Open Christian Press

Open Journal of Transformative Education & Lifelong Learning
OJ-TELL | ISSN 3105-305X | Open access

RESEARCH ARTICLE Volume 2 | Issue 3 | 2026 | Article 181 DOI: 10.65655/ocp.ojtell.181

Beyond the monograph: A quality assurance framework for PhD by publication and PhD by published work in African higher education

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RECEIVED	REVISED	ACCEPTED	PUBLISHED
14 September 2024	05 November 2026	05 November 2026	08 November 2026

ABSTRACT

Publication-based doctoral formats are expanding internationally, but their terminology, eligibility, authorship, synthesis and examination rules remain heterogeneous. This creates a governance problem for African systems seeking to expand doctoral capacity without weakening the doctorate. Through comparative analysis of 11 current regulatory and institutional sources and a bounded scholarly evidence map of 30 core records from 43 unique screened records, this study develops an evidence-informed quality-assurance architecture for PhD by Publication and PhD by Published Work. The evidence-map flow uses PRISMA-ScR-informed reporting without claiming an exhaustive database scoping review. Cross-case analysis identifies four models: prospective publication-based doctorates, retrospective published-work doctorates, publication-inclusive hybrid theses, and higher doctorates by works. Across procedural variation, credible systems converge on original contribution, coherent synthesis, auditable candidate contribution, research integrity, researcher formation and independent whole-portfolio examination. The article therefore advances equivalence without uniformity and proposes the African Publication-Based Doctoral Quality Assurance Framework (APD-QAF), organised around four gates: pathway legitimacy and eligibility, portfolio integrity and candidate ownership, integrative scholarship and researcher formation, and independent equivalent examination. The framework separates invariant doctoral outcomes from context-sensitive implementation. For African regulators and universities, including Rwanda as its postgraduate research framework develops, publication counts, journal status and prior peer review cannot substitute for evidence of an integrated, original and independently examinable doctoral contribution.

Keywords: doctoral education; PhD by publication; PhD by published work; quality assurance; doctoral equivalence; African higher education; research integrity

HOW TO CITE Sangwa, S., & Mutabazi, P. (2026). Beyond the monograph: A quality assurance framework for PhD by publication and PhD by published work in African higher education. Open Journal of Transformative Education & Lifelong Learning, 2(3), Article 181. https://doi.org/10.65655/ocp.ojtell.181

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1. Introduction

The doctorate is simultaneously a qualification, a research apprenticeship, an examination of intellectual independence, and a public claim that a candidate has made an original contribution to knowledge. The conventional monograph has historically bundled these functions into one extended document. Publication-based formats unbundle them: parts of the research may first appear as journal articles, chapters, creative outputs, or other peer-reviewed works, while a synthesis or framing text demonstrates how the pieces constitute a doctoral contribution. That change in evidentiary architecture can improve dissemination and scholarly socialisation, but it also creates difficult questions about coherence, authorship, publication incentives, examination and equivalence (Solli & Nygaard, 2023; Mason et al., 2025a, 2025b; Merga, 2025).

The terminology is deceptively simple. “Thesis by publication,” “article-based thesis,” “publication-based thesis,” “PhD by publication,” and “PhD by published work” are used differently across jurisdictions. In some systems, papers are produced during candidature and embedded within a unified thesis. In others, a mature researcher submits a substantial body of work published before registration, accompanied by a critical synthesis. Elsewhere, universities permit publications within a conventional thesis but explicitly reject a stand-alone “thesis by publication.” These are not merely semantic differences. They determine what counts as candidature, what supervision is expected, whose work can be submitted, how originality is attributed, and what the examination is required to establish (Badley, 2009; Peacock, 2017; Mason et al., 2025b).

The issue is particularly consequential in Africa. Higher education systems face simultaneous pressure to expand doctoral production, improve completion, strengthen research capacity and increase publication visibility while preserving international credibility. Recent evidence documents persistent constraints in supervision, infrastructure, financing, institutional support and doctoral progression (Omoya et al., 2025; Botha et al., 2025; Ogunlana & Govender, 2025; Ogada et al., 2026). Publication-based routes may support earlier dissemination and scholarly development, but they may also intensify inequities where candidates lack strong supervision, journal literacy, research funding or access to credible publication channels.

This tension creates the central problem: how can African systems diversify doctoral formats without reducing the doctorate to publication accumulation? Existing scholarship richly describes candidate experience, supervision and institutional variation, while recent reviews still call for stronger meso- and macro-level analysis of how thesis format relates to doctoral education and knowledge production (Solli & Nygaard, 2023). The unresolved policy task is therefore to identify which requirements are essential to doctoral equivalence and which may legitimately vary across disciplines and systems.

The study therefore asks five related questions: (1) How are PhD by Publication and PhD by Published Work conceptualised and regulated across selected African and international systems? (2) What quality assurance principles, requirements and safeguards recur, and where do systems legitimately differ? (3) What risks arise around eligibility, portfolio construction, coherence, originality, authorship, research integrity, supervision and examination? (4) What do these findings imply for African higher education, including Rwanda? and (5) What context-sensitive framework can preserve equivalent doctoral standards without imposing unnecessary uniformity?

The article advances the principle of equivalence without uniformity. Its central theoretical claim is that doctorateness is an invariant construct, whereas thesis format is an evidence architecture through which that construct is demonstrated. The contribution is fourfold: a taxonomy of publication-based doctoral models; comparative documentary evidence on recurrent safeguards and legitimate variation; a construct-equivalence account that separates doctoral outcomes from submission format; and the African Publication-Based Doctoral Quality Assurance Framework (APD-QAF) for regulators and universities. This framing shifts the policy question from how many publications constitute a doctorate to what evidence permits a defensible doctoral-level judgement.

