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Between Digitalisation and Critical Thinking: An Analysis of Angolan Educational Policies through the Lens of Edgar Morin

Entre a digitalização e o pensamento crítico: uma análise das políticas educacionais angolanas à luz de Edgar Morin

Entre la digitalización y el pensamiento crítico: un análisis de las políticas educativas angoleñas a la luz de Edgar Morin

António Cangolo Franco¹

ABSTRACT

This article critically analyses the integration policies of Information and Communication Technologies (ICT) in the Angolan educational system, through the lens of Edgar Morin's Theory of Complex Thought and critical pedagogy. Based on an interpretative, qualitative paradigm, the research adopts the method of document analysis, using as its corpus strategic instruments such as the National Development Plan (2023–2027), the ICT White Paper, the Angola Digital Acceleration Project (PADA), and digital inclusion programmes such as Meu Kamba, ProFuturo, E-Net and Kamba Dyami. The results reveal a structural paradox: although there are significant advances in infrastructure and connectivity, an epistemological gap persists in the pedagogical integration of ICT, marked by a predominantly technocentric and instrumental approach. It was found that public policies favour quantitative access indicators at the expense of promoting critical thinking, cognitive autonomy, and the linking of knowledge. It is concluded that the digitalisation of education in Angola risks being limited to 'surface modernisation' unless accompanied by a reform of thought that values complexity, contextualisation, and critical teacher training. The study proposes the reconfiguration of educational policies, guiding them towards a technological integration that promotes intellectual emancipation, digital citizenship, and sustainable development.

Keywords: ICT; Complex Thought; Educational Policies; Angola; Digital Literacy.

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1. Instituto Superior de Ciências de Educação do Huambo. Huambo, Angola
antoniofrancogilton@gmail.com / <https://orcid.org/0009-0008-4524-2106>

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Este artigo analisa criticamente as políticas de integração das Tecnologias de Informação e Comunicação (TIC) no sistema educativo angolano, à luz da Teoria do Pensamento Complexo de Edgar Morin e da pedagogia crítica. Partindo de um paradigma interpretativo, de natureza qualitativa, a investigação adopta o método de análise documental, tendo como corpus instrumentos estratégicos como o Plano de Desenvolvimento Nacional (2023–2027), o Livro Branco das TIC, o Projecto de Aceleração Digital de Angola (PADA) e programas de inclusão digital como Meu Kamba, ProFuturo, E-Net e Kamba Dyami. Os resultados evidenciam a existência de um paradoxo estrutural: embora haja avanços significativos ao nível da infraestrutura e da conectividade, persiste uma lacuna epistemológica na integração pedagógica das TIC, marcada por uma abordagem predominantemente tecnocêntrica e instrumental. Constatou-se que as políticas públicas privilegiam indicadores quantitativos de acesso em detrimento da promoção do pensamento crítico, da autonomia cognitiva e da religação dos saberes. Conclui-se que a digitalização da educação em Angola corre o risco de se limitar a uma “modernização de superfície”, caso não seja acompanhada por uma reforma do pensamento que valorize a complexidade, a contextualização e a formação docente crítica. O estudo propõe a reconfiguração das políticas educativas, orientando-as para uma integração tecnológica que promova a emancipação intelectual, a cidadania digital e o desenvolvimento sustentável.

Palavras-chave: TIC; Pensamento Complexo; Políticas Educacionais; Angola; Literacia Digital.

Resumen

Este artículo analiza críticamente las políticas de integración de las Tecnologías de la Información y la Comunicación (TIC) en el sistema educativo angolano, a la luz de la Teoría del Pensamiento Complejo de Edgar Morin y de la pedagogía crítica. Basado en un paradigma interpretativo de carácter cualitativo, el estudio utiliza el análisis documental como método principal, considerando instrumentos estratégicos como el Plan de Desarrollo Nacional (2023–2027), el Libro Blanco de las TIC, el Proyecto de Aceleración Digital de Angola (PADA) y programas de inclusión digital como Meu Kamba, ProFuturo, E-Net y Kamba Dyami. Los resultados evidencian la existencia de una paradoja estructural: aunque se observan avances significativos en infraestructura y conectividad, persiste una brecha epistemológica en la integración pedagógica de las TIC, marcada por un enfoque predominantemente tecnocéntrico e instrumental. Las políticas públicas priorizan indicadores cuantitativos de acceso en detrimento del desarrollo del pensamiento crítico, la autonomía cognitiva y la integración del conocimiento. Se concluye que la digitalización educativa en Angola corre el riesgo de limitarse a una “modernización superficial” si no va acompañada de una reforma del pensamiento que valore la complejidad, la contextualización y la formación docente crítica. El estudio propone una reconfiguración de las políticas educativas hacia un uso transformador de la tecnología que promueva la emancipación intelectual, la ciudadanía digital y el desarrollo sostenible.

