

Bridging the Gender Gap: A Review of National and Institutional Policy Reforms Affecting Women's Access and Leadership in Higher Education (2010–2025)

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Abstract

Women now make up around half of university enrolments worldwide in most regions, yet they remain a small minority in senior academic posts and leadership. This review asks what governments and universities did about that between 2010 and 2025, and what the evidence shows worked. It uses a systematised review design with narrative and integrative synthesis, and analyses 21 documents: one systematic review that itself screened 37 primary studies, 12 primary empirical studies, and 8 institutional, national, or supranational policy documents drawn from Scopus, Web of Science, ERIC, and targeted institutional and grey-literature sources. The evidence covers Europe, sub-Saharan Africa, and North America. It is grouped by four policy instruments: statutory and quasi-statutory gender quotas, charter schemes such as Athena SWAN, incentive-linked funding, and mentorship and sponsorship programmes. Quotas and funding incentives shift the numbers most. In European systems operating quotas, women's representation on academic boards runs substantially above that in systems without them. The effect is strongest where research-funding eligibility is at stake. European systems with quotas show women's representation on academic boards running some 23 percentage points above systems without them. The Representation gains do not, however, automatically translate into structural or cultural change. Charter schemes prompt useful internal reflection and gradual improvement in the leadership pipeline, yet they struggle with entrenched pay and power gaps unless wider society shifts too. Sub-Saharan Africa presents a different problem: formal gender policies are multiplying while enforcement stays thin, so progress in access rarely reaches the leadership tier. No single instrument is sufficient. Reform works when binding rules, real financial stakes, and sustained cultural effort are layered together and matched to local implementation capacity. The review closes with a research and policy agenda for the period beyond 2025.

Keywords: Gender Equality; Higher Education Leadership; Academic Policy Reform; Gender Quotas; Athena SWAN; Glass Ceiling; Sub-Saharan Africa; Sustainable Development Goal 5.

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INTRODUCTION

The global expansion of higher education over the past half-century has been accompanied by a parallel, though far less complete, expansion of women's access to academic careers (Altbach et al., 2010). In most regions of the world, women now constitute approximately half of university enrolments and, in many countries, a majority of doctoral graduates (Correa et al., 2025). However, this numerical parity at the point of entry has not carried over into the academic career structure. Across institutional types and geographic contexts, women remain substantially underrepresented at the senior professoriate level and in formal leadership positions such as deanships, vice-chancellorships, and university presidencies (O'Connor, 2018).

This pattern, frequently described through the metaphors of the “leaky pipeline” and the “glass ceiling,” reflects a combination of structural, cultural, and policy failures that compound across the academic career trajectory. The leaky pipeline metaphor, introduced by Berryman (1983), describes how the proportion of women diminishes at each successive career transition, even where parity exists at entry. The glass ceiling metaphor, popularised by a Wall Street Journal article (Hymowitz & Schellhardt, 1986), captures the persistence of an invisible but durable barrier to women's advancement into the highest organisational tiers, a phenomenon well documented in academic settings, even where explicit equality policies exist. A related and more recent concept, the glass cliff (Ryan & Haslam, 2005), describes the tendency for women to be appointed to leadership positions precisely at moments of institutional crisis or precarity, a dynamic increasingly recognised in studies of university administration.

In response to this persistent gap, governments and higher education institutions worldwide have, particularly since 2010, adopted a varied set of policy instruments (Ovseiko et al., 2020). These instruments are intended to accelerate women's access to academic careers and their advancement into leadership. These instruments range from statutory quotas mandating minimum female representation on academic governing bodies, to voluntary institutional accreditation schemes such as the United Kingdom's Athena SWAN Charter, to targeted funding programmes that financially incentivise universities to hire and promote women, to mentorship and sponsorship schemes designed to address the relational and informal barriers that formal policy alone cannot reach.

Research Questions

Rather than a single, broadly exploratory question, this review is organised around three distinct research questions, each mapped to a specific part of the analysis that follows.

