Digital governance in education: between the promise of inclusion and the risk of exclusion

Diana-Maria Grosu[1], Ioan-Sebastian Buduroi[2], Victor Stoica[3]

Abstract:
This article examines the dynamics of digital governance in education as a profound shift that is reshaping the relationships between educational institutions, state authority, and individual educational actors. The core research question examines whether digital governance facilitates inclusion or, conversely, reinforces structural exclusion within education systems. Beginning with the transition from traditional administration to modernized governance models, the study explores how digital technologies transform decision-making processes, mechanisms of accountability, and resource allocation in educational systems. More specifically, the analysis draws on policy documents, case studies of European educational reforms, and international digital policy frameworks to examine how digital governance is operationalized and its consequences for equity and knowledge distribution. By adopting this dual conceptual approach, the study highlights how digital governance can support inclusion, yet also contribute to the emergence of structural inequalities. Ultimately, this article argues that digital governance in education is a contested terrain, where the promise of inclusion overlaps with the structural threats of exclusion, calling for a more critical and reflexive understanding of digital policy and its implications for educational equity.

Keywords: *EdTech governance, digital equity, marginalized learners, educational policy, digital transformation*

---

[1] PhD student, Department of Political Sciences, International Relations and European Studies, Faculty of Philosophy and Social Political Sciences, "Alexandru Ioan Cuza" University of Iaşi, Romania; Phone: 0741 738 571; E-mail: dianagrosum@yahoo.com; ORCID ID: 0009-0002-8256-7600.

[2] Associate Professor, PhD student, Department of Political Sciences, International Relations and European Studies, Faculty of Philosophy and Social Political Sciences, "Alexandru Ioan Cuza" University of Iaşi, Romania; Phone: 0752 008 022; E-mail: ioansebastianbuduroi@gmail.com; ORCID ID: 0009-0007-0146-8907.

[3] Professor, PhD, Department of Sociology, Social Work and Human Resources, Faculty of Philosophy and Social Political Sciences, "Alexandru Ioan Cuza" University of Iaşi, Romania; Phone: 0749 050 301; E-mail: victorstoica06@gmail.com; ORCID ID: 0009-0001-7244-647X.

Digital governance in education: between the promise of inclusion and the risk of exclusion

1. Introduction

"Governance" refers to the coordination of activities through diverse mechanisms to achieve intended outcomes. This word can be used in both the public and private sectors, and is also included in international institutions. Educational restructuring could be defined as a transition from government to governance, i.e., a new, modern way of managing the education system. This transformation involves changes in several aspects of the management of an educational institution: from the use of private sector management practices, measurable performance standards, and evaluation, to consumer choice, such as parents and students (Lindblad, Johannesson & Simola, 2002: 238–239).

Johannesson and Simola identify two fundamental issues in educational system research. First, the issue of equity refers to who has access to education and can actively participate (particularly groups that are generally excluded). Secondly, the second issue is that of knowledge, which analyses how categories of people and their identities are constructed. For example, the words "minority" and "at-risk" student justify why some students are included and others excluded (Lindblad, Johannesson & Simola, 2002: 239–240). In the current context, these two issues take on new dimensions with the emergence of digital governance, where algorithms, platforms, and educational data can amplify or diminish existing inequalities.

1.1. Methodological framework

This research adopts a qualitative and interpretative approach, based on a critical analysis of educational policy documents, specialist literature, and available empirical data. The methodological goal is to understand how digital governance influences processes of inclusion and exclusion in contemporary education systems, both nationally and internationally. The comparative dimension enhances the validity of the findings by juxtaposing diverse policy contexts and governance models.

The article integrates three complementary case studies, selected based on their relevance to the analysis of the relationship between digital governance and educational equity:

1. Romania – represents a very important national case for analyzing the digital divide in a post-transition context, defined by major disparities between urban and rural areas, as well as between different regions. Data extracted from official reports and national studies (ANCOM, 2018; Nicolau et al., 2020) is used, highlighting structural inequalities in digital infrastructure and the digital skills of the school population.

2. The Roma community in Europe – was selected to illustrate the social dimension of digital exclusion. This brief analysis draws on European Commission documents, sociological studies, and reports on digital inclusion (Ferkovics, 2018; Garmendia & Karrera, 2019), indicating how the lack of access to technology intensifies traditional forms of educational marginalization.

