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## Innovative Approaches in Citizenship Education Research: Conceptual Perspectives and Ethical Cautions

### [Innowacyjne podejścia w badaniach nad edukacją obywatelską: perspektywy koncepcyjne oraz uwagi etyczne]

**Streszczenie:** Artykuł jest poświęcony analizie innowacyjnych podejść w badaniach nad edukacją obywatelską z uwzględnieniem perspektyw koncepcyjnych oraz uwag etycznych. Omówiono podstawy koncepcyjne, aksjologiczne i etyczne takich ram innowacyjnych, jak: cyfrowa edukacja obywatelska i zastosowanie sztucznej inteligencji w rozwoju odpowiedzialnego obywatelstwa. Innowacje te zrewolucjonizowały teorię i praktykę edukacji obywatelskiej, powodując potrzebę stosowania nowych podejść i metod pedagogicznych poprzez zmianę środowiska uczenia się oraz jednocześnie dołączenie nowej modalności i dziedzin wiedzy w zakresie edukacji obywatelskiej.

**Summary:** This article is devoted to the analysis of innovative approaches in citizenship education research taking into account conceptual perspectives and ethical cautions. The conceptual, axiological, and ethical basis of such innovative frameworks as digital citizenship education and artificial intelligence application for the development of responsible citizenship is elaborated. These innovations revolutionized the theory and practice of citizenship education, causing the use of new approaches and pedagogical methods as well as change in learning environments simultaneously adding new modalities and domains into objectives of citizenship education.

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**Słowa kluczowe:** innowacja; edukacja obywatelska; badania; sztuczna inteligencja; obywatelstwo cyfrowe; koncepcja; etyka.

**Keywords:** innovation; citizenship education; research; artificial intelligence; digital citizenship; concept; ethics.

## Introduction

Social turbulence, the armed conflict in Ukraine, permanent threats to democracy, raise of populist movements throughout the EU have actualized the issue of the development of citizenship competence in the educational discourse in recent years. However, if the relevance of this issue to the requirements of the time is an undisputed issue, then the value orientations, strategic goals, methods and approaches to the development of citizenship competence differ significantly, presenting a wide range of options from national-patriotic education to the development of operational aspects of political culture with variable priority. This causes the search for innovative approaches in research, teaching and learning responsible citizenship.

Innovative development in citizenship education research is a comprehensive phenomenon that unfolds at different levels simultaneously and mainly applies to innovations of the objective of citizenship education (the underlying theoretical foundations of the objectives of citizenship education), innovations in methods and approaches, innovations in learning environments, innovations in institutional perspective.

This article is aimed at analyzing the conceptual, axiological, and ethical basis of such innovative frameworks as digital citizenship education and artificial intelligence (AI) application for the development of responsible citizenship, which revolutionized the theory and practice of citizenship education, cause the use of innovative approaches and pedagogical methods as well as change in learning environments simultaneously adding new modalities and domains into objectives of citizenship education.

### **Digital innovations in citizenship education: research narratives and guiding principles**

The extremely high speed of changes in digital technologies and their accelerated spread leave the modern educational community no alternatives other than their mastery, “taming” and use in educational practice for the benefit of social development. In the field of citizenship education, the challenges of digitization complement and interact with “classical” problems

of indoctrination and threats of political manipulation, information wars, provoking new difficulties in finding relevant methods and formats of youth involvement.

However, despite the widespread fascination with digital information and communication technology, scholars (Lewin D., Lundie D., 2016; Tolnaiová S. G., 2020) argue that its transformational power may not be adequately demonstrated in educational and philosophical practice. The promise that digital education and training systems would revolutionize the teaching and learning process, as it would mean widely available resources or radically restructured virtual learning experiences, is often transferred, without any comments, to problematic social, ethical, and epistemic requirements that are vital for these revolutionary changes (Lewin D., Lundie D., 2016; Tolnaiová S. G., 2020). These developments actualize the axiological dimension of digital citizenship education. As mentioned by Don Olcott and others (2015, p.67), education on safe and morally responsible use of digital technology should be founded on values that characterize a developed democracy. Research studies demonstrate that digital citizenship refers to “the values of respect, tolerance, liberty, security...” (Sanabria M., Cepeda R., 2016, p. 98) and emphasizes the democratic principles (ethics, legality, security and responsibility) that guide actions in digital spaces (Manzuoli and others, 2019).

