PERSONAE
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Educational Research and Digital Colonialism: Preliminary Reflections

Ricerca pedagogica e colonialismo digitale. Riflessioni preliminari.

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ABSTRACT

This article investigates generative artificial intelligence from the perspective of social pedagogy, focusing on its relationship with the phenomenon commonly described as «digital colonialism». Taking as its point of departure Pope Leo XIV's encyclical Magnifica humanitas, which emphasizes that the use of artificial intelligence cannot be reduced to a merely technical issue, the study critically examines scientific evidence concerning the capacity of algorithmic systems to reproduce forms of discrimination. It argues that pedagogy must move beyond an exclusively instrumental understanding of digital education and develop forms of critical AI literacy capable of addressing the social, ethical, and cultural implications of these technologies.

Keywords: artificial intelligence, pedagogy, encyclical, racism, digital colonialism.

L'articolo analizza l'intelligenza artificiale generativa come questione pedagogica sociale in rapporto al cosiddetto «colonialismo digitale». Muovendo dal richiamo dell'Enciclica Magnifica humanitas di Leone XIV, secondo cui l'uso dell'IA non può essere considerato un fatto puramente tecnico, il contributo rilegge alcune evidenze scientifiche degli algoritmi come moltiplicatori di discriminazioni. Il contributo sostiene che la pedagogia debba superare una concezione meramente strumentale dell'educazione digitale, per elaborare una formazione critica all'IA.

Parole chiave: intelligenza artificiale, pedagogia, enciclica, razzismo, colonialismo digitale.

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Introduction

Artificial intelligence currently raises questions for educational theory that concern not only technological innovation, but also the ways in which a society "produces" and transmits knowledge. The educational issue does not lie in determining whether AI should be regarded as inherently positive or negative, but rather in understanding the conditions under which it may contribute to the promotion of human dignity, substantive equality, and the recognition of difference. Generative artificial intelligence has, in fact, rapidly entered educational systems, reshaping the relationship between knowledge and access to knowledge, as well as that between inclusion and selection. It has also begun to affect the processes through which learning pathways and assessment criteria are constructed, thereby reinforcing less visible and more insidious forms of racial discrimination. From this perspective, UNESCO has emphasised the need for an approach to artificial intelligence grounded in inclusion, the protection of linguistic and cultural diversity, and educational responsibility (UNESCO, 2021; UNESCO, 2023). The central hypothesis of this article is that artificial intelligence is never a neutral system, but rather the product of the society in which it is designed. It is precisely within this context that the issue of digital colonialism emerges: a process through which platforms and algorithmic systems contribute to determining which languages, forms of knowledge, and subjects acquire visibility and authority within the digital sphere. The concept of digital colonialism originated within critical scholarship on the relationships among data, platforms, and global power. While the debate initially focused on the economic valorisation of data (Couldry & Mejias, 2019), more recent developments have shown that this paradigm also encompasses the organisation of the linguistic systems underlying artificial intelligence. From a pedagogical perspective, this also entails questioning who defines the criteria through which knowledge is legitimised. From a pedagogical perspective, this also requires examining who defines the criteria through which knowledge is legitimised. This article proposes that digital colonialism should be understood as an inherently pedagogical issue, since it directly affects the educational processes through which three fundamental principles are shaped: equality, participation, and democratic citizenship[1].

1. Generative AI, Education, and Digital Colonialism

1.1. The Pedagogical Question of Equality

This article seeks to demonstrate that digital colonialism constitutes a new pedagogical question. Artificial intelligence, at least in its present form, is progressively redefining the criteria through which knowledge is produced, selected, validated, and made accessible. In this sense, digital colonialism consists in the power to determine which languages, forms of knowledge, and subjects may be recognised as authoritative within the digital ecosystem. The educational question, therefore, lies in understanding how these processes affect the principle of equality, transforming access to knowledge into a domain characterised by new cultural, linguistic, and social asymmetries. As is widely recognised, every technological innovation changes the way in which a society distributes not only knowledge but also opportunities. For these two reasons, every technological innovation must be regarded, first and foremost, as an educational priority. More specifically, generative artificial intelligence has entered educational systems with the speed typically associated with infrastructural transformations: even before it has been fully understood, it is already being used to write, translate, summarise, assess, provide guidance, personalise learning pathways, and produce educational content. This development cannot be understood merely as a form of instrumental innovation. It reshapes the relationship between knowledge and access to knowledge, between teacher and learner, between language and authority, and between inclusion and selection. AI therefore enters pedagogical reflection in multiple