Palabras clave: TIC; Pensamiento Complejo; Políticas Educativas; Angola; Alfabetización Digital..

Introduction

The integration of Information and Communication Technologies (ICT) into contemporary educational systems is often presented as the kinetic engine for the modernisation of teaching and the improvement of learning quality (Duque et al., 2023). In Angola, this trajectory is guided by the National Development Plan (NDP 2023–2027), the highest hierarchical instrument of the national planning system, which establishes digital transformation as a strategic pillar for economic diversification and the valorisation of human capital.

However, the transition between the political will expressed in the NDP and the pedagogical reality in classrooms is not linear, occurring in a zone of tension where the introduction of devices is not always accompanied by a reform of thought (Costa & Campos, 2023; Bonizário, et al, 2023).

The Angolan scenario reveals significant investment in infrastructure and regulatory frameworks, such as the ICT White Paper and the Angola Digital Acceleration Project (PADA), as well as in technological inclusion programmes (Meu Kamba, ProFuturo, E-Net, Kamba Dyami). However, a critical gap persists: digitalisation has been operationalised under a predominantly instrumental logic, neglecting the impact of these initiatives on the development of reflective skills. This situation raises a central question: to what extent do Angola’s ICT integration policies, although aligned with the State’s macro-structural goals, effectively promote students’ critical and complex thinking, or have they limited themselves to an instrumental dimension of technology use?

The scientific gap that this study aims to fill lies in the scarcity of analyses that articulate Angolan public policies with the epistemological foundations of Edgar Morin’s Theory of Complex Thought.

The objective of this article is to critically analyse educational policies related to ICT in Angola, highlighting the limits of a technocentric vision and the possibilities of an education that transcends technical ‘know-how’ in favour of the emancipation of the subject.

Complex thought and epistemological reform of education: beyond digital fragmentation

The theory of complex thought, systematised by Edgar Morin, proposes a profound and urgent reform of the contemporary educational paradigm. In the current scenario, marked by hyperconnectivity and information saturation, education faces the challenge of overcoming the fragmentation of knowledge, which Morin (2000) calls disjunctive knowledge, in order to promote an intelligence capable of articulating heterogeneous knowledge. For Morin (2003), the ultimate aim of teaching should be the formation of a 'well-formed mind' (*tête bien faite*), a mind apt to organise, contextualise, and apply knowledge in opposition to the mere encyclopaedic accumulation of information.

This perspective requires an epistemological shift that breaks with disciplinary reductionism. According to Morin (2000), 'pertinent knowledge' is that which situates any information in its context and its global whole. This need for contextualisation is reinforced by Selwyn (2021), who warns of the risk that digital technologies may accentuate the fragmentation of knowledge if used merely as tools for quick access, without proper critical mediation. Thus, the reform proposed by Morin is not only pedagogical but civilisational, aiming to form subjects capable of navigating uncertainty and ambiguity in the post-digital age.

This approach converges with and expands Freire's (1987) critique of 'banking education'. If for Freire education must be problem-posing and oriented towards emancipation, in the context of complexity, this emancipation involves the student's cognitive autonomy. As Bengo (2023) argues in recent studies on the Angolan reality, the introduction of ICT in schools only translates into qualitative gains when it stimulates the resolution of real problems through the interdependence of knowledge.

Additionally, the articulation between complexity theory and critical pedagogy finds resonance in the work of Nussbaum (2010), who underlines the importance of the humanities and critical thinking to prevent education from becoming mere technical training for the market. Integrating technology from this perspective means, therefore, transforming the use of the machine into an exercise in the ecology of action, where the student learns to foresee the ethical and social consequences of their actions in a globalised and interconnected world.

