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Conceptualising 'Digital Academic Orphanhood': Marginalised Distance Learners and the Hidden Curriculum of Open and Distance e-Learning (ODeL)

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Abstract. Despite expanded access to technology, many African Open and Distance e-Learning (ODeL) students remain underserved by institutional support structures. Existing frameworks, including digital divide, academic integration, and hidden curriculum theories, do not fully account for learners who are formally enrolled and digitally connected yet remain relationally and culturally excluded from the informal networks essential for academic success. This paper introduces *Digital Academic Orphanhood* as a new conceptual framework addressing this gap. The concept is derived through Walker and Avant's (2019) eight-step systematic concept analysis, enriched by critical postcolonial and Afrocentric analytical lenses, and validated through structured consultation with six African ODeL scholars and practitioners from six countries. The framework proposes three interrelated dimensions: structural orphanhood (the absence of institutional support mechanisms), relational orphanhood (insufficient mentoring and peer networks), and cultural orphanhood (epistemological misalignment). Five defining attributes emerge from inductive analysis of 47 empirical studies: formal inclusion with relational exclusion; absence of academic nurturing; limited tacit institutional knowledge; cultural-epistemological disconnect; and compound vulnerability from intersecting disadvantages. The paper highlights invisible barriers operating through digital environments, including language norms, assumptions of digital fluency, and tensions between Western ODeL designs and communal African learning traditions, and integrates social capital, hidden curriculum, digital divide, and decolonial theories. The framework's originality lies in integrating structural, relational, and cultural dimensions within a postcolonial-Afrocentric orientation specifically focused on digital learning contexts, a combination absent from existing

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constructs. The paper contributes theoretically and practically by guiding inclusive pedagogy, institutional accountability, and diagnostic instrument development, and points toward participatory, longitudinal, and intervention research to advance justice in digital higher education.

Keywords: Digital Academic Orphanhood; Open and Distance e-Learning; educational equity; hidden curriculum; social capital; digital divide; Africa; postcolonial education; relational pedagogy; cultural responsiveness

1. Introduction

Open and Distance e-Learning (ODeL) has often been presented as a democratising force in African higher education, promising to overcome geographical, economic, and social barriers (Bates, 2019; Zawacki-Richter et al., 2019). Yet increased access does not automatically translate into meaningful participation or academic success. Recent research continues to demonstrate that online and distance learners frequently encounter challenges related to persistence, engagement, belonging, and retention despite having formal access to learning opportunities (Rahmani et al., 2024; Bull et al., 2024; Luther & Dixon, 2024).

Existing frameworks, including the digital divide literature (van Dijk, 2020), academic integration models (Tinto, 1993), and hidden curriculum theory (Jackson, 1968), collectively fail to account for a specific condition: learners who are technically connected and formally enrolled yet remain relationally and culturally excluded from the institutional networks that underpin academic success. Emerging evidence from online higher education suggests that students' sense of belonging, social connectedness, and relationship-building opportunities remain significant predictors of engagement, persistence, and performance, even where technological access barriers have largely been addressed (Bull et al., 2024; Dulfer et al., 2024; Luther & Dixon, 2024). This indicates that digital participation alone is insufficient for educational inclusion and that forms of relational exclusion may persist beneath apparently successful access agendas.

To describe the experiences of these learners, the authors introduce the term *Digital Academic Orphanhood*. The concept captures a condition in which students occupy an intermediate position - digitally present and formally enrolled yet informally marginalised from the social capital networks and hidden curriculum of their institution. Unlike existing constructs such as the ‘at-risk student’ label, non-traditional student’ categories, or Strayhorn's (2012) sense of belonging framework, Digital Academic Orphanhood specifies the mechanisms of exclusion rather than merely demographic profiles or outcome probabilities, and it does so with an explicit postcolonial-Afrocentric orientation.

The orphanhood metaphor is chosen deliberately: much as orphaned children may have their material needs met while lacking the developmental relationships that a nurturing family provides, digitally academically orphaned students may access course materials and learning platforms while being deprived of the

relational and cultural scaffolding that enables academic socialisation and identity formation (Tinto, 2017; Kahu & Nelson, 2018). This framing consistently positions Digital Academic Orphanhood as an institutional failure rather than a student deficiency, a distinction maintained throughout the paper.

The paper argues that while existing ODeL models have widened formal access, they frequently overlook the relational and cultural dimensions of learning that are vital for first-generation university students, those from marginalised backgrounds, and learners navigating intergenerational educational transitions. The paper's scope is conceptual: it proposes, elaborates, and validates the Digital Academic Orphanhood framework without claiming to present new empirical data from primary fieldwork. Its contribution lies in synthesising existing scholarships into a new analytical construct that can subsequently inform empirical investigation, instrument development, and institutional practice.

