

Open Educational Resources Policy as a Driver Of Digital Transformation of Educational Systems: a Conceptual Overview

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Abstract: This article provides a conceptual overview of open educational resource policies as an institutional mechanism for the digital transformation of education systems. Based on an analysis of international and national regulatory documents, research literature, and program initiatives, the article explores how OER policies reshape the modes of knowledge legitimation and alter the configuration of sociotechnical infrastructure. The theoretical framework combines the sociology of education (the logic of fields and capitals), neo-institutionalism (normative and mimetic isomorphism), and the actor-network perspective (translations and bindings between actors and artifacts). It has been shown that the "driver" effect of OER manifests itself through four interconnected pillars: the obligation of open licenses for resources created with public funds; the interoperability of platforms, metadata, and data portability; sustainable quality, review, and maintenance procedures; and linguistic and cultural justice that ensures epistemological fairness.

1 INTRODUCTION

In the context of the accelerating digital transformation of education, the policy of open educational resources is positioned not only as a tool for expanding access, but also as an institutional mechanism for reconfiguring the educational field: the modes of legitimization of knowledge are redistributed, the trajectories of accumulation of cultural and symbolic capital (in the sense of P. Bourdieu) are transformed, and the relationships between participants in sociotechnical ensembles are reorganized (in the logic of actor-network theory by B. Latour). The intergovernmental regulatory framework, the 2019 UNESCO Recommendation on Open Educational Resources, establishes targets for capacity building, policy incentives, quality and inclusivity, sustainability of models, and international cooperation, thereby constituting OER as a public

good and an element of the infrastructure for inclusive knowledge societies. In this perspective, digital transformation is understood as a set of sociotechnical translations, where platforms, licensing standards, and practices of content curation and localization act as equal participants in the network, along with ministries, universities, and communities of practitioners. The conceptual core of the OER policy can be traced back to the work of D. Wiley, who proposed a "five rights" matrix (preservation, reuse, recycling, remixing, and distribution) that sets the normative expectations for the openness and reusability of educational materials and their circulation within educational ecosystems. In the framework of "open pedagogy" by Catherine Cronin and in the research of Martin Weller, openness is interpreted not as a purely technological property of a resource, but as a mode of collaborative production and redistribution of pedagogical

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authorship, which enhances the reflexivity and agency of students and teachers. The ECDL policy, therefore, becomes a driver of institutional reflection: it sets out requirements for the transparency of recognition procedures, for the formation of digital competencies of academic workers, for the integration of practices of localization and contextualization of knowledge, and for the coupling of ECDL with initiatives of massive open online courses and national strategies of “lifelong learning”. It is significant that the European policy documents and initiatives of the last decade link the development of ECDL with the modernization of educational infrastructure and digital skills, and that intergovernmental actors emphasize the role of ECDL in equalizing access and expanding participation.

2 RESEARCH METHODOLOGY

The study was conducted as a conceptual and analytical review with elements of comparative political analysis and subject-network cartography. The empirical base was formed by regulatory and program documents at the intergovernmental level (the 2012 Paris Declaration on Open Educational Resources, the 2019 UNESCO Recommendation, and consolidated implementation reports) and regional frameworks for digital learning (the 2023 Council of the European Union Recommendations), as well as national materials on the digital educational environment and institutionalized open learning platforms. The selection of sources was based on the criteria of relevance to open resource policy, normative significance, relevance (2012-2025), and availability of the full text. The analytical procedure included:

- (1) a discursive-political reconstruction of the goals, principles, and tools of open resource policy;
- (2) thematic coding of provisions on open licensing, interoperability, and quality assurance;
- (3) actor-network identification of key nodes (regulators, platforms, licenses, and professional communities) and translation chains;
- (4) institutional analysis of isomorphic mechanisms in organizational fields (normative and mimetic contours);
- (5) triangulation with the results of international analytical reviews of digital education to clarify the infrastructure prerequisites and risks of platformization.

Critical hermeneutics and comparison of formulations between the levels of governance

(interstate – regional – national) were used to increase the validity, as well as an assessment of the consistency of licensing and legal regimes and quality procedures. In addition, materials from official portals describing the targeted design of the digital educational environment and the parameters of national platforms were taken into account, which ensured the linking of the conceptual analysis to current practices.

3 RESULTS AND DISCUSSION

The results of the conceptual review show that the policy of open educational resources (OER) is not an auxiliary “add-on” to digitalization, but rather a special regulatory framework that sets the normativity and legitimacy of sociotechnical transformations in education. At the global level, the core of this normativity is formed by the Paris Declaration on Open Data (2012) and the UNESCO Recommendation (2019), which translate openness from the plane of local pedagogical practices into the plane of public policy: the goals of capacity building, stimulating policies, quality and inclusivity, sustainability of models, and international cooperation are established. Thus, open data is institutionalized as a public good and as an element of the infrastructure of “inclusive knowledge societies,” rather than just as a collection of data and materials. Such regulatory consolidation sets the horizon of what is expected, from the open licensing of results created with public funds to the coordination of multi-level management.