Digital education, cyberculture, and network society: complexity in the Angolan context

The emergence of the information and communication society, structured by the centrality of digital networks, has reconfigured the boundaries of knowledge and human interactions. Castells (2003) describes this phenomenon as the 'network society', where the fluidity of information redefines power relations and production. However, applying this concept to the Angolan reality requires careful analysis, for the Angolan network is marked by a profound duality between the exponential growth of mobile access and persistent infrastructural asymmetries, which Barbante (2020) identifies as a process of constant advances and setbacks.

In this scenario, the concept of cyberculture proposed by Lévy (1999), as the set of languages and values of cyberspace, gains new layers of complexity. In Angola, cyberculture does not manifest homogeneously; it is mediated by what Pruihlmann-Vengerfeldt (2019) defines as 'digital capital'. For communities where network access is intermittent and data costs are high, the 'Collective Intelligence' mentioned by Lévy (1994) is often fragmented by economic barriers, resulting in digital participation that, although vibrant, still lacks a consolidated critical literacy base.

Consequently, digital education in Angola cannot be understood merely as the introduction of devices in the classroom. As Selwyn (2021) warns, 'technodeterminism,' that is the belief that technology automatically transforms education, ignores social and pedagogical dynamics. To overcome this 'surface modernisation', digital competence must, according to UNESCO (2018) guidelines and the European Commission's DigComp 2.2 framework (Vuorikari et al., 2022), integrate ethical and social dimensions that allow the Angolan student to be a producer of culture, not just a consumer of exogenous content.

From the perspective of the Epistemologies of the South (Santos, 2006), cyberculture in Angola should serve as a space for affirming local knowledge. The structural paradox lies in the fact that educational policies, such as the NDP 2023-2027, project a digital acceleration necessary for the global market, while the pedagogical base still struggles to break with traditional methods. Therefore, Morin's reform of thought is invoked here to ensure that the network society in Angola is a vehicle for emancipation and not a new mechanism of technological dependence and coloniality of knowledge.

Critical thinking and skills for the 21st century: the articulation between reflection and complexity

Critical thinking is widely recognised as one of the foundational skills of contemporary education, being essential for navigating a saturated information ecosystem (Mieles & Barban-Forte, 2024; Rios et al., 2025). Ennis (1985) defines critical thinking as reflective and reasonable thinking focused on deciding what to believe or do, a conceptualisation that underlines the importance of analysis, evaluation, and informed decision-making. Complementarily, Facione (1990) identifies core skills such as interpretation, analysis, inference, and self-regulation, competencies that become imperative for dealing with the information overload (infoxication) characteristic of the digital age.

However, so that critical thinking is not reduced to a logical technique, it must be articulated with Edgar Morin's complex thought. According to which, 'an education for a well-formed mind that puts an end to disjunction... would give the capacity to respond to the formidable challenges of globality and complexity in daily, social, political, national, and world life.' (Morin, 2003, p.33).

From this perspective, critical digital literacy must transcend the operational mastery of interfaces. According to the DigComp 2.2 framework (Vuorikari et al., 2022), being digitally competent implies the ability to evaluate the credibility of sources and understand the algorithms that shape the perception of reality. In Angola, this need is pressing; the only antidote against surface modernisation consists of ‘encouraging the student to develop 21st-century skills, such as critical thinking, creativity, interaction with people from different cultures, and solving global problems’ (Bengo, 2023, p.75).

The articulation proposed here directly dialogues with Freire’s Pedagogy of Autonomy (1996), in which the development from naive curiosity to epistemological curiosity is the sine qua non condition for the liberation and emancipation of the learner.

Therefore, 21st-century skills, in the context of Angolan educational policies, must be re-founded. It is not enough to train for the technological market; it is necessary to form what Nussbaum (2010) calls the ‘citizen of the world’, capable of using digital tools to promote social justice, intercultural dialogue, and autonomous thought. Critical thinking, through the lens of complexity, ceases to be a data processing tool and becomes the central axis of a cognitive reform necessary for democratic and sovereign survival in the digital age.