The paper is structured as follows: Section 2 reviews foundational theories; Section 3 describes the methodology; Section 4 defines and elaborates the framework; Sections 5 and 6 discuss structural, relational, cultural dimensions and African ODeL manifestations; Section 7 addresses intersectionality; Section 8 presents theoretical contributions, including a comparison table distinguishing the concept from related constructs; Section 9 outlines institutional responses and a research agenda; and Section 10 addresses limitations.

2. Theoretical Framework and Literature Review

Four theoretical bodies of work converge to provide conceptual scaffolding for Digital Academic Orphanhood. These theories are not treated as parallel, independent discussions but are integrated to build the case for a new concept that none of them, individually or in simple combination, can adequately address.

2.1 The Hidden Curriculum in Higher Education

The concept of hidden curriculum, originally articulated by Jackson (1968) refers to the implicit norms, values, and practices that students must navigate to succeed academically - unwritten rules of academic discourse, institutional navigation, and social networking. In African higher education, the hidden curriculum intersects with colonial legacies, language hierarchies, and institutional cultures in ways that compound the disadvantage of students from non-academic backgrounds (Rossouw & Frick, 2023; Ndlovu-Gatsheni, 2018; Zembylas, 2024).

Recent scholarship further suggests that these inequalities are increasingly reproduced within digital learning environments, where participation requires not only technical access but also familiarity with tacit institutional expectations, online communication norms, and digitally mediated forms of academic engagement (Dulfer et al., 2024; Bull et al., 2024). What the hidden curriculum literature has not yet examined systematically is how these implicit norms operate within digital spaces to create forms of relational and cultural exclusion among students who are formally connected yet insufficiently integrated into the social and academic networks of the institution, a gap that Digital Academic Orphanhood is designed to fill.

2.2 Social Capital Theory and Educational Outcomes

Bourdieu's (1986) conceptualisation of social capital as networks of relationships providing access to resources has been extensively applied to understanding educational inequality. Coleman (1988) extended this framework to show how social capital in the family and community enables educational achievement. Contemporary higher education research continues to conceptualise social capital as resources embedded within students' interactions with faculty, peers, mentors, and institutional agents, with both instrumental support (e.g., academic guidance and access to information) and expressive support (e.g., emotional encouragement and belonging) playing critical roles in student success (Gentry et al., 2024; Fadiji & Eloff, 2024).

What social capital theory, as classically formulated, does not address is the specific mechanism by which digital transformation disrupts capital formation - eliminating the serendipitous campus encounters through which weak-tie and bridging capital are built (Granovetter, 1973). Digital Academic Orphanhood fills this gap by reframing social capital deficits in digital contexts as institutional failures requiring structural response.

2.3 Digital Divide and Educational Inequality

The digital divide literature has evolved from binary access/non-access framings toward multi-level frameworks (van Dijk, 2020). Van Deursen and van Dijk (2019) distinguish between first level (physical access), second level (digital skills), and third level (meaningful benefit) inequalities. In African contexts, digital inequalities intersect with broader social stratification to create compound disadvantages (Czerniewicz et al., 2020, Kpum & Gasa, 2026). However, digital divided frameworks remain primarily technical in orientation and give limited attention to how online environments unsettle the relational processes that support academic success. Digital Academic Orphanhood advances beyond third-level inequality by identifying the specific relational and cultural mechanisms through which unequal outcomes persist even when students possess devices and basic digital competencies.

2.4 Afrocentric Epistemologies and Indigenous Knowledge

Afrocentric epistemologies emphasise communalism and holistic approaches to knowledge that contrast with individualistic Western educational models (Asante, 2003; Shizha, 2013; Letseka, 2013). Recent scholarship continues to reinforce this orientation by arguing that African higher education is increasingly shaped by Indigenous knowledge systems, relational ethics, and decolonial humanism that foreground community, reciprocity, and epistemic justice as foundational principles of knowing (Ndofirepi & Ndofirepi, 2025; Ntsele, 2025; Ncube, 2025).

Ubuntu philosophy - the principle that 'I am because we are' - challenges individualistic notions of academic achievement and highlights communal dimensions of learning frequently overlooked in digital educational designs (Metz, 2011). Indigenous knowledge systems across Africa prioritise experiential

learning, oral traditions, and intergenerational knowledge transfer - modalities sidelined in formal ODeL platforms (Dei, 2014; Gasa & Kpum, 2026). The prevailing design of ODeL systems fails to accommodate these culturally rooted learning approaches, creating the cultural dimension of orphanhood that neither hidden curriculum nor digital divide theories address. Digital Academic Orphanhood incorporates this postcolonial-Afrocentric critique as a constitutive dimension rather than an addendum.

2.5 Identifying the Conceptual Gap

Taken together, these four theoretical bodies are necessary but insufficient. Social capital theory explains why relationships matter but not how digital environments specifically undermine them. Hidden curriculum scholarship identifies implicit institutional norms but has not systematically examined their digital operation. Digital divided frameworks address access and skills inequalities but not relational exclusion. Afrocentric scholarship challenges epistemological assumptions but has not yet been integrated into a comprehensive framework for digital learning environments. Digital Academic Orphanhood responds to this fourfold insufficiency by placing relational and cultural dimensions of exclusion alongside structural-technological factors, situating the result within a postcolonial-Afrocentric orientation. The concept is also analytically distinct from intersectionality (Crenshaw, 1989) and community cultural wealth (Yosso, 2005), which expose structural inequalities but do not address the specific condition of learners who appear formally included in digital systems while remaining relationally and culturally excluded.

