradigm of a "digital university" or "digital library" implies the ability of the administration of an educational institution to organise the educational process using digital skills. For an inclusive environment, this is crucial, as digital competencies can significantly improve interaction and communication with student who have special needs.

Pedagogical digital competencies in inclusive education focus on the implementation and support of innovative digital learning formats. Digital content with the professional input of a teacher becomes an effective teaching and learning resource for inclusive education. Electronic textbooks, manuals, or other learning materials can increase the dynamics of the inclusive learning process. Interactive games or virtual laboratories allow teachers to simulate a learning environment without being physically present in classrooms, but with all the visual and cognitive elements intact. Online counselling ensures prompt communication, which is one of the main problems of the traditional format of inclusive education.

Obviously, digital competencies should be in demand among students. People with special needs make efforts to master digital literacy to use the acquired digital skills in the educational process and in their future professional activities. A simple comparative analysis shows that digital learning formats are more effective in certain aspects of educational activities. At the same time, for an applicant with special needs, the digital learning format should not be segregating and isolate them within the framework of education, with a reduced share of communication and cooperation with teachers or other students.

Obviously, in the short term, there will be a need to reformulate and reformat inclusive teaching taking into account the use of a digital environment (SÁ; SERPA, 2020). Under such conditions, digital competencies will not be formed anew in a special dimension for inclusive education but will become part of general digital literacy, which will be expressed in different educational formats. In fact, the reverse process of digitalisation of education begins, when the differentiation of the educational environment, which was realised through digitalisation (MÉNDEZ; SUELVES; MÉNDEZ, 2023), is replaced by the process of

creating a holistic paradigm of education, regardless of its format, but with the active use of digital resources.

Given the unjustified expectations for the digital environment in terms of the dynamism of the learning process, the orientation of digital competencies to the principles of learning flexibility has become relevant (STENMAN; PETTERSSON, 2020). Flexibility in education involves the use of interdisciplinary principles. This means that digital competencies are not limited to the digital-skills segment but are used to acquire fundamental knowledge and skills. On the other hand, according to innovative educational strategies, the digital environment is designed to stabilise the volatility of the technological society (GABRIEL; MARRONE; VAN SEBILLE *et al.*, 2022).

In fact, digital competences are the basis for the formation of a new socially exclusive space - the electronic (CASILLAS-MARTÍN; CABEZAS-GONZÁLEZ; GARCÍA-VALCÁRCEL MUÑOZ-REPISO, 2020). The digital educational environment may become a new source of inequality among participants in the educational process. A kind of safeguard against this scenario is the unification of the process of digitalisation of inclusive education at the global international level (KIM; YI; HONG, 2021). The inclusive environment in inclusive education should be developed according to the principles of functionality (BUDNYK; KOTYK, 2020), and not duplicate its development according to the scenario of the everyday level. Inclusive education should be guided by the principles of social sustainability, which are formed through digital resources (CRETU; MORANDAU, 2020). The model of intercultural reconciliation in education in the digital era is also being updated (SHONFELD; COTNAM-KAPPEL; JUDGE, 2021), which promotes the principles of social justice. Such conceptual characteristics of the potential development of the inclusive environment are directly related to inclusion as a social phenomenon.

## 5. Discussion

Given the tendency to reduce the level of direct participation in the educational process with the use of digital technologies, there is a contradiction in the target dimensions of inclusive education. The segregationist principles that have been fiercely fought to overcome in the educational environment now apply not only to people with special educational needs but also to the entire educational community on a global scale. The

problem of direct participation in the educational process has become especially acute during the COVID-19 pandemic.

The results of the current study come into obvious contradiction with the data obtained during the pandemic. The distance learning format has in some ways equalised the opportunities of all participants in the educational process, positioning digital competencies as the basis for the success of the educational process. However, according to the results of the study by YAZCAYIR; GURGUR (2021), the lack of direct contact between teachers and students with special needs has significantly reduced the quality of the educational process. LOVE; HORN (2021) propose to abandon the conceptualisation of inclusion that is focused on accommodation.