Pedagogical integration of ICT and teacher training: the ‘Ecology of Action’ in Angolan school practice

The effectiveness of the integration of Information and Communication Technologies (ICT) in education lies not in the sophistication of the technical artefact, but in the depth of pedagogical mediation. Mishra and Koehler (2006) substantiate this premise through the TPACK model (Technological Pedagogical Content Knowledge), which postulates that effective teaching with technology requires a dynamic intersection of content knowledge, pedagogy, and technology. However, the transposition of this model to the Angolan reality reveals structural challenges: teacher training often remains restricted to the instrumental domain (knowing how to turn on and use software), neglecting the reconstruction of teaching practices (Costa & Campos, 2024).

In this sense, the introduction of ICT without cultural transformation tends to reproduce what Fullan (2013) describes as ‘old teaching methods in new formats’. In Angola, the research by Barbante (2020), Sousa (2021), Duque et al. (2023), and Bengo (2023) corroborates this view, warning that the success of digital inclusion projects in education depends less on the delivery of tablets and more on the creation of communities of practice where the teacher acts as a learning architect.

Additionally, the adaptation of technologies requires attention to sociocultural contextualisation. This need for adaptation is reinforced by Santos’ Epistemologies of the South (2006), suggesting that teacher training in Angola should empower the teacher to be a producer of open educational resources that reflect national identity, rather than merely an executor of externally designed programmes.

In short, the pedagogical integration of ICT, as outlined in the National Development Plan (NDP 2023-2027), will only achieve the desired impact indicators if there is massive investment in continuous and in-service teacher training. Freire’s Pedagogy of Autonomy (1996) postulates that the teacher must feel autonomous and competent to transform the machine into an instrument of liberation.

Methodology

Research design

This research adopts an interpretative, qualitative paradigm, using the document analysis method. According to Cellard (2012), this method allows the extraction of meaning from documents that have not yet received analytical treatment, situating them in their context of production. The study is descriptive-critical in nature, aiming to confront the goals of Angolan public policies with the theoretical frameworks of complexity and critical pedagogy.

Composition of the corpus and selection criteria

The documentary corpus was selected through intentional sampling, prioritising documents of sovereignty and national strategic relevance, as shown in Table 1.

Table 1 systematises the primary sources that constitute the corpus of this research, highlighting the plurality of documents that allow triangulation between the State’s macro-strategic guidelines and operational execution in the education system. The inclusion criteria were:

- (i) temporal validity coinciding with the current political cycle;
- (ii) national coverage; and
- (iii) direct impact on the reform of the non-university education system

Data analysis procedures

Data processing followed the three phases of Bardin’s (1977) thematic content analysis:

1. **Pre-analysis:** floating reading was carried out for the constitution of the corpus and formulation of initial hypotheses;
2. **Exploration of the material:** recording units (sentences or paragraphs) were coded. For example, mentions of technical training or use of devices were mapped to the category of instrumental literacy;
3. **Treatment and inference:** the categories were compared with the theoretical framework (Morin and Freire), allowing the identification of tensions between official discourse and epistemological needs.

Table 1.
Characterisation of the Research Documentary Corpus

DOCUMENT / PROGRAMME	ISSUING ENTITY	YEAR	SCOPE / NATURE	ANALYTICAL OBJECTIVE IN THE STUDY
National Development Plan (NDP 2023-2027)	Presidency of the Republic / MEP	2023	Strategic / National	To analyse the macro vision of development and human capital.
Livro Branco das TIC (2023-2027)	MINTTICS	2023	Sectorial / Political	To identify digital literacy and infrastructure goals.
Projecto de Aceleração Digital de Angola (PADA)	Government of Angola / World Bank	2024	Operational / Technical	To examine the implementation and financing mechanisms of digitalisation.
Project Escola Meu Kamba	Government of Angola	2014	Public Programme	To assess sustainability and the integration of hardware in teaching.
Project ProFuturo	Fundación Telefónica/ Fundación la Caixa	2016	Public-Private Partnership	To analyse models of pedagogical innovation and mobile devices.
Project E-Net	Unitel	2012	Digital Inclusion	To investigate the impact on connectivity and school access.