3. International comparative overview – includes a diverse set of education systems (Indonesia, China, the United States, Spain, South Korea, Sweden, Finland, and Vietnam) to identify patterns of convergence and divergence in national digital education strategies and their implications for equity.

The analysis follows a thematic approach, structured around three main dimensions:

1. governance of digital infrastructures and educational data;
2. the relationship between digital transformation and equity in education;
3. the role of digital literacy in supporting inclusive governance.

This methodology aims at conceptual rather than statistical generalization, focusing on identifying recurring tensions and common mechanisms that generate both the promise of inclusion and the risk of exclusion in the context of digital governance. Therefore, the analysis suggests a critical and contextualized reading of education digitization policies and practices, offering an integrated perspective on the interaction between technology, equity, and educational justice.

2. From traditional administration to digital governance in education

2.1. The rise of digital data and platforms

The digitization of education is profoundly changing the way data is collected and used throughout the education system. Stakeholders such as private actors and international organizations have helped develop digital platforms that give them access to various data, used for evidence-informed policymaking and to adapt the learning process to the needs of each individual student (Williamson, 2016: 5-6).

There is also a digital infrastructure, which includes assessment systems, administrative databases, and educational platforms. This infrastructure contributes to the transformation of education into a continuously monitored and performance-driven process (Rose, 1999: 152–153). Therefore, educational control is shifting from traditional institutions to technological systems that collect and interpret data on students and teachers involved in the educational process.

The digital governance model in education combines digital technologies with educational policies and places an increasing emphasis on accountability, performance, and the comparison of educational standards (Lynch, 2015: 191–197; Lawn, 2013: 49–53). The "invisible managers" of contemporary education consist of software packages, platforms, and algorithms, which influence not only administrative decision-making but also everyday teaching practice. These "invisible managers" influence educational processes in a subtle but significant way (Lynch, 2015: 191–192).

Moreover, education is evolving into a "data ecosystem" (Mayer-Schönberger & Cukier, 2014: 29), with educational research being redefined through the use of artificial intelligence, which generates equity and control over data (Mayer-Schönberger & Cukier, 2014: 173–174). This ecosystem redefines the notion of governance, as educational decisions are increasingly mediated by data and algorithms, not just human actors.

2.2. Implications for Decision-Making and Accountability

The digital governance model in education integrates digital technologies into educational policies, placing an increasing emphasis on accountability, performance, and the comparison of educational standards (Lynch, 2015: 191–197; Lawn, 2013: 49–53). Researchers are thus called upon to analyze how algorithms work and the role of commercial actors in generating educational knowledge and formulating educational policies (Piety et al., 2014: 5-11).

3. Inclusion and exclusion in digital governance

Table 1 summarizes the dimensions of digital equity and inclusion in education, highlighting how digital technologies can support equitable access and participation for all students in this process. Two different perspectives are addressed: (1) the direct application of technology in education and (2) their use to promote equity and inclusion. Table 1 highlights the importance of access to resources, the adaptation of digital tools to the diverse needs of students, and the need for inclusive digital education focused on participation and well-being.

Digital governance in education: between the promise of inclusion and the risk of exclusion

Table 1. Digital equity and inclusion in education

	In education	**For equity/inclusion in education**
Equity	Ensuring equitable access to digital technologies for all students, including high-quality equipment, software, and connections, in addition to developing digital skills and positive attitudes toward their use.	Using digital technologies as a tool to promote educational equity by providing additional learning resources for students in need, facilitating fair participation and equal outcomes for all.
Inclusion	Creating an open educational environment for all participants by reducing barriers that restrict access to digital education and taking into account the particularities of each student. This involves adapting digital tools and environments to enable active and inclusive participation by all learners.	Adapting and personalizing technologies and learning experiences through digital media to support inclusion, respecting and valuing the diversity and particularities of each student.

Source: OECD, 2023

Although digitization promises more equitable education, it also raises risks related to digital exclusion, excessive surveillance, and dependence on technological infrastructures controlled by private actors. These tense dimensions of digital governance will be subject to ongoing analysis.