[1] The UNESCO references include both the policy guidance on inclusion and equity and the 2023 guidance on generative AI in education and research, which addresses data privacy, equity, and linguistic and cultural diversity. The concept of data colonialism was introduced by Nick Couldry and Ulises A. Mejias in 2019. This study originated in an expert contribution commissioned by the Italian newspaper Avvenire, also listed in the bibliography; its online version provides access to further international open-access research.

ways: it intervenes in the processes through which societies determine who may learn, by means of which tools, according to which categories, and within which cultural imaginaries. The decisive question is not whether AI should be accepted or rejected, but under what conditions it may be directed towards the promotion of human dignity, substantive equality, and the recognition of difference. UNESCO has identified inclusion, equity, data protection, and the safeguarding of linguistic and cultural diversity as fundamental principles for the educational use of AI (cf. Miao *et al.*, 2021; Miao and Holmes, 2023). Pope Leo XIV's recent encyclical *Magnifica humanitas* likewise places the issue well beyond the assumption of technological neutrality, emphasising that AI affects rights, opportunities, reputation, and freedom (Leo XIV, 2026). The hypothesis advanced in this article is that artificial intelligence is never exclusively «artificial», since it draws upon data concerning people, material infrastructures, design choices, and cultural worldviews embedded in datasets. It is precisely here that the less visible danger of digital colonialism emerges: an ordinary process through which platforms and language models determine which languages occupy a central position, which forms of knowledge are recognised, and which subjects remain at the margins of algorithmic legibility. A non-negotiable principle must therefore be reaffirmed, even in the age of computation: equality is also an educational principle that AI must not be allowed to undermine.

1.2 From Technological Neutrality to Algorithmic Dependence

If digital colonialism consists in the progressive algorithmic organisation of knowledge, the first assumption that must be questioned is that of technological neutrality. A well-established body of scholarship has shown that artificial intelligence systems are not value-neutral instruments, but sociotechnical systems in which design choices, economic interests, power relations, and cultural models become embedded. Algorithms do not merely process information: they select, rank, and assign relevance to data according to criteria that inevitably reflect the contexts in which they are designed and trained. From this perspective, digital colonialism cannot be reduced to the control of technological infrastructures or to the concentration of computational capacity. It manifests itself above all in the transformation of human experience into data available for algorithmic processing, and in the resulting power to determine which forms of knowledge become visible, which categories are regarded as legitimate, and which subjects can be recognised within the digital ecosystem. This extractive logic constitutes a defining feature of contemporary colonialism, since it shifts control from the appropriation of territories to the organisation of information and the processes through which knowledge is produced. This framework raises four issues of particular pedagogical significance: the algorithmic marginalisation of individuals and communities that are poorly represented in datasets; epistemic asymmetries that privilege certain knowledge systems over others; structural inequalities resulting from the uneven distribution of digital infrastructures; and informational hierarchies that assign differing degrees of authority to languages, cultures, and forms of knowledge. These phenomena are closely interconnected and affect the criteria through which education selects content, constructs authority, and organises access to knowledge. Within this framework, the educational question concerns not only the use of artificial intelligence, but also the governance of the algorithmic architectures that mediate knowledge. When a system recommends content, assesses a written text, guides a learning pathway, or selects sources of information, it operates within a hierarchy of meanings. If this hierarchy remains opaque, there is a risk that inequalities will gradually become normalised, making certain languages less visible, certain communities less representable, and alternative forms of knowledge less authoritative.

1.3 Digital Colonialism and the Selection of Knowledge

The linguistic dimension is one of the areas in which digital colonialism becomes most clearly apparent. Languages are not merely instruments of communication; they convey interpretative categories, collective memories, and distinct ways of organising reality. Consequently, when a language model delivers significantly different levels of performance depending on the language in which it is used, the resulting inequality directly affects the right to access knowledge and