Different views on the role of digital competencies in building an inclusive environment are declared by BIJU; PALLATH; MORE *et al.* (2023), who note that digital divides are becoming a significant obstacle to the organisation of inclusive learning. The reaction of teachers to digital competencies is also ambiguous (BETANCOURT-ODIO; SARTOR-HARADA; ULLOA-GUERRA *et al.*, 2021). The trends according to which the digital format was the key to the dynamism and mobility of learning did not materialise in the inclusive education cluster, as force majeure events destroyed communication at the level of teacher-student or educational consultant-student. As it turned out, it is virtually impossible to establish an effective educational process in an out-of-school environment without direct communication.

The creation of an inclusive e-environment requires much more effort, as it expands the level of educational cooperation beyond the teacher-student level, it is necessary to include parents or other persons who accompany the person with disabilities during learning (PARMIGIANI; BENIGNO; GIUSTO, 2021). Online teaching could not always fully actualise the educational activity of a person with special needs, so there was a need to create personalised distance learning activities. This was an obvious step backwards in adherence to the philosophy of inclusion.

The results of the current study are confirmed by SONG; HONGCAN; GAO *et al.* (2022) in terms of the purpose of digital competencies in inclusive education, which prioritise the realisation of human potential. In this context, digitalisation becomes a tool that ensures these aspirations of the educational community.

## 6. Conclusion

Thus, the results have opened a new perspective on the positioning of digital competencies in the inclusive education paradigm. The usual status of digital resources as an alternative format of the learning process for inclusive education is uncertain, as it will require new titanic efforts (organisational, financial, human resources) to organise an innovative inclusive environment. Therefore, a promising solution is to develop digital competencies within fundamental educational formats. In such circumstances, inclusive principles are met by adapting digital resources to the needs of the educational process rather than creating a new innovative digital environment. The reformatting of the role of digital potential in inclusive education is focused on concentration on the functionality rather than institutionalisation of this segment of the educational environment.

The leitmotif of the formation and use of digital competencies of teachers and school administrators is to improve the quality of inclusive education, not to change its format to electronic. Digital competencies imply the expediency of using electronic resources (educational, methodological, administrative) in the organisation of an inclusive educational environment. The main condition for the successful implementation of digital learning is a high level of digital literacy of participants in the educational process, which makes it possible to effectively use innovative technological and digital resources of inclusive education.

## References

ATAEVA, N. Teaching natural sciences through the prism of philosophy: an attempt to define the relationship. **Futurity Philosophy**, v. 1, n. 4, p. 15-28, 2022. https://doi.org/10.57125/FP.2022.12.30.02

BETANCOURT-ODIO, M.; SARTOR-HARADA, A.; ULLOA-GUERRA, O.; AZEVEDO-GOMES, J. Self-Perceptions on Digital Competences for M-Learning and Education Sustainability: A Study with Teachers from Different Countries. **Sustainability**, v. 13, n. 1, p. 343, 2021. https://doi.org/10.3390/su13010343

BIJU, S.; PALLATH, V.; MORE, B.; VALSARAJ, B.; KH, N. Future Inclusive Education. In: **Improving Inclusivity in Higher Education**. 2023. p. 203-216. https://doi.org/10.1007/978-981-99-5076-8_13

BUDNYK, O; KOTYK, M. Use of Information and Communication Technologies in the Inclusive Process of Educational Institutions. **Journal of Vasyl Stefanyk Precarpathian National University**, v. 7, n. 1, p. 15-23, 2020. https://doi.org/10.15330/jpnu.7.1.15-23

CASILLAS-MARTÍN, S.; CABEZAS-GONZÁLEZ, M.; GARCÍA-VALCÁRCEL MUÑOZ-REPISO, A. DigiCraft: A Pedagogical Innovative Proposal for the Development of the Digital Competence in Vulnerable Children. **Sustainability**, v. 12, n. 23, 2020. https://doi.org/10.3390/su12239865

CRETU, D.; MORANDAU, F. Initial Teacher Education for Inclusive Education: A Bibliometric Analysis of Educational Research. **Sustainability**, v. 12, n. 12, 2020. https://doi.org/10.3390/su12124923

FALLOON, G. From digital literacy to digital competence: the teacher digital competency (TDC) framework. **Educational Technology Research and Development**, v. 68, p. 2449-2472, 2020. https://doi.org/10.1007/s11423-020-09767-4

FERNÁNDEZ-BATANERO, J.; MONTENEGRO-RUEDA, M.; FERNÁNDEZ-CERERO, J.; GARCÍA-MARTÍNEZ, I. Digital competences for teacher professional development. Systematic review. **European Journal of Teacher Education**, v. 45, n. 4, p. 513-531, 2022. https://doi.org/10.1080/02619768.2020.1827389