3.1. The case of Romania: digital divide and access inequalities

According to Brolpito, the technological gap consists of the difference between people who have access to technology and those who are deprived of this access, as technology is not guaranteed to everyone (Brolpito, 2018: 5–6). A study conducted by the National Authority for Administration and Regulation in Communications (ANCOM, 2018: 12) shows that 72.4% of households in Romania had internet access. This is encouraging news for the Romanian population, given this considerable percentage. At the same time, sources show that 47% of them use high-speed internet (downloads over 100 Mbps). Fixed internet access in urban areas is approximately 75%, while in rural areas it drops to only 49%. In Bucharest, 8 out of 9 households have an internet connection. After the capital, the West and North-East regions follow, with the lowest percentages identified in the North-East regions – Iași, Bacău, Suceava, Piatra Neamț (65.1%) and South-East – Constanța, Galați, Brăila (65.2%) (ANCOM, 2018: 13). In Romania, internet use is strongly influenced by the level of education, with the best access found in households where higher education is present. The education system has faced challenges such as insufficient infrastructure, equity issues, and a lack of stable connectivity or adequate cyber protection (Nicolau et al., 2020: 45–47).

This reality highlights the existence of a new form of educational inequality – digital inequality – which is determined not only by economic factors, but also by the availability of technological infrastructure and the digital skills of the Romanian population.

While in Romania the challenges are largely infrastructural and socio-economic in nature, another important example is the situation of Roma communities in Europe, where digitization interacts strongly with phenomena of structural discrimination.

3.2. Marginalized Roma communities in Europe

Beyond national disparities such as those observed in Romania, broader European inequalities continue to affect vulnerable groups.

At the European level, the Roma ethnic minority remains one of the most marginalized communities, due to structural factors such as poverty (low living standards) and limited educational and professional opportunities (Rutigliano, 2020: 45-46). Roma students experience significantly higher dropout rates compared to their non-Roma peers (Ferkovics, 2018: 122–123) and are often placed in segregated schools or classes (European Commission et al., 2021: 17–18). Regarding digital inclusion, important disparities persist, as many Roma households have limited or no access to the internet or digital devices (Garmendia & Karrera, 2019: 56–57).

This situation clearly reflects the risk of structural exclusion generated by digital governance, in which European digital inclusion policies do not always reach the most vulnerable communities. Therefore, the social dimension of digital governance must be viewed not only as a technological issue, but also as a matter of social and educational justice.

4. The ecosystemic model of inclusive digital governance

Figure 1 represents the ecosystem model of inclusive digital governance in education, divided into three interconnected levels, with a cross-cutting component of digital transformation. These levels are classified as: individual level, educational institution level, and national/regional level. The individual level refers to the direct users of educational technology, namely students and teachers. More specifically, an analysis is carried out on how each stakeholder interacts with information and communication technology for the teaching-learning process.

Through this model, digital governance in education is understood as a multilevel process in which local and national decisions are interconnected, and the effects on inclusion or exclusion manifest themselves simultaneously at all three levels of the education system.

Figure 1. Simplified ecosystem model
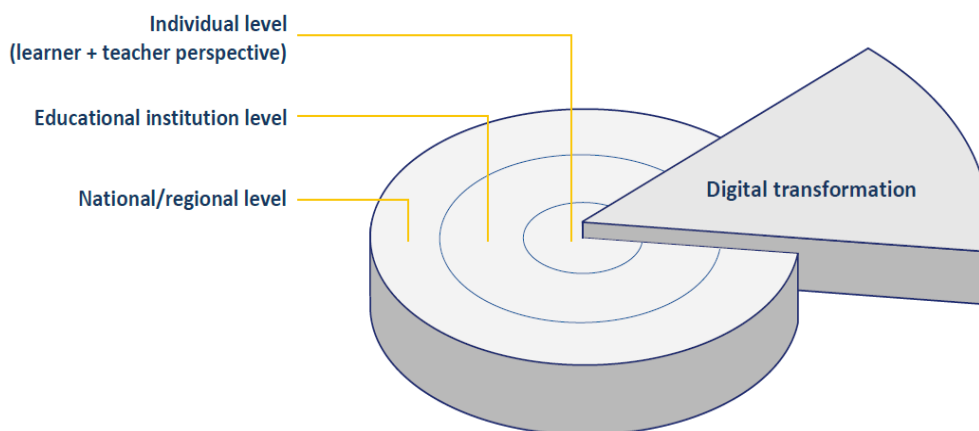
Source: European Agency for Special Needs and Inclusive Education, 2022

Digital governance in education: between the promise of inclusion and the risk of exclusion

4.1. Digital transformation as a cross-cutting process

With regard to the level of the educational institution, there is a clear link between individual users and national structures, including good communication between the family, school, and community, as shown in Figures 1 and 2.