Generally, conceptual discussions on digital citizenship education cover the following research lines:

1. *Defining the objective of digital citizenship education*

Such research is mainly focused on the idea behind digital citizenship education, mainly its core concept – digital citizenship and its role in society development.

The definition of digital citizenship poses multiperspective interpretations with variable emphasizes on its global dimension, social practices, and role of individual and group participation. Thus, Michael Searson and others (2015) define digital citizenship as a comprehensive concept with the subsequent three components: constant questioning of the policies of all nations, active interest in the affairs of other countries, and an interest in creating a just global order (Manzuoli and others, 2019). Nick Couldry and others (2014) propose a similar perspective on digital citizenship, though offer a stronger heuristic vision focused on exploring the uses of technologies through (interpersonal) relationships and the social practices generated by different social groups: “Digital citizenship is typically defined as the (self-) enactment of people’s role in society through the use of digital technologies” (Manzuoli and others, 2019). Other studies have embraced a citizen engagement viewpoint regarding the utilization of accessible information,

determining that such engagement is essential and enables tangible endeavors, increased responsibility, and enhanced communication and connections between citizens and open data portals; nonetheless, there is still a dearth of data extrapolated to global contexts. (Manzuoli and others, 2019).

### 2. *Digital citizenship education as a path to empowerment*

This research line focuses on how technology enriches democratic processes and citizen participation as well as citizen initiatives, programs to empower citizens, and providing information about local, state, and federal governments using simulators of citizen participation processes, greater citizen participation in digital spaces, conceptualizing the idea of the internet as a space for engaging public matters (Tolnaiová S. G., 2020; Manzuoli and others, 2019).

Manuel Area-Moreira and Teresa Ribeiro-Pessoa (2012, p.13) state that “the new literacies are a right of individuals and a necessary condition for social and democratic development in 21st-century society”. In the education and training system, digital information and communication technology are essential elements of communication, collaboration, presentation, and work (or complex personality development of pupils/schoolchildren/children) Thus, various skills, including citizenship and digital literacy, information management, collaboration, communication, the creation of content and knowledge, the evaluation and resolution of problems and technical operations should be obtained. All the considered skills imply learning throughout one’s life and the productive use of technology (Tolnaiová S. G., 2020).

Moreover, the need for digital education also to be based on value and moral dimensions, which basically means it needs to follow, especially moral values is emphasized. Awareness of critical, value, and ethical aspects and responsible use of digital information as an objective of the axiological dimension of citizenship education is fundamental to the much-needed media or digital media literacy and competence which seems to be the determinant (sine qua non) of our human, personal as well as social development (Olcott D. and others, 2015; Tolnaiová S. G., 2020).

### 3. *Challenges to digital citizenship education.*

Even though some studies reveal that digital tools have allowed citizens to gain access to information on voter intention and increase the transparency of information, increase trust in institutions and government, and monitor the behavior of politicians and government representatives, however, these technologies have not facilitated true citizen participation in which citizens can make proposals, and all sectors of the population are included (Manzuoli and others, 2019). Among the key challenges that are confronting contemporary democracies in the digital era: their growing vulnerability

to online polarization and manipulation; the new threats to individual rights and privacy in the digital age; how to reconcile the business model of social media companies with their responsibilities to democratic societies; and how to rein in the efforts of authoritarians to advance and diffuse digital technologies of surveillance and control (Diamond L., 2019).