1. What national and institutional policy instruments have been used to address women's access to and leadership within higher education, and what does the available evidence indicate about their comparative effectiveness in improving representation?
2. To what extent do the representational gains achieved by these instruments translate into broader structural and cultural change within academic institutions?
3. How does the sub-Saharan African policy-implementation landscape compare with the European and North American contexts examined in this review, particularly regarding the relationship between policy adoption and substantive enforcement?

Research Gap and Contribution

The existing literature offers considerable regional or thematic depth: systematic reviews of academic leadership barriers in specific country groupings (Kaymakcioglu & Thomas, 2024); country-level panel evaluations of individual quota regimes (Forman-Rabinovici et al., 2023); and qualitative evaluations of individual charter schemes (Ovseiko et al., 2017). What is comparatively absent is a synthesis that organises this fragmented evidence around a common typology of policy instrument types, rather than by region, discipline, or single-intervention design, in a way that allows direct comparison of what different instruments achieve and for whom.

This review's contribution is threefold. First, it synthesises evidence across four distinct policy-instrument categories using a consistent analytic distinction between representational, structural/procedural, and cultural/attitudinal outcomes (Methodology, “Analytical Approach”), enabling direct comparison of instrument effectiveness that single-instrument or single-region studies cannot offer. Second, it foregrounds sub-Saharan Africa as a central analytic case throughout, rather than as a peripheral comparator to a European or North American baseline, consistent with the conceptual framework's treatment of regional context (Conceptual Framework) as a central analytic lens rather than a background variable. Third, it identifies and names a cross-cutting empirical pattern, the divergence between policy adoption and policy implementation, as the review's central policy-relevant finding, providing a specific, actionable frame for the future research agenda set out in the Conclusion.

In pursuing these questions, the review pays particular attention to regional variation, recognising that policy instruments developed in well-resourced, research-intensive systems in Europe and North America cannot be assumed to transfer, in form or effect, to higher education systems in sub-Saharan Africa or other Global South contexts (Morley, 2007), where the nature of the gender gap and the institutional capacity to address it differ substantially.

CONCEPTUAL FRAMEWORK

This review integrates four established concepts from the gender-in-academia literature into a single conceptual framework, rather than testing a single theory. Each concept addresses a different part of the same underlying question: where attrition occurs, why reform succeeds or stalls, and for whom. The four are explicitly brought together in “Integrating the Framework” below.

The Leaky Pipeline

The leaky pipeline metaphor remains one of the most widely used heuristics for understanding gender attrition in academic careers (Moratti, 2018). It depicts the academic career as a linear sequence of transitions from undergraduate to graduate study, from doctorate to postdoctoral or early-career positions, from early-career to tenured or senior positions, at each of which a disproportionate share of women exit relative to men. Subsequent scholarship has refined and critiqued this metaphor. Critics note that it can inadvertently individualise and stigmatise women's career exits, implying a passive “leak” rather than the outcome of active institutional and structural conditions (Moratti, 2018). Moreover, it oversimplifies what is, in practice, a complex and non-linear set of career pathways shaped by discipline, institutional context, and intersecting social identities. Despite these critiques, the metaphor retains analytical value as a starting point for identifying where attrition is concentrated; research consistently locates a

particularly acute “leak” in the transition into and progression through the assistant or early-tenure professorship stage (Spoon et al., 2023). Recent syntheses of this literature note that most existing empirical attention has concentrated on women who have already reached senior leadership, leaving the earlier, often more consequential, stages of attrition comparatively under-examined.

The Glass Ceiling and the Glass Cliff

Where the leaky pipeline metaphor describes gradual attrition, the glass ceiling describes a more localised barrier concentrated at the uppermost levels of organisational hierarchy (Babic & Hansez, 2021). Empirical work applying this concept to academia has found that the perceived thickness of the glass ceiling varies by disciplinary field, with women in the social and behavioural sciences perceiving a thicker ceiling than their counterparts in the natural sciences and economics, despite the latter fields often having lower overall female representation (Veelen & Derks, 2022), a finding that complicates any assumption that representation and perceived barriers are straightforwardly correlated. The related glass cliff phenomenon, in which women are disproportionately appointed to leadership roles during periods of institutional difficulty (Ryan & Haslam, 2005), adds a further dimension: it suggests that even where women succeed in breaching the glass ceiling, the conditions of that success may be structured to disadvantage them, since crisis-era leadership appointments carry elevated risk of attributed failure.