3. Methodology

3.1 Methodological Approach

This paper employs critical conceptual analysis grounded in postcolonial and Afrocentric theoretical traditions. Critical conceptual analysis explicitly engages with power relations, historical context, and social justice concerns, going beyond neutral description (Risjord, 2009). The methodology integrates Walker and Avant's (2019) eight-step systematic framework with critical and postcolonial analytical lenses (Ndlovu-Gatsheni, 2018; Smith, 2012) to ensure both conceptual rigour and cultural responsiveness.

Walker and Avant's (2019) eight steps were applied as follows: (1) selecting the concept of Digital Academic Orphanhood; (2) determining the aims of analysis, namely to produce a theoretically grounded and empirically usable construct; (3) identifying uses of similar concepts across distance education, social capital, and hidden curriculum literature; (4) determining defining attributes through inductive thematic analysis of 47 empirical studies; (5) constructing model, borderline, and contrary cases; (6) identifying antecedents, including structural digital inequalities and colonial educational legacies; (7) identifying consequences, including academic attrition, isolation, and imposter syndrome; and (8) defining empirical referents to guide future measurement.

3.2 Literature Identification and Selection

The databases ERIC, Education Source, JSTOR, Web of Science, Scopus, ProQuest, AJOL, and Sabinet were selected because together they provide coverage of mainstream educational research literature, African and open-access scholarship (AJOL, Sabinet), and interdisciplinary social science content relevant to postcolonial and digital inequality perspectives. Search terms combined distance education terminology ('ODeL', 'online learning', 'e-learning'), marginalisation terminology ('exclusion', 'digital divide', 'hidden curriculum'), and African/postcolonial concepts ('decoloni*', 'indigenous knowledge', 'social capital').

Inclusion criteria: peer-reviewed sources from 2000 to 2025, plus seminal earlier works regardless of date, in higher or distance education contexts engaging digital inequality, student marginalisation, or African education.

Exclusion criteria: grey literature without scholarly peer review (unless representing institutional primary data), sources outside higher or continuing education contexts, and sources not engaging any of the four theoretical domains. An initial pool of 847 records was screened to 284 full-text sources; backward and forward citation tracking yielded 93 additional sources. Iterative inductive-deductive coding against criteria of conceptual relevance produced 156 core sources, of which 47 empirical studies describing ODeL student experiences informed the attribute derivation process directly.

Table 1: summarizes the literature selection process.

Stage	Process	Criteria Applied	Records
Initial Search	8 databases searched using combined search terms	Peer-reviewed, 2000–2025 + seminal earlier works	847
Full-text Screening	Title and abstract screening; full-text review	HE/ODeL context; engages digital inequality or African education	284
Citation Tracking	Backward and forward citation tracing	Conceptual relevance; extends theoretical coverage	+93
Core Sources	Iterative inductive-deductive coding; analytical memo-writing	Conceptual relevance to framework dimensions	156
Attribute Studies	Inductive thematic analysis of empirical ODeL student experience studies	Empirical; African ODeL context; addresses marginalisation	47

Attribute derivation proceeded through three coding cycles applied to the 47 empirical studies. In the first cycle, inductive open coding identified recurring descriptors of student experience in ODeL contexts, generating 214 initial codes. In the second cycle, axial coding grouped these into thematic clusters. In the third cycle, selective coding refined and consolidated the clusters against the criterion

of conceptual distinctiveness, yielding five defining attributes: (1) formal inclusion with relational exclusion; (2) absence of academic nurturing; (3) limited access to tacit institutional knowledge and hidden curriculum norms; (4) cultural-epistemological disconnect; and (5) compound vulnerability arising from intersecting disadvantages. These attributes were tested against model, borderline, and contrary cases to clarify conceptual boundaries**.** The orphanhood metaphor emerged through reflective engagement with empirical descriptions of abandonment, lack of guidance, and absence of academic 'family.' It was tested against four criteria: relational accuracy, institutional accountability, cultural resonance, and risk of deficit reproduction. The risk of deficit framing was directly discussed with expert validators, and mitigation strategies were incorporated into the final framework, as detailed below.

3.3 Expert Validation

The framework was validated through a structured three-hour workshop conducted on Microsoft Teams with six African ODeL scholars and practitioners affiliated with the University of South Africa, representing South Africa, Kenya, Nigeria, Cameroon, Zimbabwe, and Namibia. Disciplines represented included inclusive education, sociology, educational technology, African studies, distance education, and curriculum studies. Participants received the full framework document two weeks in advance and submitted individual written reflections before the session.