On the praxiological level experts highlighted the following challenges and threats (Matusevych, 2018):

- extremely high speed of changes in digital technologies, which makes digital literacy a procedural phenomenon;
- problems of indoctrination and the threat of political manipulation/information wars in civic education;
- difficulties in finding relevant methods/formats for engaging pupils/students;
- the problem of mainstream thinking versus critical thinking;
- social alienation and mistrust of technologies and digital formats/products;
- digital divide (in representatives of different age, social, and professional groups);
- digital dementia;
- challenges of plurality and diversity;
- limited availability of digital solutions (for example, mobile applications) to vulnerable population groups (for example, migrants);
- insufficient cooperation between educators and developers of IT products;
- lack of a single platform of existing digital solutions, methods of best practices for applying digital technologies in civic education.

One of the initiatives to overcome these challenges was the creation by the Council of Europe of the “Digital Civic Education” (DCE) program, the purpose of which is to provide young citizens with innovative opportunities for the development of values, attitudes, skills, and knowledge necessary for every citizen to fully participate and fulfill their responsibilities ties in society. Digital citizens are defined by the Council of Europe as people who are able to use digital tools to create, consume, communicate, and interact positively and responsibly with others. Digital citizens understand and respect human rights, embrace diversity and learn throughout their lives to keep up with the evolution of society (Council of Europe, 2020). Digital citizenship development initiatives are defined and shaped by the nine guiding principles specified below, which can also serve as reference points for the assessment and evaluation of progress. The principles are of three types: contextual, informational and organisational (Council of Europe, 2020).

*Contextual principles, considered as “preconditions” for digital citizenship.*

1) *Access to digital technology* is an integral part of everyday life in contemporary society. Therefore, equality of access for all citizens, including access in schools, libraries and public institutions, and the balanced use of age-appropriate technology are important policy objectives.

2) *Basic functional and digital literacy skills* enable citizens to access, read, write, download and post information, participate in polls and express themselves as a means of engaging in their community.

3) *A secure technical infrastructure* fosters the confidence and trust to digitally engage in online community activities. This requires digital platform providers and mobile operators to provide safer digital environments and simplify security measures.

*Informational principles, intrinsically linked to the competences necessary for a democratic culture model.*

4) *Knowledge of rights and responsibilities* underpins the active engagement of digital citizens, and shapes and is shaped by their values and attitudes. The critical understanding of rights and responsibilities is developed progressively in the on- and offline environments in which people learn, live and interact.

5) *Reliable information sources* are essential for positive active participation in community life. Without reliable information sources, certain sectors of the population may be discouraged or prevented from practising digital citizenship, resulting in negativism or even extremism.

6) *Participation skills* depend on a range of cognitive and practical skills that combine knowing when and how to speak out, critical thinking, empathy, the cultural understanding necessary to fully grasp meaning with the proficiency to use digital tools meaningfully to express ideas and opinions.

*Organisational principles, to foster “living digital citizenship” at a personal and societal level.*

7) *Critical thinking and problem-solving* require a combination of all four areas of the set of 20 competences for democratic culture and can be developed through exploration-driven activities in a range of learning contexts. Digital platforms and mobile providers play a growing role, since learning is to a large extent shaped by the tools provided.

8) *Communication* implies the capacity to create, receive and disseminate information, using appropriate tools meaningfully, cognisant of values and attitudes, rights and responsibilities, privacy and security.

9) *Participatory opportunity* enables citizens to practise exercising their rights and responsibilities in a flexible, open, neutral and secure Framework without fear of retribution, empowering them to actively promote and defend democracy, human rights and the rule of law (Council of Europe, 2020).

However, the conceptualization of digital citizenship is still in its early stages, as it has not yet been fully comprehended. This has led various researchers (Arif Rauf, 2016) to emphasize the importance of further research, broadening the scope, and fostering scholarly discussions on the subject (Manzuoli and others, 2019).