2. Conceptualising Publication-Based Doctorates

The literature does not support a single universal definition of the publication-based doctorate. Earlier

accounts already noted that institutional rules vary regarding numbers of papers, authorship, status of publication and the role of a unifying narrative (Robins & Kanowski, 2008; Nethsinghe & Southcott, 2015; Peacock, 2017). More recent international comparisons demonstrate that the variation is structural rather than incidental (Mason et al., 2025a, 2025b). A useful analytical approach is therefore to classify routes by the temporal relationship between publication and candidature, the legal status of the route, and the function of the integrating text.

Four models emerge. The first is the **prospective publication-based doctorate**, in which a candidate enters a doctoral programme and produces papers during registration. The papers become substantive thesis chapters but remain embedded in a doctoral project with framing, methodological and integrative material. The second is the **retrospective published-work doctorate**, in which a substantial body of work predating registration is presented as evidence for the award, normally with a critical covering document or synthesis. The third is the **hybrid publication-inclusive thesis**, where publications may be incorporated into a conventional doctoral thesis, but the institution does not recognise a distinct route by publication. The fourth is the **higher doctorate by works**, such as some DPhil, DSc or DLitt awards, which may recognise an established scholarly corpus and may have eligibility conditions materially different from a first PhD. Conflating the fourth model with an alternative route to the first doctorate is especially risky.

These distinctions are summarised in Supplementary Table S4.1. The same term can describe different regulatory objects. Permitting published chapters generated during candidature does not automatically permit an established academic to aggregate prior publications into a new PhD. Retrospective routes therefore raise different questions of admissions, supervision, ethics, attribution and examination.

The conceptual distinction also clarifies why paper counts are an inadequate definition of a publication doctorate. A collection of four or five articles may represent one coherent research programme, several unrelated projects, or largely collaborative work in which the candidate’s contribution is modest. The doctoral question is not how many papers exist but what the portfolio, synthesis and examination together demonstrate. Merga (2025) similarly treats planning, authorship, cohesion and publication strategy as interdependent components rather than an arithmetic checklist. Adesemowo (2023) goes further by showing that methodological integration itself can be a central problem when multiple studies, methods and papers are assembled into a doctoral whole.

3. Conceptual Lens: Doctoral Construct Equivalence and Research Integrity

Quality assurance requires a distinction among **doctoral format**, **doctoral process**, **doctoral outputs**, and **doctoral standards**. Format concerns the architecture of the submission: monograph, papers plus synthesis, portfolio, or hybrid. Process concerns candidature, supervision, training, ethics, milestone review and researcher development. Outputs are the observable products, including articles, chapters, datasets, creative works and the integrative text. Standards are the threshold claims that justify the award: original contribution, command of the field, appropriate methodology, intellectual independence, coherence, integrity and capacity to communicate and defend the research. Confusion arises when a format or output is treated as if it were the standard itself.

This distinction supports equivalence without uniformity through four propositions. Construct invariance requires originality, coherence, methodological competence, intellectual independence, contribution, integrity and examinability to remain stable across routes. Evidentiary pluralism permits different architectures when they adequately evidence those outcomes. Inferential sufficiency requires assessment to support a defensible judgement about the candidate's own contribution rather than journal prestige. Governance proportionality requires safeguards to address route-specific risks such as prior-work eligibility, co-authorship, publication pressure and integration. Kenya's Level 10 descriptor (D7) illustrates how doctoral outcomes can be specified independently of one document type, while examiner research shows that published papers do not displace judgement of the thesis as a whole (Sharmini et al., 2015; Mason & Solli, 2025; Kobayashi & Emmeche, 2023).

Peer review and doctoral examination perform different epistemic functions. Journal reviewers judge a manuscript against a journal’s scope and

article-level standards, often without seeing the full research programme or knowing the candidate's contribution to collaborative work. Doctoral examiners judge the cumulative scholarly contribution and, depending on the system, the candidate's intellectual ownership, methodological reflexivity and capacity to defend the work. Publication can therefore be strong corroborating evidence, but it cannot logically substitute for doctoral examination. A prestigious journal may publish a narrow but excellent paper that does not demonstrate the coherence or breadth expected of a doctorate; conversely, locally important research may make a strong doctoral contribution even when the most appropriate outlet lacks a high commercial metric.

Research integrity further complicates publication-oriented regulation. Authorship is an especially important fault line because co-authorship practices vary greatly by discipline. Empirical evidence from medical PhDs shows that authorship criteria and ordering can be contested even in mature research systems (Helgesson et al., 2023). Publication pressure can also encourage ghost authorship, honorary authorship, paper mills and other gaming behaviours (Albertyn, 2025). Paper mills have become sufficiently consequential to require explicit institutional controls rather than reliance on journal peer review alone (Parker et al., 2024; Byrne et al., 2024; Cardenuto et al., 2024). A publication-based doctorate therefore needs auditable contribution declarations, outlet due diligence, data provenance, ethics documentation and procedures for handling retractions or post-publication concerns.

Generative AI adds a newer layer. Doctoral researchers report extensive use of GenAI for exploration, drafting, revision and publication-related tasks, alongside uncertainty about disclosure, plagiarism boundaries and appropriate reliance (Hoomanfard & Shamsi, 2025; Wu et al., 2026). Critical AI literacy and explicit institutional expectations are thus preferable to blanket assumptions that either all AI use is misconduct or that disclosure alone resolves intellectual-ownership questions (Ou et al., 2024; Yusuf et al., 2024; Pratiwi, 2025). In a publication-based doctorate, the policy question is not whether tools were used, but whether the submitted work remains attributable, verifiable, methodologically transparent and demonstrably the candidate's scholarly achievement.