GABRIEL, F.; MARRONE, R.; VAN SEBILLE, Y.; KOVANOVIC, V.; DE LAAT, M. Digital education strategies around the world: practices and policies. **Irish Educational Studies**, v. 41, n. 1, p. 85-106, 2022. https://doi.org/10.1080/03323315.2021.2022513

GUILLEN-GAMEZ, F.; MAYORGA-FERNÁNDEZ, M.; DEL MORAL, M. Comparative research in the digital competence of the pre-service education teacher: face-to-face vs blended education and gender. **Journal of E-Learning and Knowledge Society**, v. 16, n. 3, p. 1-9, 2020. https://doi.org/10.20368/1971-8829/1135214

HÄMÄLÄINEN, R.; NISSINEN, K.; MANNONEN, J.; LÄMSÄ, J.; LEINO, K.; TAAJAMO, M. Understanding teaching professionals' digital competence: What do PIAAC and TALIS reveal about technology-related skills, attitudes, and knowledge? **Computers in Human Behavior**, v. 117, 2021. https://doi.org/10.1016/j.chb.2020.106672

ISKAKOVA, M.; KALDYGOZOVA, S.; USSENOVA, A.; JUNISSOVA, A.; SHOMANBAEVA, A. Towards Holistic Education: Synthesizing Personality Consciousness, Emerging Technologies, and Philosophical Considerations in Education System Evolution. **Futurity Philosophy**, v. 2, n. 2, p. 17-29, 2023. https://doi.org/10.57125/FP.2023.06.30.02

KARACA, A.; ASLAN BAĞCI, Ö. Examining the opinions of school administrators on inclusive education. **Revista de Gestão e Secretariado (Management and Administrative Professional Review)**, n. 14, 2023. https://doi.org/10.7769/gesec.v14i11.2823

KHANDELWAL, R.; KOLTE, A.; PAWAR, P.; MARTINI, E. Breaking out of your comfort zone: an archival research on epistemology in inclusive education pedagogy for Industry 4.0. **International Journal of Educational Management**, v. 36, n. 4, p. 364-380, 2022. https://doi.org/10.1108/IJEM-02-2020-0090

KIM, H.; YI, P.; HONG J. Are schools digitally inclusive for all? Profiles of school digital inclusion using PISA 2018. **Computers & Education**, v. 170, 2021. https://doi.org/10.1016/j.compedu.2021.104226

KONIARI, D.; RAFTOULIS, G. Digital competence and school leadership in Greece. **Futurity Education**, v. 3, n. 2, p. 144-155, 2023. https://doi.org/10.57125/FED.2023.06.25.10

KOUNALAKIS, M. Censorship in Teacher Training: The Case of the Lending Library of the Pedagogical Academy of Heraklion, Crete, Greece. **Futurity Education**, v. 3, n. 3, p. 200-216, 2023. https://doi.org/10.57125/FED.2023.09.25.11

KRISCHLER, M.; POWELL, J.; PIT-TEN CATE, I. What is meant by inclusion? On the effects of different definitions on attitudes toward inclusive education. **European Journal of Special Needs Education**, v. 34, n. 5, p. 632-648, 2019. https://doi.org/10.1080/08856257.2019.1580837

KRYVOSHEIN, V.; VDOVENKO, N.; BURIAK, I.; SAIENKO, V.; KOLESNYK, A. Innovative educational technologies in management training: experience of EU countries. **International Journal of Computer Science and Network Security**, v. 22, n. 6, p. 45-50, 2022. https://doi.org/10.22937/IJCSNS.2022.22.6.8

LEVANO-FRANCIA, L.; SANCHEZ, S.; GUILLÉN-APARICIO, P.; TELLO-CABELLO, S.; HERRERA-PAICO, N.; COLLANTES-INGA, Z. Digital Competences and Education. **Propósitos y Representaciones**, v. 7, n. 2, p. 569-588, 2019. http://dx.doi.org/10.20511/pyr2019.v7n2.329

LOVE, H.; HORN, E. Definition, Context, Quality: Current Issues in Research Examining High-Quality Inclusive Education. **Topics in Early Childhood Special Education**, v. 40, n. 4, p. 204-216, 2021. https://doi.org/10.1177/0271121419846342