Feminist Institutionalism

Several of the policy evaluations reviewed in this article draw on feminist institutionalist theory, which examines how formal and informal institutional rules, norms, and practices reproduce gendered power relations and can be reformed to disrupt them. This perspective is particularly useful for distinguishing between policies that alter formal rules (such as quotas, which directly change appointment or governance composition) and those that aim at informal, cultural change (such as “gender competence” training or mentorship schemes). Feminist institutionalist scholarship cautions that formal rule change alone is necessary but rarely sufficient (Gatto & Wylie, 2021). Without parallel cultural and practice-level change, formal reforms risk superficial compliance without substantively transforming underlying gendered organisational practices.

Global South Perspectives and the Limits of Policy Transfer

A further conceptual thread, increasingly prominent in recent scholarship, concerns the limits of policy frameworks developed predominantly in Western, high-income research systems when applied to or compared against Global South contexts. Scholars working on African higher education have argued that gender policy reforms in many African universities risk being framed in terms that “restore” or “reform” existing structures without fundamentally “transforming” the underlying gendered politics of academic institutions (Mama, 2003). This critique is directly relevant to the present review's finding that many sub-Saharan African universities now have formal gender policies in place that nonetheless coexist with very low female representation in senior leadership. This review, therefore, treats regional context not as a peripheral variable but as a central analytic lens.

Integrating the Framework

Read collaboratively, the four concepts form a single explanatory chain rather than four competing accounts. The leaky pipeline and the glass ceiling/glass cliff concepts describe where and how attrition and blocked advancement occur across the career trajectory; feminist institutionalism explains why particular policy mechanisms succeed at altering formal structures while so often failing to alter the informal practices that reproduce inequality; and the Global South and policy-transfer lens explains why the same policy instrument, applied in different institutional and resourcing contexts, can produce markedly different outcomes. This integrated framework is applied throughout the review to the four policy-instrument categories introduced above, and to three distinct types of outcome that recur across the literature: representational outcomes (the proportion of women in specific roles), structural or procedural outcomes (changes to hiring or promotion criteria), and cultural or attitudinal outcomes (perceptions of fairness and institutional climate). Figure 1 depicts these relationships.