4. Methodology

4.1 Design

The study used comparative documentary analysis integrated with a bounded structured evidence map because the questions concern both scholarship on publication-based doctorates and their regulatory operationalisation. The scholarly and regulatory corpora were extracted separately and integrated at interpretation. PRISMA-ScR was used only to report identification and screening transparently because the extension applies to evidence maps; the study does not claim an exhaustive scoping or systematic review (Tricco et al., 2018).

4.2 Scholarly search and screening

The bounded scholarly search was conducted on 14 September 2026 using public scholarly search interfaces, publisher and DOI records, ERIC-indexed records where available, and citation tracing from recent cross-national and scoping studies. Five query families covered publication-based doctoral terminology; policy, assessment and equivalence; African doctoral education; integrity and publication incentives; and generative AI in doctoral writing and publication. Exact strings and captured-record counts are in Supplementary File S2. English-language work from 2000 to 14 September 2026 was eligible, with older works retained only when repeatedly identified as foundational. Because public search systems do not provide stable result sets or reliable total-hit estimates, the flow counts deliberately captured records rather than estimated search hits; the search is therefore bounded and auditable, not exhaustive.

Records were eligible if they addressed at least one of the following: publication-based doctoral formats; doctoral examination, authorship or coherence in such formats; African doctoral quality or supervision directly relevant to implementation capacity; or research-integrity risks specifically material to publication-based candidature. Peer-reviewed journal articles and scholarly books were prioritised. Non-scholarly commentary, purely technical AI studies, general postgraduate advice, and items whose connection to doctoral pathway governance was remote were excluded. Duplicate manifestations of the same work across publisher pages, repositories and indexes were collapsed before screening.

The search captured 52 records; nine duplicate manifestations were removed. Forty-three unique

records entered title/abstract screening, eight were excluded, 35 received detailed assessment, and five were excluded as insufficiently route-specific or duplicative of stronger evidence. Thirty records formed the core evidence map. Figure 1 reports the flow and Supplementary File S1 records each screening decision. The article also cites targeted contextual sources on adjacent issues such as paper mills, generative AI, thesis assessment and publication practice, plus the PRISMA-ScR reporting guideline. These are outside the bounded map and do not alter its counts or support prevalence estimates.

4.3 Regulatory and policy corpus

A separate purposive corpus of 11 authoritative documents maximised analytical variation rather than geographic representativeness. African cases captured an emerging national policy context (Rwanda); prospective publication-based candidature (UNISA and Stellenbosch); a published-work/higher-doctorate comparator (University of Ghana); a compilation-of-papers route (Makerere); an outcome-based national descriptor (Kenya); and continental comparability (ACQF). Warwick, Monash and Otago were selected as international benchmarks because their current regulations clearly distinguish published-work, publication-inclusive or hybrid models. Supplementary File S3 identifies each source and analytic role; institutional documents were never treated as national policy.

4.4 Data extraction and analysis

A structured matrix captured 35 potential dimensions from each applicable document, including terminology, eligibility, publication timing, publication status, outlet criteria, candidate contribution, co-authorship, coherence, synthesis, methodological integration, originality, ethics, text recycling, AI, copyright, supervision, examination, externality of examiners, oral defence and quality monitoring. The matrix was iteratively reduced into seven higher-order themes: route identity and eligibility; temporal relationship between publication and candidature; portfolio and outlet requirements; authorship and contribution; integrative scholarship; supervision and formation; and examination/integrity safeguards.

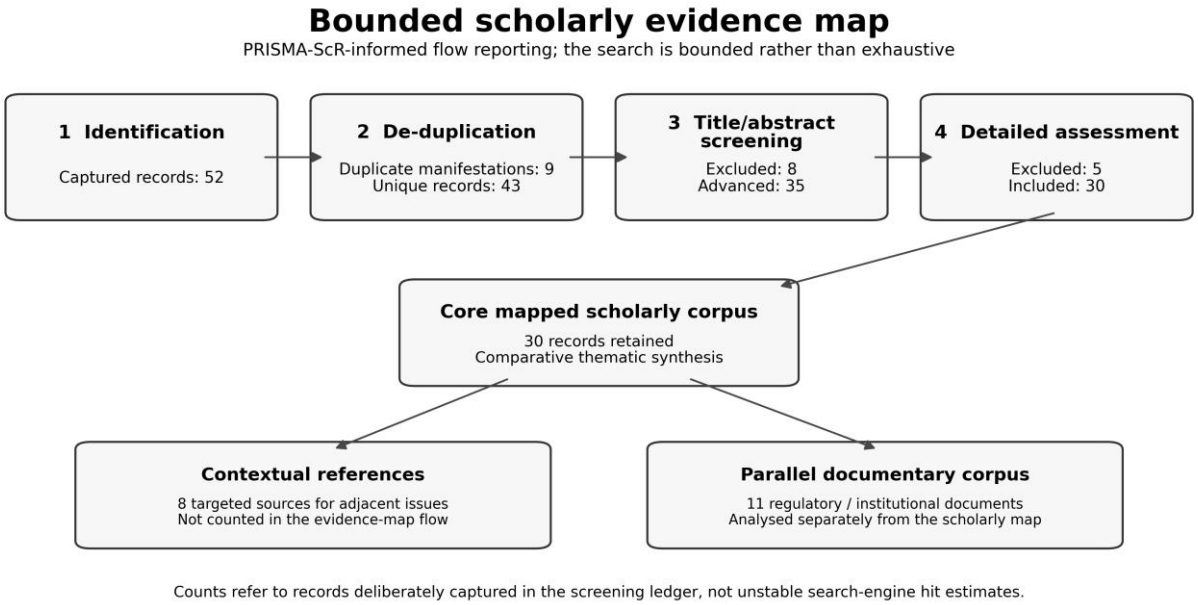
Analysis proceeded in three passes. First, each system was coded descriptively without forcing local terminology into a common template. Second, cross-case comparison identified convergences, meaningful differences and negative cases that resisted simple harmonisation. Third, recurrent quality principles were separated into non-negotiable doctoral outcomes and context-dependent implementation choices. The APD-QAF was derived from this third pass by translating recurrent safeguards into sequential quality gates and cross-cutting controls. The approach is interpretive rather than statistical; frequencies are used only when they illuminate the bounded corpus and are not presented as prevalence estimates for African higher education.