MAZURKEVICH, O.; TKACHENKO, V.; KHARKOV, S.; VOROPAYEVA, T.; MOSENDZ, O. Cultural bases of the national system of education: modern tendencies and

factors of development. **Amazonia Investiga**, v. 11, n. 53, p. 146-154, 2022. https://amazoniainvestiga.info/check/53/14-146-154.pdf

MÉNDEZ, V.; SUELVES, D.; MÉNDEZ, C. Future teachers facing the use of technology for inclusion: A view from the digital competence. **Education and Information Technologies**, v. 28, p. 9305-9323, 2023. https://doi.org/10.1007/s10639-022-11105-5

MIRZAKHMEDOVA, K.; OMONOV, Q.; RIKHSIYEVA, G.; NASIROVA, S.; KHASHIMOVA, S.; KHALMURZAEVA, N. Use of Mobile Applications in Establishing Inclusive Education in Pedagogy. **Journal of Law and Sustainable Development**, n. 11, e2376, 2023. https://doi.org/10.55908/sdgs.v11i12.2376

MORINA, A. Inclusive education in higher education: challenges and opportunities. In: COLEMAN, M.; SHEVLIN, M. (Org.). **Postsecondary Educational Opportunities for Students with Special Education Needs**. Routledge, 2018. https://doi.org/10.4324/9781351107570

MUÑOZ-ARTEAGA, J.; LÓPEZ-TORRES, G.; MUÑOZ-ZAVALA, A. An Agile Learning Methodology to Support Inclusive Education. **Revista Electrónica de Tecnología Educativa**, p. 116-136, 2023. https://doi.org/10.21556/edutec.2023.86.3013

NOVELLA-GARCÍA, C.; CLOQUELL-LOZANO, A. The ethical dimension of digital competence in teacher training. **Education and Information Technologies**, v. 26, p. 3529-3541, 2021. https://doi.org/10.1007/s10639-021-10436-z

PARMIGIANI, D.; BENIGNO, V.; GIUSTO, M.; SILVAGGIO, C.; SPERANDIO, S. E-inclusion: online special education in Italy during the Covid-19 pandemic. **Technology, Pedagogy and Education**, v. 30, n. 1, p. 111-124, 2021. https://doi.org/10.1080/1475939X.2020.1856714

PERMINOVA, L.; VASYLYUK-ZAITSEVA, S.; SHAPKA, I.; SAVASTRU, N. (2023). The Role of Artificial Intelligence in Improving the Quality of Education and Research. **Futurity Education**, v. 3, n. 4, p. 46-59, 2023. https://doi.org/10.57125/FED.2023.12.25.03

QIAN, W.; RONG, Y. A Review Study of Inclusive Education. **Lecture Notes in Education Psychology and Public Media**, n. 16, p. 188-193, 2023. https://doi.org/10.54254/2753-7048/16/20231143

QUINTERO, J.; BALDIRIS, S.; RUBIRA, R.; CERÓN, J.; VELEZ, G. Augmented Reality in Educational Inclusion. **A Systematic Review on the Last Decade. Frontier Psychology**, 10, 2019. https://doi.org/10.3389/fpsyg.2019.01835

RUDENKO, O.; PIESHEV, O.; LAZAREVA, A.; SOKOLOVA, O.; MAKSIUTA, M.; FESENKO, G. Axiological Aspects of Educational Activity in Postmodern Philosophy. **Postmodern Openings**, v. 13, n. 2, p. 334-344, 2022. https://doi.org/10.18662/po/13.2/457

SÁ, M.; SERPA, S. COVID-19 and the Promotion of Digital Competences in Education. **Universal Journal of Educational Research**, v. 8, n. 10, p. 4520-4528, 2020. https://doi.org/10.13189/ujer.2020.081020

SALNYK, I.; GRIN, L.; YEFIMOV, D.; BEZTSINNA, Z. The Future of Higher Education: Implementation of Virtual and Augmented Reality in the Educational Process. **Futurity Education**, v. 3, n. 3, p. 46-61, 2023. https://doi.org/10.57125/FED.2023.09.25.03

SEIS, Z. The Challenge EFL Teachers Face in Turkey: Burnout. **Futurity Education**, v. 3, n. 2, p. 211-233, 2023. https://doi.org/10.57125/FED.2023.06.25.14