There is an isomorphic dynamic in the political and organizational dimension: national and industry actors converge to similar forms and procedures, adopting licensing formats, quality assurance mechanisms, and compatibility requirements. This convergence is explained by the logic of normative and mimetic isomorphism in organizational fields (in the sense of P. DiMaggio and U. Powell's): In their pursuit of legitimacy and reduction of uncertainty, actors are reproducing “successful” configurations of OER policies, even when local contexts are different. This has led to the proliferation of similar repository models, review regulations, metadata, and learning outcome recognition procedures. This dynamic is further supported by the fact that regional digital education initiatives, from the European Package of Measures to national programs, are explicitly linking open content and digital skills, viewing them as mutually reinforcing elements of transformation.

The network, or subject-network, perspective reveals that the effect of the OER policy is realized through the translations and bindings of diverse subjects: platforms, standards, licenses, ministries, universities, communities of practitioners, and linguistic and cultural intermediaries. In terms of subject-network theory, OER becomes a node where material and symbolic trajectories intersect: metadata and interoperability interfaces are as significant as regulatory mandates. This highlights the centrality of interoperability and data management issues, as they are essential for the sustainable circulation of open content. The UNESCO Global Framework captures this infrastructure shift: open solutions, open data, and open practices are compatible and reinforce each other when embedded in coordinated governance mechanisms [2, p. 153].

In the pedagogical dimension, the EO policy works as an “institutional pedagogy” of openness: it stimulates a shift from knowledge transmission to collaborative production and reprocessing, supports the localization and contextualization of materials, and enhances the agency of learners through participation in the redesign of educational content. However, research findings indicate that the direct academic effects are ambiguous: comparative and meta-analytical reviews demonstrate that the use of EO is not inferior to commercial materials in terms of academic outcomes and is sometimes accompanied by a decrease in dropout rates, although the magnitude of the effect is often small and depends on assessment procedures, discipline, and didactic design. This requires distinguishing between “political” and “pedagogical” effects: the former are about the fairness of access and the redistribution of costs, while the latter are about the variability of practices and the contextual moderators of outcomes.

Thus, the interpretation of EO as a driver of digital transformation should take into account the dual nature of its impact: economic and institutional effects (reducing barriers to access, saving money for students and institutions, and increasing transparency in procurement and content policy) and socio-pedagogical effects (new forms of co-authorship, reflection, and the expansion of reuse practices). Historically, the EO movement has emerged as a response to barriers to access and copyright, and government and intergovernmental support has transformed these practices into public policy with clear objectives. In this logic, the UNESCO Recommendation (2019) serves as a “generalizing” device that codifies the benefits and risks of openness, while the Paris Declaration (2012) is an important

precedent that legitimizes open resources as part of a state’s educational sovereignty.

The key node is the licensing and legal regimes. The rationale for open licensing of publicly funded results is becoming a regulatory standard, as it redistributes rights and responsibilities between authors, institutions, and broader user communities. Direct references to the need for free licenses for publicly funded resources are included in the recommendations of global actors and shape the expectations architecture for national systems. This not only reduces transaction costs but also minimizes the legal uncertainty that previously hindered the reuse of materials and the industrial scaling of open practices.

“The most important vector is linguistic and cultural justice. The Open Access Policy, which is aligned with the agenda of the International Decade of Indigenous Languages, prioritizes localization, adaptation, and representation of cultural diversity in content. This means that open access is not only about lowering prices, but also about epistemic recognition and the inclusion of local knowledge in global circulation. At the tool level, this leads to support for translations, collaborative editing initiatives, and the placement of materials in multilingual repositories, where co-authorship and quality control mechanisms do not suppress local meanings. In this way, NGOs become mediators between global standards and local narratives, rather than replacing them” [8, p. 32].

In terms of resources and capitals (in the sense of P. Bourdieu), the Open Research Policy is changing the structure of conversions: cultural capital (certifiable competencies, recognized practices) is increasingly accumulated through participation in open ecosystems, while symbolic capital (recognition, visibility) is accumulated through contributions to public repositories and curated collections. This, in turn, affects the rules of the game in the academic field: the importance of open peer review, transparent metrics of contribution, and collaborative editing practices is increasing; the mechanisms for reproducing hierarchies are changing, where openness can both “democratize” access to prestigious resources and perpetuate the dominance of large platforms and institutions. The ultimate balance is determined by the extent to which systems provide institutional guarantees for quality and fair recognition.

A comparison of regional frameworks demonstrates that open policy is relevant when it is integrated into a common plan for the digital transformation of education. Recent European documents have explicitly linked high-quality and

inclusive digital learning to the elimination of the digital divide and the improvement of digital literacy; the recommendations of the European Council (November 2023) establish the conditions for successful digital learning and training, and the 2021-2027 policy package outlines specific actions that prioritize openness as a principle for ensuring accessibility and flexibility. In this context, Open Educational Resources serve as an operationalization of the principles of equity and quality: They make it possible to quickly update content, implement transparent procedures for recognizing and transferring learning outcomes, and reduce the dependence of educational trajectories on the financial capacity of individuals.