Workshop procedures comprised four sequential activities: (1) a ten-minute individual written response to a structured prompt asking participants to rate conceptual clarity (on a five-point scale) and identify any gaps or inaccuracies; (2) a forty-five-minute open discussion of the three dimensions and five attributes; (3) a thirty-minute focused discussion on the orphanhood metaphor's cultural appropriateness and deficit-framing risks; and (4) a thirty-minute synthesis in which participants suggested concrete amendments.

Validation outcomes: five of six participants rated the concept 'clear' or 'very clear'. All six affirmed its empirical resonance with student experiences they had encountered in their practice. All six confirmed the cultural appropriateness of the orphanhood metaphor, while recommending that institutional applications emphasise student strengths and that recognition of community-based support systems be incorporated. Critical feedback included three recurring suggestions: strengthening the link between the framework and specific ODeL design decisions; enhancing discussion of student resilience and agency; and developing diagnostic tools for institutional use.

All three suggestions were integrated into the revised framework. Specifically, Section 9.2 now provides design-linked recommendations; Section 4.3 now addresses agency and resilience more explicitly; and Section 9.3 outlines a diagnostic instrument development agenda.

4. Conceptualising Digital Academic Orphanhood

4.1 Definition and Core Dimensions

4.1.1 Digital Academic Orphanhood refers to the condition experienced by students in ODeL environments who, despite formal enrolment and technical access to learning platforms, are systematically excluded from the social, cultural, and relational networks constituting the informal curriculum of higher education. This exclusion is characterised by the absence of academic nurturing relationships, limited access to tacit institutional knowledge, and disconnection from peer communities providing emotional and academic support.

The concept encompasses three interrelated dimensions. Structural orphanhood: refers to the absence of institutional mechanisms facilitating academic integration and support. Relational orphanhood: describes the lack of meaningful connections with faculty, peers, and institutional agents who typically serve as academic guides and advocates. Cultural orphanhood**:** captures disconnection from institutional culture and the implicit norms governing academic success. These three dimensions produce five defining attributes: (1) formal inclusion with relational exclusion; (2) absence of academic nurturing; (3) limited access to tacit institutional knowledge and hidden curriculum norms; (4) cultural-epistemological disconnect; and (5) compound vulnerability from intersecting disadvantages. The observable indicators detailed in Section 4.2 are the empirical referents through which these attributes can be identified in practice.

Unlike traditional conceptualisations of educational disadvantage, Digital Academic Orphanhood emphasises the relational and cultural dimensions of exclusion that persist even when basic access barriers are removed. This is the critical distinction from 'digital divide' frameworks: the problem is not the absence of technology but the absence of the human and cultural relationships through which technology-mediated learning becomes meaningful.

Figure 1 presents a visual conceptual model of the framework, showing the three dimensions, their relationship to the five defining attributes, and the mediating role of the hidden curriculum of digital spaces.