### **Artificial intelligence technologies in citizenship education research: conceptual perspectives and ethical precautions**

Another productive innovative concept for citizenship education is “Artificial Intelligence for Social Good” (AI4SG), which is becoming increasingly popular in professional circles (Hager G. and others, 2019). Projects aimed at using AI for the public good range from applications to help the hungry, and combat natural disasters, to game-theoretic models to prevent poaching, from online learning about HIV among homeless youth, and prevention of gender-based violence to psychological support for students (Floridi L. and others, 2020). But despite the fact that new productive initiatives are emerging every day, researchers note that there is still only a limited understanding of what AI “for the public good” is. The lack of a clear understanding of what makes AI socially useful in theory, what can be described as AI4SG in practice, and how to replicate its initial successes in policy terms is a problem, as AI4SG developers face at least two major obstacles: avoidable mistakes and lost opportunities. Artificial intelligence software is shaped by human values, which, if not carefully selected, can lead to good AI gone bad scenarios (Floridi L. and others, 2020). In this way, the questions of the value component and ethical principles of using AI are actualized.

In general, the ethical issues of the development and application of AI are at the center of attention and activities of many researchers and international institutions, which led to the creation of numerous initiatives, laboratories, and institutes of AI ethics. As a result of the analysis, the researchers identified 84 published sets of ethical principles for artificial intelligence that overlap in five areas: transparency, fairness and honesty, harmlessness, responsibility, and privacy (Jobin A. and others, 2019). Despite the wide debate on these issues, there are a number of problems that have not yet been resolved. Among the main ones, we highlight the following:

- 1) *Polymorphism of ethical issues of AI application in education.* The ethics of artificial intelligence raises a number of complex issues centered on data (such as consent and data privacy) and how that data is analyzed



(such as transparency and trust). However, it is clear that the ethics of using AI in education cannot be reduced to questions of data and computational approaches alone. Research on the ethics of data and computing for the use of AI in education is necessary, but not sufficient. The ethics of using AI in education should also take into account the ethics of education (Holmes W. and others, 2022).

2) *Potential threats to fundamental rights and democracy.* The results that AI produces depend on how it is designed and what data it uses. Both design and data can be intentionally or unintentionally biased. For example, some important aspects of the problem may not be programmed into the algorithm or may be programmed to reflect and replicate structural biases. In addition, the use of numbers to represent complex social reality may carry risks of feigned simplicity (European Parliament, 2020).

3) *AI colonialism in education.* In 2020, despite the coronavirus pandemic, venture capital investment in AI startups reached US\$75 billion for the year, of which about US\$2 billion was invested in AI in education companies, mostly in the US. It is these companies that sell their approaches around the world, creating what is called the colonialism of AI in education. This problem makes addressing cultural diversity one of the most difficult topics of AI in education (Blanchard E, 2014).

4) *Lack of a universal approach to regulating ethical issues of using AI in education.* Unlike health care, where there are long-established ethical principles and codes of conduct for the treatment of human beings, education (outside university research) does not have the same universal approach or accepted model for the functioning of ethics committees. And when it comes to the use of AI in education, most discussions treat students as data subjects, not as people. Accordingly, commercial players and schools can involve children in AI-driven systems without any ethical or other risk assessment (Holmes W. and others, 2022).

5) *Challenges of “ethics washing”.* A large number of commercial actors in the technology sector are publishing ethics guidelines to “wash away” concerns about their policies. This growing instrumentalization of ethical guidelines by technology companies is called “ethics washing” and refers to a situation where ethics is used by companies as an acceptable facade to justify deregulation, self-regulation, or market-driven management, and is increasingly equated with self-interest and the pretense of ethical behavior (Bietti E., 2021; van Maanen G., 2022). For AI in education, as children are used by commercial developers to test their AI technologies, it is important to develop and implement sound ethical guidelines and avoid any “ethics dilution” (OECD, 2021).

6) *Insufficient level of systematic application of ethical principles of*



*using AI.* Although universities usually have robust research ethics procedures, most university or commercial AI research does not monitor AI ethics. Perhaps this is partly due to the fact that at the beginning of the development of artificial intelligence, research using human data was considered minimally risky (Holmes W. and others, 2022).

7) *Threats of excessive unjustified use of AI.* Overuse of AI can be problematic. Examples include investing in AI programs that have turned out to be useless or applying AI to tasks for which it is not suitable, such as explaining complex societal problems (European Parliament, 2020).