4.5 Trustworthiness, ethics and limitations of the evidence process

Credibility was strengthened through source-role separation and hierarchy: peer-reviewed literature supported scholarly claims; official regulators and universities supported current policy claims; consultative material was labelled; and cross-case conclusions were not inferred from a single institution. Policy claims are traceable to D1-D11 in Supplementary File S3. A formal risk-of-bias score was inappropriate for the heterogeneous, non-effect-estimation corpus; evidence was instead assessed for source authority, direct relevance, currency and triangulation, while route-specific contradictions were retained. Supplementary logs preserve search and screening decisions. No human participants, private records or identifiable personal data were used, so human-participant ethics approval and consent were not applicable.

Supplementary File S3 identifies the complete primary documentary corpus, source URLs and analytic roles. Supplementary File S4 preserves the model distinctions and the risk-to-safeguard mapping used in framework development.

Figure 1. PRISMA-ScR-informed flow of the bounded scholarly evidence map



Note. Counts refer to records captured in the screening ledger. The purposive regulatory corpus is outside the evidence-map flow; contextual citations outside the bounded map are distinguished in Section 4.2.

5. Findings

5.1 Four models, not one publication doctorate

The comparative evidence confirms that 'publication-based doctorate' is an umbrella rather than a single route. UNISA (D3) represents a prospective model: the publication option is discussed from initial registration, several peer-reviewed publications are assembled within introduction, discussion and conclusion chapters, and the work must contribute to a unified theme. Stellenbosch (D4) similarly treats PhD by publication as a planned doctoral format and explicitly connects proposal design to integration, authorship, ethics and research integrity. In contrast, Warwick's PhD by Published Work (D8) is explicitly retrospective: the submitted works must have been published before registration and are accompanied by a 5,000-10,000-word covering document explaining their interrelationship and significance. University of Ghana's DPhil route (D5) likewise requires an established corpus on a coherent theme plus a synthesis paper and imposes experience-based eligibility conditions.

Monash (D9) illustrates a third model. 'Thesis Including Published Works' is not a different degree but a thesis format using work produced during enrolment. Otago (D10) is explicit that it does not offer a formal portfolio-only thesis-by-publication route while still permitting a coherent hybrid thesis incorporating published material. Makerere (D6) permits monograph, stand-alone-paper chapters, and a compilation of published or accepted papers within doctoral thesis policy. These differences are summarised in Table 1. The policy implication is immediate: a regulator cannot responsibly authorise 'PhD by Publication' without first specifying which regulatory object is being authorised.

5.2 Timing and eligibility are constitutive quality rules

When the work is produced is not administrative trivia. Prospective routes place publications within candidature and therefore within institutional supervision, ethics oversight, milestone review and researcher development. Retrospective routes assess a body of prior scholarship and therefore require stronger eligibility rules, evidence of sustained contribution, and a synthesis capable of demonstrating a coherent research programme. Warwick's prior-publication rule (D8) and Ghana's experience conditions (D5) are examples of safeguards against converting ordinary candidature into retrospective credentialing. By contrast, Monash (D9) and UNISA (D3) expect route planning during enrolment.

This distinction also guards against double counting. A candidate should not be able to recycle a corpus already used substantially for another doctoral award, nor should an institution award a first doctorate merely because a mature scholar has accumulated enough papers. Published-work routes require explicit policies on prior use of works, publication age, current significance and the

candidate's continuing intellectual ownership. These issues are more important than an arbitrary minimum paper number.

5.3 Coherence and integrative scholarship are the central doctoral work

Across scholarship and policy, coherence is the most consistent safeguard. UNISA (D3) requires a unified research theme; Warwick (D8) requires a covering document explaining the interrelationship and contribution of the works; Monash (D9) requires sustained theme, framing and integrative discussion; and Otago (D10) requires an integrated and coherent body of work even when publications are incorporated. The literature reaches the same conclusion. Examiners can recognise publication-inclusive theses as legitimate while still judging the thesis as a whole, including integration, contribution and doctoral-level argument (Sharmini et al., 2015; Mason & Solli, 2025).

The synthesis therefore cannot be treated as a clerical introduction to previously published papers. It has to perform intellectual work that journal articles ordinarily cannot: articulate the overarching problem; situate the programme in a wider literature; explain methodological relationships across studies; reconcile changes in concepts or methods; make explicit the cumulative original contribution; identify limitations and contradictions; and show how the research programme developed. Adesemowo (2023) demonstrates why this becomes especially demanding in multimethod portfolios. A strong publication route may therefore require more explicit integration than a monograph, not less.