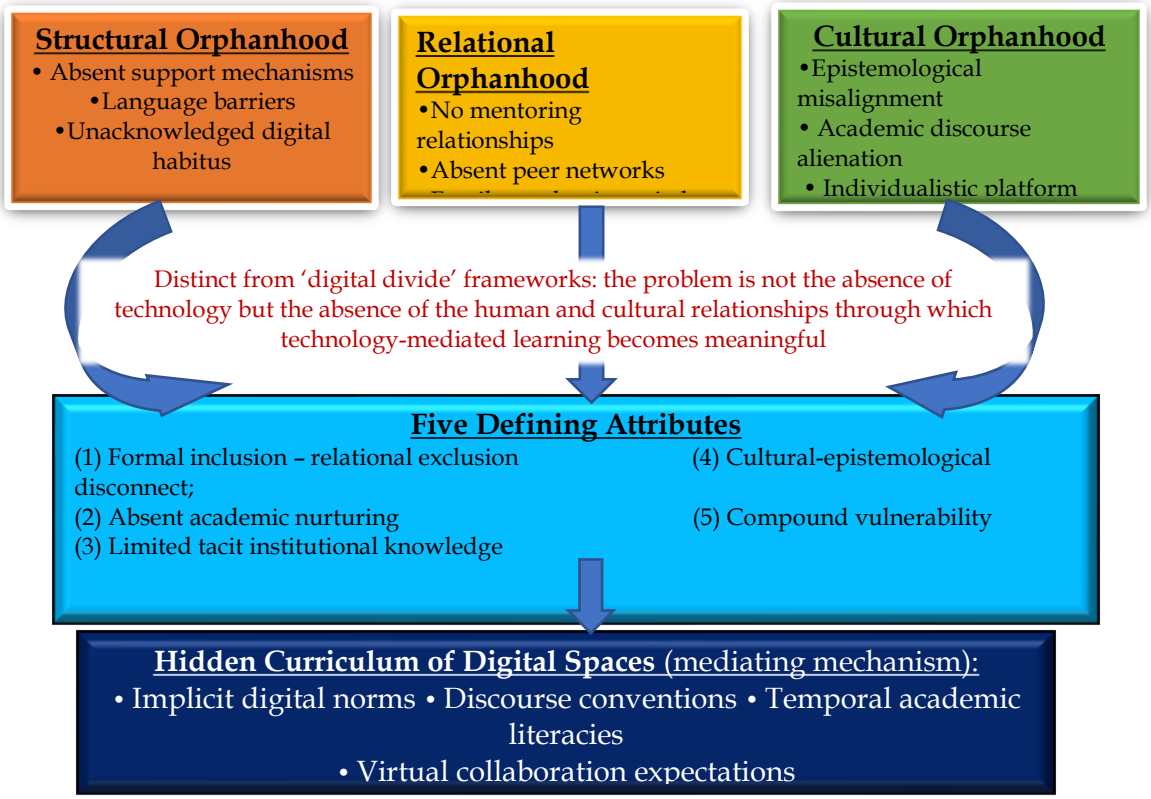

Figure 1: Conceptual model of Digital Academic Orphanhood

4.2 Characteristics and Observable Indicators

Students experiencing Digital Academic Orphanhood typically exhibit characteristic patterns across four domains. Academically: inconsistent engagement with course materials, difficulty navigating institutional procedures, and limited understanding of implicit academic conventions. Socially: isolation from peer networks and absence from informal study groups. Emotionally: academic anxiety, imposter syndrome, and internalisation of systemic struggles as personal failures. Institutionally: limited knowledge of available support services, unclear understanding of academic policies, and restricted access to informal institutional information channels.

Table 2: provides a summary of observable indicators across the three dimensions, forming the basis for future diagnostic instrument development

Structural Indicators	Relational Indicators	Cultural Indicators
Superficial or inconsistent platform engagement	Absence from peer learning networks	Difficulty interpreting academic discourse
Confusion about assessment expectations	Low help-seeking behaviour	Limited awareness of academic opportunities
Low utilisation of student support services	Feelings of isolation and non-belonging	Cultural discomfort with individualistic platform design

4.3 The Orphanhood Metaphor: Justification and Risks

The orphanhood metaphor is theoretically productive for several reasons. It captures the profound absence of nurturing relationships; it highlights institutional responsibility for providing alternative support structures analogous to social welfare responses; and it illuminates the developmental and temporal dimensions of marginalisation — not merely lacking resources but missing cumulative experiences that shape academic identity and capability over time. The metaphor also carries acknowledged risks.

First, naming complex experiences risks reifying them: the concept must therefore be treated as an analytical tool requiring continual empirical refinement. Second, there is a real danger of deficit framing. Students experiencing Digital Academic Orphanhood are not passive victims; many develop creative navigation strategies despite systemic barriers. Expert validators were explicit on this point, and the framework addresses it by consistently framing Digital Academic Orphanhood as an institutional failure, never as a student deficiency, and by requiring that institutional interventions emphasise capability-building and student strengths. Third, the metaphor may be interpreted differently across diverse African cultural contexts; practitioners should adapt applications with cultural sensitivity. These risks were discussed explicitly during the validation workshop and are reflected in the framework's foundational principles.

5. Structural, Relational, and Cultural Dimensions

5.1 Structural Dimensions

Contemporary ODeL systems are frequently designed with assumptions about student characteristics, capabilities, and support systems that may not align with the realities of marginalised learners (Manase, 2025; Mpungose, 2025; Teane, 2024). These design assumptions include expectations of digital fluency, autonomous learning capabilities, and access to quiet study spaces - assumptions that may not hold for first-generation university students or those from resource-constrained environments. Language of instruction represents a particularly significant structural barrier in African ODeL contexts, where many students navigate academic content in languages that are not their mother tongues (Makalela, 2015; Mgqwashu, 2016). In digital environments, linguistic challenges are compounded by the predominance of text-based communication and the absence of non-verbal cues that might facilitate understanding.

Subtler forms of digital inequality also shape student experiences in ODeL environments (Ragnedda & Muschert, 2018). Students often rely on mobile devices and intermittent connectivity, significantly impacting their ability to engage with multimedia content and complete complex assignments. The concept of digital habits helps explain how early experiences with technology shape students' comfort and competence in digital academic environments (Ignatow & Robinson, 2017): students who have primarily used technology for social purposes may lack the digital academic literacies necessary for effective engagement with learning management systems.

5.2 Relational Dimensions

Academic mentoring relationships serve crucial functions, providing guidance, emotional support, and advocacy (Hill et al., 2022). ODeL environments present unique challenges for mentoring due to limited opportunities for informal interaction and the predominantly transactional nature of student-faculty contact (Kumar et al., 2019). For students experiencing Digital Academic Orphanhood, the absence of mentoring is particularly damaging because they often lack alternative sources of academic guidance in their personal networks. Peer relationships serve multiple functions — emotional support, academic collaboration, and social learning about institutional norms (Parmar et al., 2025) but their formation in ODeL requires intentional effort and cultural familiarity with digital communication norms (Palloff & Pratt, 2013).