Source: Own elaboration (2026), based on official documents of the Angolan Executive.

Rigour and ethical criteria

To guarantee the reliability of the analysis, theoretical triangulation was used, where data were validated through multiple lenses (Pedagogy, Sociology, and Philosophy of Technology). As these are public domain documents, submission to an Ethics Committee was waived, while respecting the fidelity of the sources.

Analysis and Discussion of Results

Digitalisation as a modernisation policy: between inclusion and technodeterminism

The analysis of the ICT Livro Branco (2023–2027) and the Education Digitalisation Action Plan (PADA) reveals a deliberate effort by the Angolan State to institutionalise technology as a vector for development. In these documents, digitalisation is presented as a structuring response to the challenges of social exclusion and poverty, projecting broadband expansion and universal connectivity as the foundations of a future smart society. However, this governmental rhetoric prioritises the infrastructural dimension, treating technology as an input that, by itself, possesses the capacity to modernise the national education system.

This political orientation, however, falls into what Selwyn (2011) defines as a technodeterminist view: the belief that the mere introduction of technological artefacts into schools automatically generates improvements in learning quality.

The robustness of this technocentric vision is quantified in the goals of the National Development Plan (2023–2027), which establishes strictly infrastructural indicators as success metrics. The document foresees, for example, increasing the internet penetration rate and expanding the Network of Media Libraries, aiming to achieve numerical targets that, although necessary, confirm the priority given to support over pedagogical substance.

By reducing human capital development to connectivity indicators, the NDP risks promoting what Morin (2000) defines as ‘blind intelligence’: that which knows the data but ignores the context and complexity of the learning process, transforming the school into a mere technical access point.

From the perspective of complex thought, digitalisation cannot be reduced to a matter of hardware or connectivity; it requires an epistemological transformation. Knowledge is not accumulated by the mere addition of information, but by the ability to articulate and contextualise knowledge. A ‘well-formed mind’ must be apt for posing and solving problems, linking knowledge and giving it meaning, rather than simply accumulating it (Morin, 2003).

In the same scenario, the implementation of PADA faces the challenge of the ‘blindness of knowledge’ (Morin, 2000, p.12) when it introduces digital tools in regions where the lack of electricity and low teacher digital literacy are persistent, thus exemplifying the lack of contextualisation, a pillar of complex thought. So that digitalisation is not a foreign body in the system, it must dialogue with local pedagogies and with the need for teacher training that is not merely technical but empowers the teacher to manage uncertainty and articulate global knowledge with the reality of the community (Costa & Campos, 2023).

Ultimately, the tension between the structural advance proposed by public policies and the need for a cognitive reform highlights the greatest challenge for the Angolan educational system: the transition from functional literacy to critical fluency. Digital inclusion, although necessary, is insufficient if not accompanied by a revision of teaching practices and the valorisation of teacher subjectivity.

In this perspective, the ICT Livro Branco itself (2023–2027) establishes that the promotion of child-youth digital literacy should gain prominence in basic education as a priority strategy, a fact that signals an opening to what Morin (2000, p.16) defines as the need to ‘face the uncertainties of knowledge.’

By proposing that the student learn to filter content, act ethically in the digital environment, and solve problems, Angolan policy touches on the idea of a 'cognitive reform' (Angola, 2023). However, for this digital citizenship not to become a theoretical abstraction, it is imperative that the teaching of technology be anchored in solving real problems in the students' environment. Thus, digital collaboration ceases to be merely a technical exercise and becomes a practice of solidarity and articulation of knowledge, essential for building a society that not only consumes but produces contextualised intelligence.

PADA and digital acceleration: inequalities, structural limits, and the complexity of social engagement

The critical appraisal of the Angola Digital Acceleration Project (PADA), specifically through its Stakeholder Engagement Plan (Angola, 2024), reveals what Morin (2000) defines as the paradox of simplification; an attempt is made to solve a problem of high social and educational complexity through a predominantly technocratic and risk-management approach. Although the project presents itself as an engine for administrative modernisation and inclusion, its documentary structure exposes an exhaustive focus on logistical and infrastructural safeguards, to the detriment of a pedagogical foundation that supports the formation of critical subjects.