5.4 Publication counts and prestige metrics are insufficient proxies

Requirements for paper number and publication status vary substantially across institutions and disciplines. Makerere's current handbook (D6) gives numerical guidance for its compilation route - at least four to five papers, with a combination of published and accepted papers - while also requiring the submission to be comparable in substance, significance and student contribution to a conventional thesis. Monash's central guidance (D9), by contrast, does not prescribe one institution-wide paper number and leaves disciplinary expectations within the broader requirement for a coherent, examinable thesis. This heterogeneity is consistent with cross-national evidence showing variation in whether papers must be submitted, accepted or published and in how output requirements are specified (Mason et al., 2025b).

A universal formula such as "five Scopus papers equals a PhD" is therefore indefensible. It confuses an output indicator with a qualification standard and creates perverse incentives. Candidates may split one coherent study into minimal papers, seek weak journals that promise rapid acceptance, add inappropriate co-authors, or prioritise internationally indexed topics over locally consequential scholarship. Publication metrics can inform due diligence, especially when detecting questionable outlets, but they cannot establish coherence, originality or candidate-level intellectual contribution. Quality should be judged from the whole portfolio and its examination, with outlet standing treated as contextual evidence rather than the decisive test.

5.5 Candidate contribution must be auditable

Publication-based routes expose a problem that a sole-authored monograph can partly hide: doctoral work is often collaborative. Monash (D9) requires explicit declarations of the nature and proportion of candidate and co-author contributions; Ghana (D5) requires joint-work contribution to be stated; and Stellenbosch's current guidance (D4) addresses authorship and research-integrity expectations. These controls align with empirical evidence that authorship conventions can be misused or misunderstood in doctoral publications (Helgesson et al., 2023; Albertyn, 2025).

The appropriate safeguard is not a universal first-author rule. In large-team sciences, contribution may be substantial without conventional first authorship, while in humanities sole authorship may be a stronger norm. The invariant is auditable intellectual ownership. Institutions should require a contribution statement for every co-authored work, signed or otherwise verifiable against a recognised taxonomy; the statement should identify conceptualisation, design, data generation, analysis, writing and accountability. Examiners must be able to determine which parts of the cumulative contribution are properly attributable to the candidate.

5.6 Supervision and formation cannot disappear behind publication

Publication does not eliminate the formative purpose of doctoral education. Prospective publication routes require supervisors who can manage both doctoral development and journal-facing publication processes. Earlier work described the "juggling act" of maintaining thesis coherence while meeting article timelines (Nethsinghe & Southcott, 2015). More recent evidence similarly shows that publication-based supervision requires trust, responsibility, quality judgement and integrity (Sammon et al., 2024). Institutional support is also uneven: candidates may receive formal approval for the route without consistent practical guidance throughout candidature (Mason et al., 2021).

This matters acutely in Africa, where doctoral systems already face supervisory and resource constraints (Omoya et al., 2025; Botha et al., 2025; Agolla & Seeletso, 2025). Structured researcher development may strengthen methods, scholarly community and transferable capabilities even in research-intensive doctorates (McKenna et al., 2025). A publication route should therefore not become a mechanism for reducing supervision or outsourcing quality assurance to journals. Institutions need capacity criteria before authorising the route at programme level.

5.7 Examination remains independent of journal acceptance

The comparative corpus consistently preserves an independent doctoral judgement. Warwick (D8) requires external examiners and an oral examination for its published-work route. Ghana (D5) requires the submitted corpus to be of a standard not below the PhD and subjects it to formal examination. Monash (D9) explicitly places the ultimate judgement of thesis quality with examiners even when component papers have been published. The international examiner study by Mason and Solli (2025) similarly shows that examiners approach publication-inclusive theses as theses, not as packages already validated by journals.

This leads to a non-negotiable rule: journal peer review may be evidence of scholarly scrutiny, but it cannot be delegated the legal or academic function of doctoral examination. Examiners must assess the complete portfolio, synthesis and candidate contribution against the institution's doctoral outcomes. Where an oral defence is part of the system, it can be especially valuable for testing intellectual ownership across collaborative publications and probing how the candidate integrates the work.

5.8 Integrity safeguards must extend beyond plagiarism checking

Publication-based doctorates are vulnerable to integrity risks produced by the publication economy itself. Paper mills, authorship sales, manipulated data, predatory outlets and strategic fragmentation of studies are not reliably detected by text-similarity software (Parker et al., 2024; Byrne et al., 2024; Cardenuto et al., 2024). Research-integrity formation must therefore extend from citation and plagiarism to data provenance, authorship accountability, image/data manipulation, duplicate publication, text recycling and conflicts of interest (Krásničan et al., 2024).

Generative AI reinforces the need for process transparency. Recent doctoral studies show widespread use of AI-assisted writing alongside uncertainty about legitimate boundaries and disclosure (Hoomanfard & Shamsi, 2025; Wu et al., 2026). A defensible policy should require disclosure proportionate to the use, protect confidential data, prohibit fabricated evidence and undisclosed substitution of scholarly judgement, and preserve the candidate's capacity to explain and defend every substantive claim. AI policy belongs inside doctoral integrity governance, not as an isolated technological appendix.