SHEVCHUK, I.; FILIPPOVA, L.; KRASNOVA, A.; BAZYL, O. Virtual Pedagogy: Scenarios for Future Learning with VR and AR Technologies. **Futurity Education**, v. 3, n. 4, p. 95-117, 2023. https://doi.org/10.57125/FED.2023.12.25.06

SHONFELD, M.; COTNAM-KAPPEL, M.; JUDGE, M. Learning in digital environments: a model for cross-cultural alignment. **Educational Technology Research and Development**, v. 69, p. 2151-2170, 2021. https://doi.org/10.1007/s11423-021-09967-6

SONG, J.; HONGCAN, Z.; GAO, Y.; GUAN, Y. Digital Inclusive Finance, Human Capital and Inclusive Green Development - Evidence from China. **Sustainability**, v. 14, 2022. https://doi.org/10.3390/su14169922

STENMAN, S.; PETTERSSON, F. Remote teaching for equal and inclusive education in rural areas? An analysis of teachers' perspectives on remote teaching. **International Journal of Information and Learning Technology**, v. 37 n. 3, p. 87-98, 2020. https://doi.org/10.1108/IJILT-10-2019-0096

TOHARA, A.; SHUHIDAN, S.; SAIFUL BAHRY, F.; BIN NORDIN, M. Exploring Digital Literacy Strategies for Students with Special Educational Needs in the Digital Age. **Turkish Journal of Computer and Mathematics Education (TURCOMAT)**, v. 12, n. 9, p. 3345-3358, 2021. https://doi.org/10.17762/turcomat.v12i9.5741

TSEKHMISTER, Y.; CHALYI, A.; CHALYY, K. Teaching and Learning of Medical Physics and Biomedical Engineering in Ukrainian Medical Universities. **World Congress on Medical Physics and Biomedical Engineering**. Munich: Springer, 2009. p. 383-384.

TSEKHMISTER, Y.; GONCHARUK, N.; DATSIUK, N.; TSEKHMISTER, B.; LYSENKO, O. Knowledge Management System in Pharmaceutical Healthcare Sector: A Conceptual Research. **Journal of Pharmaceutical Research International**, v. 33, n. 44B, p. 290-297, 2021. https://doi.org/10.9734/jpri/2021/v33i44B32679

TSEKHMISTER, Y.; KONOVALOVA, T.; TSEKHMISTER, B. Quality control of educational process in the lyceum of medical profile when learning in distance mode during the COVID-19 pandemic. **Amazonia Investiga**, v. 11, n. 57, p. 121-132, 2022. https://doi.org/10.34069/AI/2022.57.09.13

TSEKHMISTER, Y.; VIZNIUK I.; HUMENIUK, V.; DOLYNNYI, S.; POLISHCHUK, A. Formation of professional skills of future physicians in the process of professional

training. **Revista Eduweb**, v. 16, n. 2, p. 180-193, 2022. https://doi.org/10.46502/issn.1856-7576/2022.16.02.13

VAN MIEGHEM, A.; VERSCHUEREN, K.; PETRY, K.; STRUYF, E. An analysis of research on inclusive education: a systematic search and meta review. **International Journal of Inclusive Education**, v. 24, n. 6, p. 675-689, 2020. https://doi.org/10.1080/13603116.2018.1482012

WAY, K.; WEIQIN, C. Increasing faculty's competence in digital accessibility for inclusive education: a systematic literature review. **International Journal of Inclusive Education**, 2021. https://doi.org/10.1080/13603116.2021.1937344

XU, C. Analysis and Discussion of Influential Factors in the Construction of Digital Learning Spaces in the Context of Higher Education Digitization. **SHS Web of Conferences**, n. 179, 2023. https://doi.org/10.1051/shsconf/202317902026

YAZCAYIR, G.; GURGUR, H. Students with Special Needs in Digital Classrooms during the COVID-19 Pandemic in Turkey. **Pedagogical Research**, v. 6, n. 1, em0088, 2021. https://doi.org/10.29333/pr/9356

ZAHORODNA, O.; SAIENKO, V.; TOLCHIEVA, H.; TYMOSHCHUK, N.; KULINICH, T.; SHVETS, N. Developing communicative professional competence in future economic specialists in the conditions of postmodernism. **Postmodern Openings**, v. 13, n. 2, p. 77-96, 2022. https://doi.org/10.18662/po/13.2/444