Figure 2. Structure of the digital educational ecosystem by levels
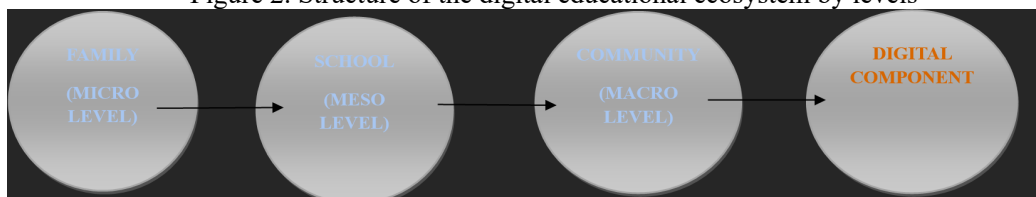
Source: Authors' own work

The regional level refers to public policies, especially educational ones, funding, or legislation, all of which are related to the area of inclusive digital education. Digital transformation is the component that affects the three levels outlined above, as its role is to influence them through a cross-cutting process, while also suggesting that it is not a separate level from the others. Inclusive digital education operates at three interdependent layers: the micro level (teachers and learners), the meso level (educational institutions and management structures), and the macro level (regional and national policy frameworks).

Therefore, the ecosystemic model provides an integrated perspective on digital governance, indicating that equity and inclusion can only be achieved through coherent interaction between all these levels.

Table 2 provides an overview of how several countries are implementing digital policies in primary schools, highlighting major differences in terms of strategic vision, challenges encountered, and technological infrastructure.

Table 2. Comparison of Digital Policies in Elementary Schools

Country	Key Policies	Technology Approach	Challenge
Indonesia	Merdeka Belajar, distribution of digital devices	E-learning platform, teacher training	Deficiencies in connectivity infrastructure in rural areas
China	Smart Education China	AI, big data, cloud-based learning	Excessive dependence on technology and strict government control
United States	Future Ready Schools, curriculum STEM	Google Classroom, iPads, project-based learning	Disparities in access in certain school districts
Spanish	Digital Education Plan	Interactive boards, learning apps	Gaps in technological infrastructure in some communities
South Korea	Smart Education, digital textbooks	AR, VR, High-speed internet network	Risk of overdependence on technological solutions

Sweden	Digital literacy as a compulsory curriculum	Coding, personalization of learning, universal access to devices	Substantial costs for large-scale implementation of the technology
Finland	Project-based learning and collaboration	Creative software, integration of technology in various subjects	Difficulties in training teachers for innovative technologies
Vietnam	EduNet, online teaching	National e-learning platform	Unequal access to technology in remote and disadvantaged areas

Source: Nisa, Hadi & Pristiani, 2024

Firstly, many of the countries analyzed have adopted national policies dedicated to digital education, but they differ from one another in terms of socio-economic context, government priorities, and technological development. Countries such as Indonesia and Vietnam rely on the creation of national e-learning platforms and the distribution of devices, but there are also minor obstacles, as they face major challenges in terms of equitable access in rural or isolated areas where internet infrastructure is poorly developed. On the other hand, countries with advanced digital infrastructure, such as South Korea, Sweden, and Finland, are no longer limited to equipping schools with technology, but are promoting policies aimed at integrating emerging technologies into pedagogy (e.g., AR/VR, programming, or personalized learning). Even in these contexts, challenges arise in terms of the costs of nationwide implementation (as in Sweden) or training teachers to use digital resources effectively (as in Finland).