8) *Challenges of accountability and responsibility.* For educational institutions, the question is not only whether AI can be used in the education of children, but also how accountability and responsibility should be determined in the case when educators decide to apply or reject any system recommendation (Holmes W. and others, 2022).

9) *Challenges of conflict of interest or "AI loyalty".* The concept of conflict of interest or "AI loyalty" (Aguirre A. and others, 2021) in educational institutions is largely absent from the literature. Who does the AI system work for? Students, schools, the education system, commercial players, or politicians? The issue is not the ethics of the technology itself, but rather the ethics of the people in the companies behind its development, implementation, and use, as well as those who make the decisions. Understanding AI loyalty means clearly defining ownership and any conflicts of interest. To increase the transparency and credibility of AI effects, system developers and controllers should be required to clearly align the loyalty of their AI systems and governance structures with the interests of the learner and others affected by the system (Holmes W. and others, 2022).

## Conclusion

Participation in real democracy directly depends on citizen initiative, the ability to purposeful, self-organized collective actions to solve common problems and create a world in times of permanent transformations. On the current agenda, there are the tasks of research and integration into educational policy and the practice of teaching innovative concepts and theories as worldview and methodological opportunities for updating the content, forms, and methods of teaching and educating youth as members of a global civil society.

The diversity and ambivalence of approaches to the development of responsible citizenship through education create set new tasks for the educational community, which requires new political and managerial

decisions. Moreover, the conducted analysis revealed the presence of tangible manifestations of certain challenges in developing responsible citizenship in the digital era.

Since digital technologies and artificial intelligence continues to revolutionize various aspects of our lives, it also changes approaches to the development of citizenship education research, which requires further research and understanding of conceptual perspectives, axiological priorities, and ethical principles of using digital technologies and AI in education.

## BIBLIOGRAPHY

- Aguirre Anthony, Reiner, Peter Bart, Surden Harry and Dempsey Gaia, 2021, *AI Loyalty by Design: A Framework for Governance of AI* (September 24, 2021). Oxford Handbook on AI Governance (Oxford University Press, 2022 Forthcoming), U of Colorado Law Legal Studies Research Paper No. 21–28, <https://ssrn.com/abstract=3930338>.
- Area-Moreira Manuel, Ribeiro-Pessoa Teresa, 2012, *From Solid to Liquid: New Literacies to the Cultural Changes of Web 2.0*. *Comunicar* 19, p. 13–20, <https://doi.org/10.3916/c38-2012-02-01>.
- Arif Rauf, 2016, *Internet as a Hope or a Hoax for Emerging Democracies: Revisiting the Concept of Citizenship in the Digital Age*, *Procedia – Social and Behavioral Sciences* 236, p. 4–8, <https://doi.org/10.1016/j.sbspro.2016.12.002>.
- Bietti, E., 2021, *From Ethics Washing to Ethics Bashing: A View on Tech Ethics from Within Moral Philosophy*. *SSRN Electronic Journal*, <https://doi.org/10.2139/ssrn.3914119>.
- Blanchard Emmanuel G., 2014, *Socio-Cultural Imbalances in AIED Research: Investigations, Implications and Opportunities*. *International Journal of Artificial Intelligence in Education* 25, p. 204–228, <https://doi.org/10.1007/s40593-014-0027-7>.
- Council of Europe, 2020, *Developing and promoting digital citizenship education*. Recommendation CM/Rec (2019) 10 adopted by the Committee of Ministers of the Council of Europe on 21 November 2020.
- Couldry Nick, Stephansen Hilde, Fotopoulou Aristeia, MacDonald Richard, Clark Wilma & Dickens Luke, 2014, *Digital citizenship? Narrative exchange and the changing terms of civic culture*, *Citizenship Studies*, 18(6–7), p. 615–629, <https://doi.org/10.1080/13621025.2013.865903>.
- Diamond Larry, 2019, *The Threat of Postmodern Totalitarianism*. *Journal of Democracy*, 30(1), p. 20–24, <https://doi.org/10.1353/jod.2019.0001>.
- European Parliament, 2020, *Artificial intelligence: threats and opportunities | News | European Parliament*. [online] Available at: <https://www.europarl.europa.eu/news/en/headlines/society/20200918STO87404/artificial-intelligence-threats-and-opportunities>.
- Floridi Luciano, Cows Josh, King Thomas C., Taddeo Mariarosaria, 2020, *How to Design AI for Social Good: Seven Essential Factors*. *Science and Engineering Ethics*, 26, p. 1771–1796, <https://doi.org/10.1007/s11948-020-00213-5>.
- Hager Gregory D., Drobnis Ann, Fang Fei, Ghani Rayid, Greenwald Amy, Lyons Terah, Parkes David C., Schultz Jason, Saria Suchi, Smith Stephen F., Tambe Milind,