PADA shows that digitalisation in Angola occurs under the sign of the uncertainty of the real. By identifying vulnerable groups and populations in remote areas as stakeholders, the document implicitly admits the severe asymmetries of connectivity and literacy that fragment the territory. In light of Pierre Lévy's theory (1994), the emergence of collective intelligence presupposes equitable access and active participation in cyberspace. However, what PADA projects is an infrastructure acceleration that, without adequate support from a reform of thought, risks converting digital access into a new form of technical dependence.

A critical point emerges in the analysis of consent norms for customary use communities (World Bank NAS 7). The project requires 'free, prior, and informed consent', but from the perspective of complex thought, one asks: how can there be effectively informed consent if educational policies do not prioritise the critical literacy necessary to understand the civilisational impacts of technology? Morin alerts to the 'blindness of knowledge', and here it manifests itself in the gap between the delivery of the tool and the inability to process it critically. As if that were not enough, the PADA document itself admits that 'digital training is still weak in schools and universities, aggravated by the lack of a pedagogical vision focused on innovation' (Angola, 2024, p.35).

Therefore, the structural limit identified within the scope of PADA lies in the risk of surface digitalisation. While the project is committed to building a digital highway, the pedagogical and critical base necessary for its effective use remains fragmented. Critical analysis shows that the focus on compliance with social engagement norms and technical infrastructure, although essential for international funding, tends to silence the epistemological dimension of the educational process.

In this context, without a strategy that converts technical access into cognitive autonomy, digital acceleration risks deepening technological dependence, instead of promoting the formation of critical and emancipated subjects, as advocated by the objective of this research. Thus, the need arises to replace the traditional educational model with a more critical, reflective, and practical system, starting from primary education, in line with current societal challenges.

Digital literacy: between technical training and the urgency of critical formation

The analytical reading of the ICT Livro Branco (2023–2027) reveals that digital literacy is treated as a priority strategy for the 'Information Society' in Angola, with a strong focus on functional literacy and safe use of the network. The document advocates the gradual introduction of technology into the curriculum and the teaching of responsible digital citizenship. However, in light of complex thought, an epistemological gap emerges: the policy tends to reduce literacy to the technical mastery of the tool, neglecting what Edgar Morin (2000, p.14) calls 'knowledge of knowledge', that is, the reflective capacity of the subject to understand how knowledge itself is produced, organised, and conditioned by contexts, errors, and illusions as an indispensable condition for developing critical autonomy and avoiding an uncritical and instrumental relationship with technologies.

Livro Branco emphasises skills such as the use of creative tools and digitally mediated teamwork. However, when we confront these guidelines with the European Commission's DigComp 2.2 framework – Digital Competence Framework for Citizens (Vuorikari et al., 2022), a model used globally to measure digital literacy and define what it means to be 'digitally competent' today, we realise that full literacy requires not only 'know-how' but also the critical ability to evaluate the reliability of information and the ethical impacts of automation.

While the ICT Livro Branco emphasises mostly strategies 1 and 6 (Angola, 2023, p.74), centred on the basic use of technologies and solving technical problems, DigComp 2.2 offers a broader framework, aligned with what Edgar Morin (2000, p.16) calls 'Education for Understanding'. This is not limited to the acquisition of information, but implies the capacity to contextualise, relate, and critically interpret knowledge, promoting an ethical, reflective understanding oriented towards conscious action in the digital society. In this sense, dimension 1 of DigComp 2.2 (Information Literacy) presents itself as an antidote to the 'blindness of knowledge' pointed out by Morin, by requiring the subject not only to access information but to question, evaluate, and critically contextualise it.

In the Angolan context, the risk of a strictly technical approach is the formation of proficient users, but digitally passive citizens, incapable of discerning the complexity of the information flows that shape their social and economic reality.

This instrumental vision present in the ICT Livro Branco ultimately ignores Freire's fundamental premise: 'to teach is not to transfer knowledge, but to create the possibilities for its own production or construction' (1996, p.21). Without a 'pedagogy of autonomy' applied to the digital, the Angolan educational system risks promoting a new form of

technological 'banking education', in which technologies are used only as means of transmission and reproduction of content, keeping the student in a passive and uncritical position, instead of favouring problematisation, knowledge construction, and the development of intellectual autonomy in the context of the digital society.