The United States stands out for its use of commercial educational technology (e.g., Google Classroom, iPads), but even here there are problems related to unequal access between school districts, which also highlights internal socio-economic disparities. China and South Korea are constantly promoting artificial intelligence, big data, and other high-level technologies, but they face difficulties in terms of excessive dependence on technology and centralized control.

Spain has a balanced approach through its National Plan for Digital Education, but faces difficulties related to the lack of technological infrastructure in certain regions, which highlights the challenge of territorial cohesion.

The analysis therefore highlights that there is global convergence towards the digitisation of primary education, but its implementation is deeply contextualised. Challenging situations related to digital equity, teacher training, systemic costs, and dependence on commercial technological solutions are recurring topics that require a critical approach adapted to local realities. Digital governance in education must be based not only on technological innovation, but also on principles of inclusion, sustainability, and educational justice. In this context, it is important to highlight the importance of educational policies that go beyond simply providing technology and promote an inclusive digital culture, in which all students and teachers have the necessary skills.

The findings confirm the multilevel nature of digital governance in education, where micro, meso, and macro dynamics intersect to shape either inclusion or exclusion. Therefore, the ecosystem model proposes an integrated framework for analyzing digital governance, demonstrating that equity and inclusion can only be achieved through coherent interaction between all these levels. At the same time, this coordinated ecosystem-level approach depends not only on infrastructure and skills, but also on

transparency, ethical decision-making, and integrity in resource distribution, elements that highlight the relationship between digital governance and corruption prevention.

5. Digital governance, integrity and educational equity

Digital governance in education also intersects with public integrity and transparency, as educational digitalization can both prevent and reproduce corruption mechanisms in public administration. Well-implemented digital governance can reduce corruption by increasing transparency and strengthening the accountability of public institutions, an effect that is reinforced when society has a high level of digital skills (OECD, 2021). Effective digital leadership supports the fight against corruption by improving administrative transparency; at the same time, the effect is directly proportional to the level of digital literacy of the population (Alaa & Misko, 2022: 185).

The development of digital governance in Ukraine, through actions such as the implementation of electronic platforms and online services, has discouraged corruption and increased administrative transparency, leading to an example of the successful application of digital innovations in the fight against corruption (Kalienichenko & Slynko, 2022: 47–48). In Finland and Estonia, the integration of digital education into governance strategies is helping to promote digital literacy and civic engagement, which in turn is helping to reduce corruption by increasing public control (Tavolzhanskyi et al., 2023: 28–30).

This example shows how digital education has not only a pedagogical dimension, but also an ethical and civic one, contributing to the achievement of democracy and institutional transparency.

Figure 3. Digital Governance, Digital Education and Corruption

Source: Authors' own work

At the same time, Figure 3 emphasizes the importance of collaboration between the public and private sectors in developing secure digital ecosystems, as well as the need for ethical use of technologies to reduce opportunities for corruption. This graphic

representation provides a systemic perspective on how the digital education component mediates the relationship between e-governance and corruption prevention.

In this case, Figure 3 represents a visual synthesis of the triple relationship between technology, education, and transparency, showing that digital education is the bridge that can transform e-governance from a simple technical mechanism into an effective tool for inclusion and integrity.

5.1. The importance of digital literacy for citizens

Digital literacy among students and parents enables access to school budgets, procurement notices, and exam procedures, supports whistleblowing through reporting portals, and strengthens community oversight of school governance. Digital literacy is important in preventing corruption because citizens with digital skills can access government information, monitor administrative processes, and quickly report irregularities (World Bank, 2020: 62–63). Digital literacy supports citizens' active participation in monitoring governance by providing them with the opportunity to use reporting platforms and public feedback systems (Kassen, 2018: 550–551). Digital literacy programs enhance citizens' ability to track government activity, reducing opportunities for corruption by strengthening public oversight (Norris & Reddick, 2013: 172–173). The adoption of digital education in national e-government programs reduces citizens' dependence on direct contact with public officials, thereby mitigating the risk of bribery (UNDP, 2019: 20–21).