Table 1. Comparative quality-assurance characteristics of selected publication-based doctoral systems

System / route	Publication timing	Coherence / synthesis	Authorship / contribution	Examination / equivalence
UNISA: PhD by Publication (D3)	During candidature; planned from registration	Unified theme with introduction, discussion and conclusion	Route criteria plus authorship controls	University doctoral examination
Stellenbosch: PhD by publication (D4)	Prospectively planned	Proposal explains rationale and paper integration	Authorship/contribution and integrity expectations	Integrated submission under doctoral examination rules
University of Ghana: DPhil by published works (D5)	Established prior corpus; experience-based eligibility	Coherent theme plus synthesis cover paper	Joint-work contribution stated; sole-authored work weighted strongly	Standard not below PhD; formal corpus/synthesis examination
Makerere: compilation of papers (D6)	Published/accepted papers in doctoral submission	Comparable substance and significance to conventional thesis	Comparable student contribution required	At least 4-5 refereed papers; published/accepted-status guidance
Warwick: PhD by Published Work (D8)	Core works pre-date registration	5,000-10,000-word covering document integrates works	Own corpus; collaborative contribution declared	Independent external examination and oral examination
Monash: Thesis Including Published Works (D9)	Works produced during enrolment may be included	Cohesive theme with substantial framing/integration	Detailed contribution declarations	Examiners determine thesis quality
Otago: publication-inclusive hybrid (D10)	Publications arise from degree research	Integrated coherent thesis with framing and synthesis	Contribution/permissions governed by thesis rules	No portfolio-only route; conventional doctoral examination

Note. Documentary identifiers D3-D10 correspond to Supplementary File S3. The table summarises route-defining provisions relevant to this analysis and is not a substitute for each institution's complete regulations.

6. Discussion: Equivalence Without Uniformity

The findings resolve an apparent contradiction in the publication-doctorate debate. Publication-based routes can be genuinely equivalent to the monograph, but equivalence is not produced by copying the monograph's structure or replacing it with publication counts. Equivalence is an inferential claim: the institution must be able to infer the same doctoral construct from a different evidence architecture. The practical test is therefore whether the portfolio, synthesis, candidature process and examination jointly provide sufficient evidence of the invariant doctoral outcomes identified above.

The first implication is conceptual. Publication is an evidence architecture, not a doctoral standard. The standard lies in originality, coherence, methodological competence, intellectual independence, contribution, integrity and examinability. Policies may therefore legitimately differ on paper numbers, publication status, synthesis length or disciplinary output form, provided those choices do not weaken construct coverage, candidate attribution or the defensibility of the final examination judgement. This is why equivalence without uniformity is stricter than procedural sameness: it permits variation only where the evidentiary chain to doctoral outcomes remains intact.

The integrative text is not residual material after the "real" publications. It is where doctoral-level synthesis often becomes most visible. Responding to calls for stronger attention to the relationship between thesis format, doctoral education and knowledge production (Solli & Nygaard, 2023), the present comparison shows that synthesis turns separately publishable studies into an examinable research programme. Policy should therefore specify the intellectual functions of synthesis, not merely its word count.

Third, publication routes do not necessarily accelerate completion or productivity. They may generate career-relevant outputs and earlier dissemination, but journal review introduces timelines beyond candidate and university control and can narrow research toward what available outlets will publish. Schachtebeck (2025) reports perceived advantages, whereas Shamsi and Osam (2022) show the burdens created by 'publish or no degree' environments, particularly for doctoral writers using an additional language. Journal acceptance should therefore not become a rigid completion bottleneck unless the institution can justify and support it.

Fourth, African context changes the calculus. Publication-based doctorates are most defensible when publication serves knowledge dissemination

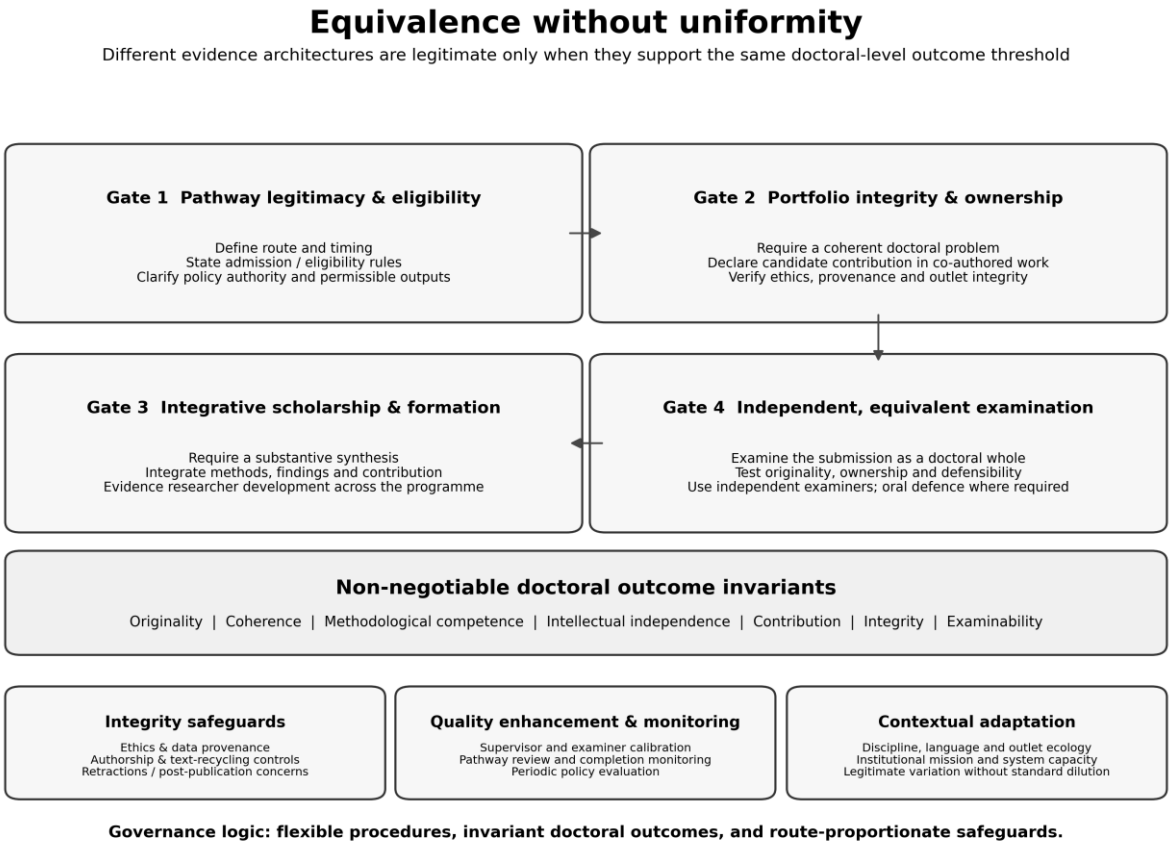
and scholarly capacity-building rather than an imported metric regime. Evidence from Nigeria, southern Africa and the Kenya-Ethiopia-Rwanda comparison shows that resources, supervision, psychosocial support and policy conditions shape progression in ways thesis format cannot overcome (Ogunlana & Govender, 2025; Luneta et al., 2023; Ogada et al., 2026). Institutions without stable supervision, research-integrity systems, journal literacy or independent examiners should not assume that adopting the format will produce equivalent quality.