participate in cultural life. The underrepresentation of low-resource languages limits the quality of generative AI systems and reduces the visibility of entire linguistic communities. At the same time, models trained on large textual corpora may reproduce discriminatory associations between linguistic varieties, ethnic identity, and perceived social competence, thereby incorporating into algorithmic processes stereotypes that are already present in the public sphere. Comparable discriminatory effects have also been documented in automated recruitment procedures and in the formulation of clinical assessments, confirming that linguistic asymmetries may translate into unequal access to employment, healthcare, and digital services[2]. Automated content moderation systems also reveal this dynamic. Languages that are underrepresented in training datasets are more vulnerable both to the under-removal of harmful content and to the erroneous removal of culturally legitimate material, since classification standards continue to be developed predominantly on the basis of dominant languages. The issue, therefore, concerns not only technological efficiency, but also the unequal degree of recognition afforded to linguistic communities within the digital sphere. From this perspective, education about artificial intelligence entails developing a form of critical AI literacy capable of examining the conditions under which knowledge is produced in the algorithmic age. The pedagogical question lies not only in learning how to use generative tools, but also in understanding how datasets, language models, validation criteria, and digital platforms contribute to determining the authority of sources, the representation of cultures, and opportunities for democratic participation. Digital decolonisation thus becomes a fundamentally educational task, aimed at restoring linguistic pluralism, epistemic justice, and equality of access to knowledge. The study published in *Nature* by Valentin Hofmann, Pratyusha Ria Kalluri, Dan Jurafsky, and Sharese King (see bibliography) demonstrates that some large language models automatically associate «African American English» (AAE) with socially negative attributes, even in the absence of any explicit reference to race. Across several experimental settings, speakers using this linguistic variety were judged to be less suitable for highly skilled occupations, more likely to engage in criminal behaviour, and even more deserving of harsher sentences than speakers of «Standard American English»[3].

2. Towards a Pedagogical Approach to the Decolonisation of Artificial Intelligence.

Taking the human person as the criterion for innovation—as suggested by the encyclical under discussion—requires a reconsideration of the very meaning of digital education. Education cannot be limited to learning how to use generative tools; it must also foster the development of critical thinking capable of examining the conditions under which algorithms produce knowledge. This perspective stands in continuity with the tradition of critical pedagogy initiated by Paulo Freire. Although he was writing in a profoundly different historical context, Freire assigned education the task of fostering *conscientização*, or critical consciousness: the capacity to recognise the structures of domination that shape both individual and collective life (Freire, 1970). Transposed to the contemporary digital ecosystem, this approach invites us to interpret algorithms as cultural and social constructs that reflect specific power relations. A pedagogy of digital decolonisation may therefore be understood as an extension of critical pedagogy. Decolonising artificial intelligence means educating individuals to question the provenance of data and the processes through which algorithms confer visibility and authority on particular forms of content. The aim is not to replace one technological paradigm with another, but to promote forms of digital citizenship grounded in equality, epistemic justice, and democratic participation. From this perspective, a pedagogy of digital decolonisation may be defined as a theoretical and methodological orientation aimed at developing the capacity to recognise and challenge forms of domination that may be embedded in algorithmic infrastructures, so that innovation remains at the service of the human

[2] Cf. Crawford, 2021; Bender *et al.*, 2021.

[3] The so-called language gap is also relevant. Stanford University's Mind the (Language) Gap project shows that leading language models perform best in data-rich languages, particularly English, while achieving substantially lower results in underrepresented languages such as Vietnamese, Nahuatl, Swahili, and Burmese. This disparity limits not only linguistic accuracy, but also equitable access to AI-based education, information, and knowledge production.

person rather than becoming a mechanism for reproducing inequality (Nekoto et al., 2020)[4].

Concluding Remarks

The reflections developed in this article do not support definitive conclusions regarding a phenomenon that, owing to the rapid pace of technological change and the still limited body of empirical research, requires further theoretical investigation and systematic analysis. Rather than providing established answers, this study has sought to offer an interpretative framework for examining some of the transformations that artificial intelligence appears to be introducing into the production, organisation, and accessibility of knowledge. The hypothesis that digital colonialism may serve as a useful analytical category for pedagogical research therefore remains to be tested more extensively. Further investigation is needed to determine whether the asymmetries documented in the international literature arise primarily from the contingent limitations of current language models or whether they reflect structural mechanisms capable of exerting a lasting influence on the distribution of educational opportunities, the representation of linguistic and cultural diversity, and, more broadly, the effective realisation of the principle of equality. It is precisely this unresolved question that makes the issue particularly relevant to pedagogical inquiry. As Leo XIV states in *Magnifica humanitas*, "the primacy of the human person must be safeguarded, so that human intelligence, together with its conscience and freedom, may always guide technological innovation and responsibly determine its uses and limits" (no. 97). The central question, therefore, concerns not only the design and governance of algorithmic systems, but also education's capacity to develop the critical tools required to understand their anthropological, social, and cultural implications. From this perspective, the pedagogical approach proposed in this article should be regarded as an open working hypothesis, intended to encourage interdisciplinary discussion and further empirical research. Rather than closing the debate, the article seeks to outline a field of inquiry whose significance is likely to increase as artificial intelligence becomes more deeply embedded in educational and knowledge-producing institutions

[4] In this section, digital decolonisation is understood not as a rejection of artificial intelligence, but as the co-production of linguistic resources, the promotion of African languages, and the involvement of local communities in the design of computational models; see the works cited in the bibliograph.

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