The lack of adequate digital training among the population reduces the effectiveness of e-governance in preventing corruption, maintaining power imbalances between citizens and institutions (Nam, 2012: 18). Countries that allocate limited funds to digital education face the phenomenon of "digital exclusion," which weakens the impact of e-platforms in combating corruption (Bertot et al., 2010: 268–269). The diminished level of digital literacy in states with fragile governance perpetuates corruption at a significant level, as the population is unable to use online public services effectively (Transparency International, 2022). The lack of digital skills among citizens and the administration negatively affects the objectives of digital governance, maintaining vulnerabilities to corruption and excluding groups with limited access to digital education from the benefits of digitization (Cazacu et al., 2023: 66–68).

5.2. Digital skills of public servants

Targeted digital training for school leaders and education officials reduces misuse of student data, improves the integrity of admissions and examinations, and increases trust in official education portals. The digital skills of public servants are important for the compliant and transparent use of digital technologies, avoiding their misuse for corrupt purposes (Motuzna & Reznik, 2022: 53–54). Digital training for public officials is essential for preventing technological abuse and increasing public trust in official government portals (Piña et al., 2007: 460–462). Corruption in the public sector can be eliminated more effectively if digital governance is accompanied by training civil servants in the justified use of technologies (Andersen et al., 2010: 411–413). Digital training programs for civil servants help strengthen the integrity of institutions by reducing the opportunity for technological exploitation through dishonest means (European Commission, 2020).

5.3. Infrastructure and partnerships

Investments in education-sector digital infrastructure—student information systems, e-procurement for schools, and interoperable registries—must be paired with capacity-building to avoid exclusion and ensure transparent resource allocation. Countries

that contribute resources to both digital infrastructure and digital education strengthen resilient governance mechanisms that are less susceptible to corruption (Bertot et al., 2012: 87–88). Partnerships between the state and the private sector in the field of digital education are very important for the development of transparent digital ecosystems (United Nations, 2018: 93–95). At the same time, Figure 3 emphasizes the importance of collaboration between the public and private sectors in developing secure digital ecosystems, as well as the need for ethical use of technologies to reduce opportunities for corruption.

Conclusion

This article has analyzed digital governance in education as a rather tense field, situated between the promise of inclusion and the risk of exclusion. Starting from the shift from government to governance, we have illustrated how digital infrastructures, data, and algorithms are transforming decision-making processes, accountability, and the distribution of educational resources. The results indicate that digitization can enhance access and participation—when it is supported by coherent policies, professional development, and sustained infrastructural investment—yet it can also reproduce or deepen structural inequalities.

Empirical analysis (Romania, Roma students, international comparison) shows that digital equity is conditioned by structural factors (broadband coverage, equipment), human factors (digital skills of students, teachers, and civil servants), and institutional factors (transparency, data governance). In this case, digital education becomes an essential mediator: it facilitates the ethical and efficient use of technologies, increases the capacity for civic participation, and strengthens public integrity mechanisms.

The public policy implications are well established: (1) integrated investments in digital infrastructure and skills; (2) data governance frameworks centered on rights, transparency, and accountability; (3) targeted support for vulnerable groups to prevent digital exclusion; (4) public-private partnerships geared towards good governance, not just technological adoption. Finally, future research should examine more closely the algorithmic effects on student classification and performance assessment to understand how systemic biases can be avoided.

Therefore, digital governance in education must be thought of as a multi-level ecosystem in which technology is a means, not an end: only through the coherent articulation of infrastructure, skills, and data ethics can the promise of inclusion prevail over the risk of exclusion.

Authors' Contributions:

The authors contributed equally to this work.

References:

Alaa, H. S., & Misko, J. (2022). Digital leadership and good governance: Lessons from developing countries. International Journal of Public Leadership, 18(2), 185.

Andersen, T., Bentzen, J., Dalgaard, C. J., & Selaya, P. (2010). E-government as an anti-corruption strategy. European Journal of Political Economy, 26(3), 411–413.

ANCOM. (2018). Accesul la internet în gospodăriile din România. București: Autoritatea Națională pentru Administrare și Reglementare în Comunicații.

Bertot, J. C., Estevez, E., & Janowski, T. (2012). Public sector transformation through e-government: Experiences from Europe and Latin America. Government Information Quarterly, 29(1), 87–88.

Bertot, J. C., Jaeger, P. T., & Grimes, J. M. (2010). Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. Government Information Quarterly, 27(3), 268–269.

Brolpito, A. (2018). Digital inclusion and skills in Europe. European Training Foundation.