The concept of community cultural wealth (Yosso, 2005) offers an alternative framework for understanding resources that marginalised students bring to higher education; however, ODeL environments are typically not designed to recognise or build upon these forms of capital, constituting a structural failure with relational consequences.

5.3 Cultural Dimensions

The dominance of Western epistemologies in higher education curricula creates particular challenges for students whose cultural backgrounds emphasise alternative ways of knowing (Dei, 2014). In ODeL environments, epistemological misalignment is exacerbated by the predominance of text-based learning and individual assessment, which may conflict with cultural preferences for oral tradition, collaborative knowledge construction, and community-based evaluation (Moosa, 2022). Academic discourse — a specialised form of communication with distinct conventions and power relations — can be alienating for students unfamiliar with its norms (Gee, 2015). Without supportive relationships to guide acquisition of academic discourse, students may experience Digital Academic Orphanhood as linguistic exclusion.

6. Manifestations of Digital Academic Orphanhood in African ODeL

6.1 Rural-Urban Digital Divides and Intergenerational Transitions

The persistence of rural-urban inequalities in digital infrastructure creates particular vulnerabilities for students from rural communities (Ndung'u & Signé, 2020). Rural students face compound disadvantages, including limited connectivity, unreliable electricity, and distance from technical support services. Many students in African ODeL programmes represent the first generation in their families to access higher education, creating unique challenges related to family understanding and support (Letseka & Maile, 2008).

These intergenerational transitions can intensify Digital Academic Orphanhood when students lack family guidance about higher education navigation. Empirical evidence from South African ODeL contexts demonstrates that first-generation students frequently report that their families, though supportive in principle, lack the knowledge to assist with academic decision-making, registration procedures,

or assessment preparation - thereby reinforcing the structural and relational dimensions of orphanhood simultaneously (Czerniewicz et al., 2020).

6.2 The Hidden Curriculum in Digital Spaces

Success in ODeL environments requires mastery of digital academic literacies extending far beyond basic computer skills to encompass understanding of online academic discourse, digital collaboration norms, and platform-specific navigation strategies (Gourlay & Oliver, 2018). The tacit knowledge required for effective ODeL participation - knowing when and how to seek help, recognising implicit deadlines, and navigating the social dynamics of online academic communities constitutes a specifically digital hidden curriculum that is rarely taught explicitly. Students from digitally disadvantaged backgrounds must acquire this tacit knowledge without the informal modelling, peer explanation, or immediate clarification available in campus-based settings, creating a compounded hiddenness that is a defining feature of structural and relational orphanhood.

6.3 Assessment, Pedagogy, and Support Services

Assessment practices in ODeL often assume familiarity with academic conventions that students experiencing Digital Academic Orphanhood have not developed (Gikandi et al., 2011). The predominance of written assessments disadvantages students whose cultural backgrounds emphasise oral communication and collective knowledge demonstration (Owuor, 2007). Feedback mechanisms in ODeL are often limited to written comments, missing the contextual feedback that facilitates learning in face-to-face environments (Evans, 2013).

Traditional student support services face significant adaptation challenges in ODeL contexts, often losing their relational qualities when delivered primarily through digital channels (Simpson, 2013). Institutional early warning systems in ODeL typically focus on quantifiable indicators such as login frequency and assignment submission rates, missing the more subtle indicators of Digital Academic Orphanhood — including superficial engagement, social isolation, and cultural disconnection — that may predict academic difficulty long before it becomes visible in formal metrics (Sclater et al., 2016).

7. Intersectionality and Compound Marginalisation

Intersectionality functions within the Digital Academic Orphanhood framework as an amplifying contextual condition: it does not constitute a fourth dimension alongside structural, relational, and cultural orphanhood, but intensifies the experience of all three dimensions for students who face multiple simultaneous disadvantages. Gender, socio-economic status, disability, and geographic location each intersect with Digital Academic Orphanhood in distinct ways.

Female students in many African contexts face additional challenges related to cultural expectations about domestic responsibilities, making it difficult to establish boundaries around study time and space (Butcher & Rose-Adams, 2015). Digital safety concerns also affect female students' participation in online spaces (Henry & Powell, 2018). Students from low-income backgrounds may have access

to basic digital devices while lacking high-quality connectivity, and the hidden costs of ODeL participation, including data expenses, device maintenance, and printing requirements create ongoing financial stress that compounds all three dimensions of orphanhood (Robinson et al., 2015). Students with disabilities represent a particularly vulnerable population: poorly designed ODeL platforms can create new barriers, and lack of disability awareness among faculty in digital contexts can exacerbate relational and structural orphanhood simultaneously (Capp, 2017; Manase, 2025). The intersectional dimension therefore requires institutions to adopt differentiated responses to Digital Academic Orphanhood rather than universalised interventions, since the specific combination of dimensions experienced by each student is shaped by their particular intersectional position.