Finally, continental comparability strengthens the case for outcomes-based regulation. The African Continental Qualifications Framework (D11) is explicitly designed to enhance transparency, comparability and mutual trust across qualification systems, while Kenya's Level 10 descriptors (D7) emphasise original contribution, intellectual independence and external examination against international standards. These outcome formulations are compatible with multiple thesis architectures. They also suggest the appropriate level of harmonisation: Africa does not need one mandatory publication count, but it does need shared confidence that a doctorate awarded through any route demonstrates a recognisably doctoral threshold.

7. African Publication-Based Doctoral Quality Assurance Framework (APD-QAF)

Figure 2 presents the APD-QAF. The framework translates the conceptual propositions and comparative findings into four sequential quality gates surrounded by cross-cutting integrity, monitoring and contextual adaptation. Its purpose is not to prescribe a continent-wide thesis format, but to identify what regulators and universities must be able to evidence before a publication-based doctorate can support a defensible claim of doctoral equivalence.

Figure 2. African Publication-Based Doctoral Quality Assurance Framework (APD-QAF)



Note. The framework distinguishes non-negotiable doctoral outcome invariants from context-dependent implementation choices and route-proportionate safeguards.

Gate 1: Pathway legitimacy and eligibility. The institution must define the route unambiguously. Policies should state whether publications are expected before or during candidature, whether the route is a thesis format or a distinct award route, whether transfer between routes is permitted, and

what prior work can be used. Retrospective routes require explicit safeguards on prior qualifications, age and continuing significance of the works, prior use for other awards, and eligibility. Prospective routes require approval early enough for supervision, ethics and publication planning to be meaningful.

Gate 2: Portfolio integrity and candidate ownership. The portfolio must make a substantial contribution to a coherent doctoral problem. Institutions should specify admissible output types without assuming that journals are the only legitimate research form. Every co-authored output should carry a contribution declaration; every outlet should undergo due diligence for credible peer review and publication practice; retractions, expressions of concern and material corrections should trigger review. Metrics may inform, but not determine, admissibility.

Gate 3: Integrative scholarship and researcher formation. The candidate must produce a synthesis that explains the research programme as a whole, not merely summarise papers. It should integrate theory, literature, methodology, findings, contradictions, limitations and cumulative contribution. Prospective candidates should complete appropriate researcher development, including research ethics, integrity, methods, scholarly communication and responsible AI use. Supervisory arrangements must be capable of supporting both the research and the publication architecture.

Gate 4: Independent and equivalent examination. The entire doctoral submission must be examined against the same doctoral outcomes applied to other routes. Prior journal review must not exempt the portfolio from scrutiny. Examiners should receive contribution declarations and the governing route criteria; at least one examiner should be demonstrably independent of the candidate's publication network. Where the system uses a viva or oral defence, questions should explicitly test integration, intellectual ownership and methodological decisions across the portfolio.

Three cross-cutting mechanisms support the gates. First, **integrity safeguards** address ethics approvals, data provenance, authorship, text recycling, duplicate publication, conflicts of interest, paper mills, predatory outlets, copyright and AI disclosure. Second, **quality enhancement** requires supervisor capacity, milestone monitoring, examiner calibration, periodic pathway review, and analysis of completion and equity outcomes. Third, **contextual adaptation** permits variation by discipline, language, output form and institutional mission. The framework's central discipline is therefore simple: flexible procedures, invariant doctoral outcomes.

8. Implications for African Higher Education and Rwanda

For national regulators, the first task is to regulate outcomes before counting outputs. A national standard should define doctoral-level originality, independence, coherence, methodological competence, integrity and external examinability, then require each provider to show how its route evidences those outcomes. Regulators can set minimum governance conditions for publication-based doctorates without dictating an identical paper count across disciplines. Accreditation should examine supervisor capacity, research ethics systems, library and publication support, examiner independence, route-specific handbooks and mechanisms for authorship verification.

For university senates and graduate schools, the route should be approved institutionally rather than negotiated informally candidate by candidate. A route handbook should define eligible formats, admission/transfer rules, contribution declarations, outlet due diligence, synthesis expectations, AI/integrity requirements, examination procedures, and contingencies for rejected or retracted papers. Candidates must know from the outset whether publication status is a graduation condition and how journal delays are handled.