- 2019, *Artificial Intelligence for Social Good*. arXiv:1901.05406 [cs]. [online] Available at: <https://arxiv.org/abs/1901.05406>.
- Hintz Arne, Dencik Lina, Wahl-Jorgensen Karin, 2017, *Digital Citizenship and Surveillance Society*, *International Journal of Communication* (19328036), 11, p. 731–739.
- Holmes Wayne, Persson Jen., Irene-Angelica Chounta, Wasson Barbara and Dimitrova Vania, 2022, *Artificial intelligence and education*. Council of Europe.
- Jobin Anna, Ienca Marcello, Vayena Effy, 2019, *The global landscape of AI ethics guidelines*. *Nature Machine Intelligence*, [online] 1(9), p.389–399, <https://doi.org/10.1038/s42256-019-0088-2>.
- Lewin David, Lundie David, 2016, *Philosophies of Digital Pedagogy*. *Studies in Philosophy and Education*, 35, p. 235–240, <https://doi.org/10.1007/s11217-016-9514-7>.
- Manzuoli Cristina Hennig, SánchezAna Vargas, Bedoya Erika Duque, 2019, *Digital Citizenship: A Theoretical Review of the Concept and Trends*, *Turkish Online Journal of Educational Technology – TOJET*, v18, n2, p. 10–18.
- OECD, 2021, *OECD digital education outlook 2021: pushing the frontiers with artificial intelligence, blockchain and robots*. (2021). Paris: OECD Publishing.
- Olcott Don, Carrera Farran Xavier, Gallardo Echenique Eliana Esther, González Martínez Juan, 2015, *Ethics and Education in the Digital Age: Global Perspectives and Strategies for Local Transformation in Catalonia*. RUSC, *Universities and Knowledge Society Journal*, 12, 59, <https://doi.org/10.7238/rusc.v12i2.2455>.
- Matusevych Tetiana, 2018, *Civic Education in the Digital Age: Challenges and Development Prospects (Review of the Workshop “Digitization and Civic Education”, September 3–4, 2018, Marseilles)*, *Philosophy of Education*, 23(2), p. 265–269.
- Sanabria Mesa, A. L. and Cepeda Romero, O, 2016, *La educación para la competencia digital en los centros escolares: la ciudadanía digital / Education for digital competence in schools: digital citizenship*, *Revista Latinoamericana de Tecnología Educativa – RELATEC*, 15(2), pp. 95–112, doi: 10.17398/1695-288X.15.2.95.
- Searson Michael, Hancock Marsali, Soheil Nusrat, and Shepherd Gregory, 2015, *Digital citizenship within global contexts*, *Education and Information Technologies*, 20,4 (December 2015), 729–741, <https://doi.org/10.1007/s10639-015-9426-0>.
- Tolnaiová Sabina G, 2020, *Transformation of Education and Training System in the Context of Digital Information and Communication Technology in Sociocultural Perspective and Its Axiological and Ethical Dimension*, *European Journal of Transformation Studies*, [online] 8(2), pp.89–105. Available at: <https://czasopisma.bg.ug.edu.pl/index.php/journal-transformation/article/view/5561> (19.07.2023).
- van Maanen Gijs, 2022, *AI Ethics, Ethics Washing, and the Need to Politicize Data Ethics*. *Digital Society* 1, <https://doi.org/10.1007/s44206-022-00013-3>.