In this perspective, the gap identified between 'technical training' and 'critical formation' suggests that the Angolan State still views technology as an end in itself, rather than as a means for the reform of thought. While the official document focuses on online safety and basic literacy, complex thought demands that digital literacy be the engine for the 'linking of knowledge'. Without an education that teaches how to filter, contextualise, and question the architecture of the digital, the acceleration proposed by public policies may result in a modernisation of technique that maintains the archaic nature of disjunctive and fragmented thought.

However, the analysis of this literacy should not be restricted to state guidelines. Initiatives from civil society and the private sector emerge on the national scene, such as Kamba Dyami project, which represent a counter-narrative to external technological dependence. By proposing a social network that privileges Angolan identity and the integration of social services (health, education, and arts) under its own cultural matrix, Kamba Dyami exemplifies the practical application of digital capital and Lévy's collective intelligence (1999). This initiative demonstrates that, beyond the technical literacy foreseen in the ICT Livro Branco, there is a movement in Angola towards an identity-based and sovereign literacy, which dialogues with the Epistemologies of the South (Santos, 2006) by transforming the network into a space for affirmation and not just consumption.

Digital inclusion programmes: democratisation of access vs. formative superficiality

The implementation of ICT policies in Angola has been operationalised through projects such as Meu Kamba, ProFuturo, and E-Net. The analysis of these programmes, supported by studies by Barbante (2020), Sousa (2021), and Bengo (2023), reveals a scenario of significant advances in infrastructure, but also worrying setbacks in sustainability and pedagogical depth.

Meu Kamba project, identified by Barbante (2020) as the most solid due to direct State funding, and ProFuturo, highlighted for its innovation in the use of mobile devices and alternative energies, represent laudable attempts to democratise access in remote areas. However, Bengo (2023) warns that technology has been predominantly seen as a support tool rather than a catalyst for epistemological change. Several studies indicate that in Angolan schools, the presence of ICT does not yet guarantee a qualitative improvement in learning, since teaching practice tends to replicate traditional methods in new digital supports (Barbante, 2020; Sousa, 2021; Cardim et al., 2021; Tchivangulula & Lencastre, 2023; Dos Santos, 2025).

Through the lens of Edgar Morin, this phenomenon illustrates the failure of simplifying thought. By focusing on the delivery of devices, the programmes neglect the Ecology of Action: the uncertainty of how these tools interact with precarious teacher training and lack of technical maintenance. Barbante (2020) laments the discontinuity of these projects in most of the schools covered, which reveals a fragmented view of public planning. Without continuity, there is no room for the consolidation of a digital culture that allows the student to move from instrumental use to critical awareness.

Therefore, the analysis of these programmes confirms the thesis that digital inclusion in Angola suffers from formative superficiality. As Bengo (2023) argues, technology in basic education will only be effective if integrated as a mediating instrument that stimulates the resolution of real problems. So that these projects are not merely 'isolated islands of modernity', it is imperative that they be re-founded on Freire's critical pedagogy (1987) and Morin's complexity (2015), transforming access into autonomy and information into pertinent knowledge.

The structural paradox of Angolan educational policy: between technical acceleration and pedagogical stagnation

The integrated analysis of policies, projects, and official guidelines reveals what can be called the structural paradox of Angolan digitalisation: the greater the institutional effort in infrastructure and connectivity, the greater the gap regarding the pedagogical clarity necessary for the emancipation of the subject. This mismatch is not merely a failure of execution, but a symptom identified as the 'pathology of knowledge': the belief that the accumulation of technical means generates, by itself, the evolution of thought (Japiassu, 1976; Morin, 2003).

This paradox is evidenced by the mismatch between the acceleration goals of the NDP 2023-2027 and the absence of a curriculum reform plan that contemplates uncertainty and complexity. As a result, there is a risk of institutionalising a technological epistemicide, where technique suppresses culture and pedagogical autonomy.