For supervisors, the route changes workload rather than reducing it. Supervisors must help candidates maintain coherence across papers, negotiate authorship before submission, choose credible outlets, manage reviewer-driven changes that may pull papers away from the thesis argument, and preserve methodological continuity. Institutions should therefore recognise publication-based supervision in workload and professional development. Doctoral candidates, in turn, should be trained to understand that publishing a paper and satisfying a doctorate are related but distinct achievements.

Rwanda presents a timely policy window. In July 2026, the Higher Education Council publicly presented strategic frameworks that included a Postgraduate Research Degree Framework intended to strengthen programme quality, doctoral supervision, graduate outcomes and international competitiveness (D1). The public record states that stakeholder feedback would be incorporated before refined frameworks were shared. The instrument should therefore be treated as an emerging policy framework rather than a final enacted rule. This distinction matters because Rwanda still has an opportunity to encode outcome-based equivalence, route definitions, integrity safeguards and examiner requirements before publication-based pathways become institutionalised.

For Rwanda specifically, a prudent sequence would be to establish national doctoral outcome descriptors and minimum examination safeguards; authorise publication-based formats only in accredited programmes demonstrating sufficient research capacity; pilot prospective routes before adopting broad retrospective published-work pathways; require transparent authorship and outlet due diligence; and evaluate completion, research quality, disciplinary equity and international recognition after an initial cycle. Such sequencing would allow innovation without converting publication accumulation into credential accumulation.

At continental level, the APD-QAF can complement the ACQF's comparability function. Mutual trust is more likely when systems can explain not only the title "PhD" but the evidence and safeguards by which doctoral outcomes were assessed. Harmonisation should thus focus on outcome invariants and transparency, while leaving legitimate room for disciplinary and institutional variation.

9. Limitations and Future Research

The study has five limitations. First, the scholarly component is a bounded PRISMA-ScR-informed evidence map rather than an exhaustive multi-database search. Second, the purposive policy corpus cannot estimate the prevalence of rules across Africa. Third, the review did not use dual independent screening or inter-rater statistics, although the screening ledger makes decisions inspectable. Fourth, institutional policies change quickly and may vary below university level, so sources require rechecking during implementation. Fifth, the APD-QAF is evidence-informed and conceptually derived but has not yet been prospectively validated with implementation data.

Future research should test the APD-QAF with regulators, graduate schools, examiners and candidates across multiple African systems; compare examination outcomes across monograph and publication-based formats; investigate disciplinary and language equity; and examine whether publication requirements improve research dissemination without extending time to degree. Rwanda offers a particularly valuable future case because its postgraduate research architecture is currently being strengthened and can generate longitudinal evidence on implementation.

10. Conclusion

Publication-based doctorates are neither an automatic solution to African doctoral-capacity challenges nor a threat to doctoral standards by definition. Contemporary continental scholarship likewise shows that doctoral quality is shaped by supervisory, institutional and system conditions rather than thesis format alone (Scherer & Sooryamoorthy, 2022). Their legitimacy depends on whether the route makes doctoral achievement more transparent and examinable, not whether it produces a predetermined number of papers. The comparative evidence shows substantial variation in terminology and procedure but repeated convergence around coherence, original contribution, candidate ownership, integrative scholarship, integrity and independent examination.

The central policy principle is therefore **equivalence without uniformity**. A prospective thesis by publication, a retrospective PhD by Published Work and a hybrid publication-inclusive thesis may use different evidence and candidature processes, yet each can be defensible only if it meets the same doctoral outcome threshold. Journal peer review supports that judgement but cannot replace it; bibliometric status informs outlet due diligence but cannot establish doctorateness; and publication volume cannot compensate for weak integration or uncertain authorship.

The APD-QAF translates these conclusions into four governance gates: pathway legitimacy, portfolio integrity, integrative formation and equivalent examination, supported by research-integrity

controls, monitoring and contextual adaptation. Its value for African universities and regulators is to permit innovation while resisting metric substitution. Rwanda's current policy-development period offers a timely opportunity to encode such safeguards before new doctoral formats become entrenched. The objective is not to move beyond the monograph for its own sake, but to ensure that any doctoral form remains a credible statement of independent, original and defensible scholarship.

Declarations

AUTHOR CONTRIBUTIONS	Both authors take responsibility for the final version of the article.
FUNDING	This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.
CONFLICTS OF INTEREST	The authors declare no conflicts of interest.
ETHICS APPROVAL	The study analysed publicly available scholarly and regulatory documents and involved no human participants, private records, or identifiable personal data. Human-participant ethics approval and informed consent were therefore not applicable.
INFORMED CONSENT	Not applicable; no human participants were involved.
DATA AVAILABILITY	The analysis draws on publicly available scholarship and regulatory documents cited in the article. Search and extraction records are described as Supplementary Files S1–S4.
MATERIALS AND CODE AVAILABILITY	No analysis code was reported; documentary materials and screening records are described in the methodology.
USE OF GENERATIVE AI	OpenAI ChatGPT (GPT-5.6 Sol) was used to support public-source discovery, evidence organisation, language refinement and bibliographic checks. The corresponding author verified source records and substantive claims against scholarly and official sources. Both authors accept responsibility for the published article.
ACKNOWLEDGEMENTS	None declared.
SUPPLEMENTARY MATERIALS	The scholarly screening ledger, search documentation, regulatory-source register and comparative model/risk materials are referenced as Supplementary Files S1–S4.

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