8. Theoretical Contributions

8.1 Extending Social Capital Theory to Digital Contexts

Digital Academic Orphanhood extends social capital theory (Bourdieu, 1986; Coleman, 1988; Putnam, 2000) by clarifying how digital transformation disrupts the mechanisms through which capital is formed and mobilised. Technology-mediated environments eliminate the serendipitous encounters enabling weak-tie and bridging capital formation essential for academic mobility (Granovetter, 1973). The framework reframes social capital deficits as institutional failures, highlighting institutions' responsibility to create alternative capital-building structures in digital environments.

8.2 Integrating Hidden Curriculum with Digital Learning

Digital Academic Orphanhood bridges hidden curriculum scholarship (Jackson, 1968; Giroux & Penna, 1979) and distance education studies by mapping the digital hidden curriculum - identifying implicit rules governing online discourse, navigation expectations, and virtual relationship codes revealing that hiddenness is compounded in digital settings where students cannot rely on observational modelling or immediate clarification, and showing that the digital hidden curriculum reproduces Western assumptions that conflict with communal, oral, relational African knowledge systems.

8.3 Advancing Digital Inequality Theory

The framework advances digital inequality theory by shifting beyond access and skills to emphasise relational and cultural dimensions. It elucidates third-level inequality mechanisms, explaining how unequal outcomes persist even when students possess devices and skills and introduces the notion of digital cultural capital (Ignatow & Robinson, 2017) as a culturally specific competency reflecting dominant group norms rather than neutral expertise. The framework challenges techno-optimistic assumptions that digital learning naturally expands opportunity by demonstrating how digital platforms reproduce social inequalities despite appearing egalitarian.

8.4 Decolonising Distance Education Theory

Digital Academic Orphanhood positions itself as a decolonial intervention within Western-dominated distance education scholarship. The framework explicitly centres African epistemologies, including Ubuntu and indigenous knowledge

traditions, thereby challenging the presumed universality of Western frameworks (Nakata, 2007; Ndlovu-Gatsheni, 2018). It exposes colonial continuities within ODeL by demonstrating how language policies, assessment practices, and epistemic orientations marginalise non-Western knowledge forms (Mbembe, 2016). The framework proposes culturally responsive alternatives rooted in African worldviews rather than retrofitting cultural considerations onto Western pedagogical structures.

8.5 Reconceptualising Educational Inclusion

Digital Academic Orphanhood shifts inclusion from access-based metrics to relational, cultural, and emotional dimensions of participation. It distinguishes between formal inclusion - enrolment and technological access and meaningful inclusion characterised by relational integration and cultural belonging. This broadens equity discourse from distributive justice to relational justice (Noddings, 2012), emphasising the right to humanising and supportive relationships. The framework strengthens institutional accountability and foregrounds intersectional vulnerability in digital contexts.

8.6 Analytical Distinctiveness: Comparison with Related Constructs

Table 3: Presents a systematic comparison of Digital Academic Orphanhood with six related constructs, clarifying its analytical distinctiveness

Construct	Primary Focus	Key Limitation	Overlap with DAOh	How DAOh Extends It
Digital Divide (van Dijk, 2020)	Access and skills inequalities	Misses relational/cultural exclusion persisting beyond access	Addresses first- and second-level inequality	Adds relational and cultural dimensions; specific to digital academic contexts
Academic Integration (Tinto, 1993)	Social and academic integration in campus settings	Assimilationist assumptions; campus-based model	Recognises social belonging as key to retention	Adds postcolonial critique; applies to digital ODeL settings
Sense of Belonging (Strayhorn, 2012)	Psychological experience of belonging	Focuses on experience, not structural conditions preventing belonging	Emotional dimension of orphanhood	Addresses structural and cultural conditions, not just psychological experience
At-Risk Student Label	Outcome probability	Deficit framing; demographic rather than mechanism-focused	Identifies vulnerable populations	Specifies exclusion mechanisms; frames as institutional failure
Hidden Curriculum	Implicit institutional norms in	Not applied systematically to	Tacit knowledge	Extends to digital contexts; integrates

(Jackson, 1968)	physical settings	digital learning spaces	dimension of orphanhood	postcolonial critique
Culturally Sustaining Pedagogy (Paris & Alim, 2017)	Pedagogical approaches honouring student culture	Pedagogy-focused; does not address structures and systems	Cultural dimension of orphanhood	Encompasses structures, policies, and systems beyond pedagogy

9. Addressing Digital Academic Orphanhood: Institutional Responses and Future Research

9.1 Foundational Principles for Institutional Response

Institutional responses to Digital Academic Orphanhood should be guided by four principles. First, structural orientation: efforts must address the institutional policies and practices creating marginalising conditions rather than locating problems within students. Second, proactive relationship-building: institutions must deliberately facilitate academic community formation from the outset of digital programmes, since spontaneous interaction is limited in ODeL environments. Third, cultural responsiveness: all design decisions must recognise diverse epistemologies and learning traditions. Fourth, intersectional awareness: interventions must be differentiated to address how gender, socio-economic status, disability, language, and geography compound vulnerability.