Moreover, the implemented technological programmes (Meu Kamba, E-net, and ProFuturo) feed a technodeterminist vision, focusing on the delivery of technological devices without, however, ensuring formative continuity and systemic sustainability (Barbante, 2020; Sousa, 2021; Bengo, 2023).

The study developed by Cardim et al. (2021) on the ProFuturo programme in Angola confirms this antagonism with field evidence, where data reveal that, although technology increases motivation and reduces absenteeism, it does not automatically translate into cognitive performance gains in literacy and numeracy. This gap between technological enthusiasm and pedagogical effectiveness confirms the urgency of a reform of thought that prioritises critical mediation over mere screen exposure.

When we confront this reality with recent studies by Selwyn (2021) on 'post-digital education', we realise that excessive focus on hardware masks the absence of a 'reform of intelligence'. Selwyn argues that technology in schools often serves to reinforce traditional power structures and teaching methods, rather than challenging them. In Angola, this manifests itself in the use of ICT for content reproduction, maintaining the 'banking education' denounced by

Freire (1987), now mediated by screens. Furthermore, Barbante notes that 'many of these projects are developed unilaterally by the political elite, which, most of the time, does not meet the real needs of the main actors in the teaching and learning process: the students and the teachers' (2020, p. 271).

Postman (1993), in his work 'Technopoly: The Surrender of Culture to Technology', allows us to understand that Angolan educational policy, by following with little criticality the efficiency metrics of the World Bank and PADA, risks dehumanising the educational process. As Nussbaum (2010) reinforces, by privileging technical skills for economic growth, policies neglect the capacity for self-criticism and democratic citizenship. The paradox therefore lies in the fact that the system is preparing system operators for the market, while the complexity of the 21st century requires citizens capable of dealing with uncertainty, ambiguity, and digital ethics.

In light of Morin's Ecology of Action (2000), each technical intervention (such as PADA) triggers a series of unpredictable effects on the ground. Without critical literacy functioning as the digital capital proposed by Prullmann-Vengerfeldt (2019), digitalisation becomes a second-order exclusion factor. The outcome of this analysis confirms Fullan's thesis (2013): technological innovation without pedagogical change results in low transformation. For Angola, the challenge is not just to 'accelerate the digital', but to 'decelerate simplification' and allow complex thought and the pedagogy of autonomy to refound the relationship between the student, the teacher, and the machine.

Final Considerations

- The research allowed us to conclude that the Angolan educational system is at an epistemological crossroads. Although the State has articulated a robust political and financial architecture through the NDP 2023-2027 and PADA, the proposed digitalisation suffers from a technocentric vision. The excessive focus on democratising access and infrastructural modernisation, without the proper reform of thought, tends to convert the school into a space of technical training, distancing it from the ideal of education for autonomy and complexity.
- The confrontation between political will and field data, evidenced by the study by Cardim et al. (2021), reveals that technological enthusiasm does not automatically translate into cognitive gains. This gap confirms the thesis that technology, if isolated from critical pedagogical mediation, reinforces banking education models rather than subverting them. In this context, the main challenge should not reside only in the expansion of technological infrastructure, but in the reconfiguration of pedagogical practices, curricula, and teaching conceptions. The effective integration of ICT requires a systemic approach that articulates technology, pedagogy, and epistemology, in line with the principles of complex thought.
- On the other hand, the emergence of initiatives such as Kamba Dyami project points towards paths for Angolan digital sovereignty, where technique serves the affirmation of cultural identity and the linking of knowledge.

As **main recommendations**, the study suggests:

1. **Revision of PADA:** Inclusion of performance indicators focused on critical literacy and not just internet penetration;
2. **Teacher Training:** Transition from the instrumental training model to communities of practice based on the TPACK model and the Ecology of Action;
3. **Curriculum of Complexity:** Transversal integration of ICT as tools for solving real problems, aligned with the Epistemologies of the South.

Ultimately, it is concluded, therefore, that the transformative potential of ICT in Angolan education remains underexplored, making it necessary to overcome the technicist paradigm and advance towards an education that promotes intellectual autonomy, critical awareness, and the ability to articulate knowledge. Accelerating the digital in Angola will only make sense if it serves to accelerate the human. Technology must cease to be an end in itself and become the means by which the Angolan student thinks, questions, and transforms their social reality.

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