Cazacu, C., Popa, R., & Toma, S. (2023). Digital skills and education in weak governance states: Challenges and policy solutions. Journal of Digital Public Administration, 12(1), 66–68.

European Commission, Fundamental Rights Agency, & United Nations Development Programme. (2021). Roma and travellers in six EU member states. Luxembourg: Publications Office of the European Union.

European Commission. (2020). Digital education action plan 2021–2027: Resetting education and training for the digital age. Brussels: Publications Office of the European Union.

Ferkovics, A. (2018). Segregation of Roma children in education: Addressing structural discrimination in Europe. European Educational Research Journal, 17(1), 122–123.

Garmendia, M., & Karrera, I. (2019). Digital inclusion of Roma students in Europe: The challenges of equitable access. Journal of Social Inclusion, 10(2), 56–57.

Kalienichenko, O., & Slynko, A. (2022). E-government and corruption prevention in Ukraine: Achievements and challenges. Public Administration Review, 80(1), 47–48.

Kassen, M. (2018). Digital literacy for anti-corruption: Opportunities and obstacles. International Journal of Public Administration, 41(7), 550–551.

kobLawn, M. (2013). The rise of data in education systems. European Educational Research Journal, 12(1), 49–53.

Lindblad, S., Johannesson, I. A., & Simola, H. (2002). Education governance: Frameworks and practices. European Educational Research Journal, 1(2), 238–240.

Lynch, K. (2015). The politics of education and digital governance. Policy Studies, 36(2), 191–197.

Mayer-Schönberger, V., & Cukier, K. (2014). Big data: A revolution that will transform how we live, work, and think. London: John Murray.

Motuzna, A., & Reznik, O. (2022). Digital competences of public administration officials and transparency of e-governance. Journal of E-Government Studies, 17(2), 53–54.

Nam, T. (2012). Dual faces of e-government: Challenges and opportunities for digital inclusion and anti-corruption. Government Information Quarterly, 29(1), 18.

Nicolau, A. I., Popescu, A., & Cristescu, F. (2020). Digitalization challenges in Romanian education: Equity and infrastructure. Romanian Journal of Educational Sciences, 12(1), 45–47.

Nisa', R., Hadi, S., & Pristiani, R. (2024). *Global Learning Transformation in Primary Education: A Systematic Review of Digital Policy and Access Enhancement*. AT-THULLAB, 8(2), 198–214.

OECD. (2021). Digital government review of Latin America: Inclusive and sustainable digital transformation. Paris: OECD Publishing.

Digital governance in education: between the promise of inclusion and the risk of exclusion

OECD. (2023). Digital equity and inclusion in education: Policy lessons and case studies. Paris: OECD Publishing.

Piña, G., Luna-Reyes, L. F., & Gil-García, J. R. (2007). Public employees' training for effective e-governance. Government Information Quarterly, 24(2), 460–462.

Piety, P. J., Hickey, D. T., & Bishop, M. J. (2014). Educational data mining: Interpretation, ethics, and accountability. In Proceedings of the Annual Meeting of the American Educational Research Association (pp. 5–11).

Rose, N. (1999). Powers of freedom: Reframing political thought. Cambridge: Cambridge University Press.

Rutigliano, R. (2020). Roma inclusion in the digital era: A European perspective. Social Policy and Society, 19(1), 45-51.

Tavolzhanskyi, O., Shevchenko, S., & Naydich, T. (2023). Digital literacy, citizenship education, and reduction of corruption: Comparative policies in Finland and Estonia. Interdisciplinary Studies in Public Administration, 30(4), 28–30.

Transparency International. (2022). Corruption perceptions index 2022. Berlin: Transparency International.

United Nations. (2018). E-government survey 2018: Gearing e-government to support transformation towards sustainable and resilient societies. New York: United Nations.

United Nations Development Programme. (2019). Anti-corruption and digital governance: Strategies for transparent public services. New York: UNDP Publications.

Williamson, B. (2016). Digital education governance: An introduction. In B. Williamson, Big data in education: The digital future of learning, policy and practice (pp. 1–25). London: Sage.

World Bank. (2020). Digital government for development: Enhancing public sector capabilities. Washington, DC: World Bank.