9.2 Reimagining Student Support and Culturally Responsive Design

Addressing structural orphanhood requires redesigning platform interfaces for low-bandwidth, mobile-first access; providing explicit instruction in the hidden curriculum of digital academic spaces (navigation norms, help-seeking protocols, temporal academic rhythms); and establishing early-alert systems that identify subtle engagement indicators - not only login frequency but patterns of social isolation and cultural disconnection. Addressing relational orphanhood requires instituting peer mentoring programmes pairing new students with successful senior students who share relevant socio-cultural backgrounds (Leidenfrost et al., 2011); structuring student-faculty interactions to include synchronous voice-based channels rather than exclusively asynchronous text; and training faculty in the relational dimensions of online teaching.

Addressing cultural orphanhood requires incorporating indigenous languages and epistemologies into platform design and pedagogical practices from inception (Gunawardena, 2020); offering flexible, multiple assessment formats that include oral and collaborative options alongside written individual tasks; and developing community-based learning activities that reflect Ubuntu principles of collective knowledge construction. Technology selection should prioritise intuitive, low-bandwidth interfaces accessible to students across diverse device types.

9.3 Research Agenda

Understanding Digital Academic Orphanhood requires methodological approaches capturing relational and experiential dimensions of student marginalisation that traditional quantitative engagement metrics overlook. Mixed-methods research combining statistical analysis with qualitative

exploration, particularly participatory approaches positioning students as co-researchers, is essential. Longitudinal studies are necessary to trace how Digital Academic Orphanhood evolves and to identify critical intervention moments.

A priority for future empirical work is developing validated measurement instruments specifically tailored to Digital Academic Orphanhood. Such instruments should assess social integration, cultural congruence, institutional knowledge, and access to supportive academic relationships. They must be developed using culturally responsive and indigenous research methodologies to avoid reproducing the biases that underlie the condition being measured. Rigorously designed quasi-experimental and experimental studies are needed to establish causal links between specific institutional interventions and reductions in Digital Academic Orphanhood across its three dimensions. Programme evaluations must attend carefully to unintended consequences, including potential stigmatisation of students identified through diagnostic tools.

10. Limitations and Critical Considerations

First, naming a complex phenomenon risk reifying fluid, heterogeneous experiences. Digital Academic Orphanhood must be treated as an analytical and heuristic tool subject to continual empirical refinement rather than a fixed diagnostic category.

Second, despite efforts to centre African epistemologies, the framework inevitably draws on dominant Western social theories - particularly Bourdieu and Coleman — which may inadvertently reinforce the epistemological hegemony the framework seeks to challenge. This limitation underscores the need for more fully developed Afrocentric theoretical alternatives and should be addressed explicitly in future participatory conceptual work with African student communities.

Third, the orphanhood metaphor carries substantial risks of deficit framing. Students experiencing Digital Academic Orphanhood are not passive recipients of systemic failure; many demonstrate considerable resilience, creative navigation, and community-based ingenuity in the face of institutional barriers. Institutional applications of the concept must rigorously emphasise student strengths, existing community support systems, and capability-building rather than deficit remediation. The risk that identifying students as ‘academically orphaned’ may generate stigmatising expectations or lower institutional ambitions for these students is real and must be actively counteracted through the empowerment framing built into the framework's foundational principles.

Fourth, while validation feedback from African scholars across six countries indicates broad continental resonance, the framework's applicability beyond African ODeL contexts, where the postcolonial-Afrocentric epistemological dynamic has different characteristics, remains uncertain and requires empirical investigation.

Fifth, the primary empirical evidence for the framework is drawn from existing published studies rather than new primary fieldwork. This is consistent with the

conceptual nature of the paper but means that the framework requires dedicated empirical validation through future studies employing the measurement instruments and participatory methodologies outlined in Section 9.3.

11. Conclusion

Digital Academic Orphanhood offers a critical conceptual lens for examining forms of marginalisation in ODeL systems that existing frameworks cannot adequately capture. Its core contribution is to identify a specific condition - formal inclusion combined with relational, structural, and cultural exclusion, and to theorise it through a postcolonial-Afrocentric orientation that existing digital divide, hidden curriculum, academic integration, and belonging frameworks do not provide. Through the integration of these four bodies of theory and adding a decolonial epistemological dimension, the framework provides a more complete account of why expanded digital access has not consistently produced equitable educational outcomes for African distance learners.

The emphasis on the hidden curriculum of digital spaces reveals how seemingly neutral technological and pedagogical choices perpetuate exclusion for students who lack the cultural capital and social connections assumed by institutional designs. The framework calls for institutional responses - structured around addressing structural, relational, and cultural orphanhood specifically that move beyond access metrics toward a genuinely relational, cultural, and epistemologically inclusive model of ODeL provision. As African higher education systems continue to embrace digital transformation, the challenge lies in translating this conceptual understanding into concrete institutional practices that create genuine belonging and opportunity for every learner in digital learning environments.

Conflict of Interest

The authors declare that there is no conflict of interest.

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