In national contexts (using the example of the Russian Federation), the driveriness of OER manifests itself through the inclusion of open solutions and open content in the digital educational environment and the ecosystem of massive online courses. The Federal project "Digital Educational Environment" emphasizes the infrastructural dimension of digitalization, while the "National Open Education Platform" forms institutional practices for the development, expertise, and transfer of courses as an element of flexible educational trajectories. As a result, a "double loop" is formed: a regulatory loop (standards, recognition procedures, and infrastructure) and a content loop (scalable models for the production and reuse of materials). "However, full-fledged transformation effects require the consistent dissemination of open licenses for resources created with public funds and sustainable localization support" [5, p. 146].

Critical literature points to the risks of platformization: increased dependencies on large infrastructure intermediaries, a redistribution of control over data and algorithms, and a shift in emphasis from academic autonomy to the logic of "compliance markets." In terms of "platform capitalism" analysis, this is a movement towards the appropriation of user-generated value and the intensification of asymmetries, raising questions about public guarantees of interoperability, data portability, open interfaces, and non-discriminatory access to educational platforms. Therefore, the Open Education Policy must be linked to data policy and the digital education anti-monopoly agenda, otherwise the openness of materials does not translate into the openness of infrastructures.

"The stability of the effects of the OER policy depends directly on its integration into quality assurance mechanisms. Historical reviews and reports highlight the importance of sustainable

models for reviewing, maintaining, updating, and monitoring the use of OER, as open content can quickly degrade and lose its educational value. In this context, international analyses, starting with the first systematizations of the OER movement, have emphasized the balance between openness and quality, and recent meta-reviews have shown that debates about quality remain central. Policymakers should move from declarative requirements to verifiable standards and cyclical improvement procedures" [1, p. 115].

Separate attention requires the measurement of effects. The set of empirical works of recent years indicates: the impact of EER on academic results is heterogeneous and hardly amenable to a simplified generalization; the spread is explained by the modalities of implementation – discipline, didactic design, assessment practices, feedback device and learning communities. Meta-studies and longitudinal analyses show from "insignificant" to "moderate" positive effect, while cost savings and reduction of administrative barriers for students are consistently confirmed. Therefore, the "drive" of EFA is not only and not so much about directly increasing average scores, but rather about creating an institutional environment where flexibility, access, and recycling become the norm.

From the perspective of the social contract, formulated through the sociology of the public sphere, the EFA policy expands the space for rational discussion and collective authorship: open access mechanisms, transparent recognition procedures, and opportunities for collective expertise enhance the accountability of institutions and increase trust in educational outcomes. This reduces the information asymmetry between educational organizations, employers, and learners, blurs the rigid boundary between "producers" and "consumers" of educational content, and encourages the development of diverse professional communities of practice. When such mechanisms are enshrined in regulations (as in international recommendations and regional action packages), they are converted into real organizational innovations, from modular program design to flexible credit transfer schemes [3, p. 19].

Finally, the results of the review allow us to propose operationalized ways to strengthen the "driveriness" of the Open Data policy. First, the licensing policy: the mandatory use of free licenses for resources created with public funds and the creation of legally clear "roadmaps" for institutions. Second, the infrastructure compatibility: the budgeting for open interfaces, metadata, and the portability of user data. Third, the quality and

maintenance: institutional centers of competence and content update cycles with open expertise. Fourth, language justice: prioritizing localization, translation, and support for multilingual editorial communities in line with global initiatives to preserve linguistic diversity. Fifth, monitoring and analytics: moving towards measuring not only academic outcomes but also organizational metrics, such as content routing speed, reuse rates, localization depth, and community engagement. Taken together, these measures transform openness from a declaration into a sustainable digital transformation architecture.

4 CONCLUSION

Thus, the policy of open educational resources is not a side effect of digitalization, but its institutional “engine” that rearranges the regimes of knowledge legitimation, recognition mechanisms, and educational content circulation trajectories. In an actor-network perspective, OERs connect regulatory prescriptions, licensing regimes, and socio-technical infrastructure, transforming openness into a reproducible practice rather than a declaration. Their driving effect is manifested where four pillars are aligned: the obligation of open licenses for publicly funded resources; platform interoperability and data portability; sustainable quality and maintenance procedures; and linguistic and cultural justice as a principle of epistemic inclusion.

At the same time, the following limitations have been identified: platformization increases dependence on large intermediaries; “formal openness” without localization and peer review devalues pedagogical results; and legal uncertainty reduces the scope of reuse. Therefore, the future agenda involves synchronizing licensing, infrastructure, and quality policies with the participation of public, private, and civil actors, as well as developing metrics that capture not only educational outcomes but also organizational changes. In this configuration, EOAs realize their potential as a public good and a sustainable mechanism for digital transformation of education systems.

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