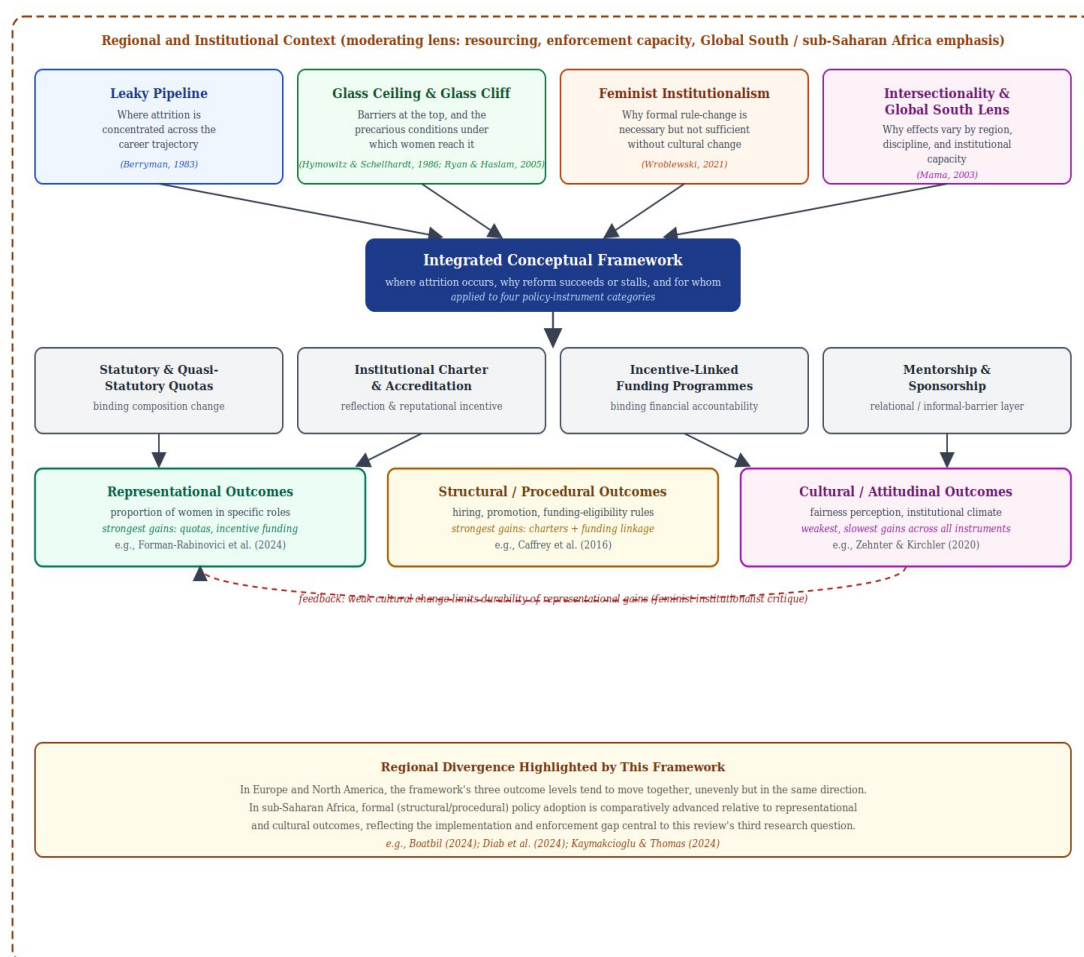


Figure 1: Integrated Conceptual Framework Linking Explanatory Concepts, Policy Instruments, and Outcome Types.

Source: Author's synthesis of the reviewed literature.

As Figure 1 illustrates, the framework leads to the expectation, borne out in the Findings and Discussion below, that instruments with a direct, binding mechanism (quotas, incentive-linked funding) achieve the clearest representational gains, while instruments operating at the level of process and relationship (charter schemes, mentorship and sponsorship) achieve more

modest, harder-to-isolate representational effects but may contribute more directly to structural and cultural change over time. The dashed feedback line in Figure 1 reflects the feminist institutionalist point that weak cultural change limits the durability of representational gains achieved by binding mechanisms alone (Gatto & Wylie, 2021), a dynamic examined in detail in the Discussion.

METHODOLOGY

Review Approach

This article adopts a systematised review design, in the (Grant & Booth, 2009) typology. This review incorporates elements of the systematic review process (a structured search strategy, explicit inclusion/exclusion criteria, and documented selection) while stopping short of the exhaustive, independently reproducible database census that a full systematic review requires, combined with narrative and integrative synthesis elements appropriate for combining heterogeneous source types (Whittemore & Knafl, 2005). A structured search strategy, informed by PRISMA 2020 reporting principles (Page et al., 2021), identified relevant systematic reviews, primary empirical studies, and institutional policy evaluations published or substantively updated between 2010 and 2025. Given the breadth of the review's comparative, multi-region scope, the article synthesises and triangulates findings from an existing systematic review of the primary literature, which independently screened and analysed 37 primary studies using Scopus, Web of Science, and ERIC (Kaymakcioglu & Thomas, 2024), alongside additional primary studies, institutional reports, and policy evaluations identified through targeted searching. This approach (a review of reviews, supplemented by targeted primary-source analysis) suits a topic where a high-quality systematic review already exists for a specific regional subset (women's academic leadership in Nigeria, South Africa, and the United Kingdom) but where no single existing review addresses the comparative national-and-institutional policy reform question at the scope this article undertakes. The sole author conducted screening, selection, and quality appraisal; no second reviewer was involved, no inter-rater reliability statistic is therefore reported, and the review was not prospectively registered. PRISMA 2020 is therefore used as a reporting guide, not as a claim to full systematic-review compliance.

Search Strategy and Sources

Searches were conducted across academic databases and grey literature sources, including peer-reviewed journal repositories indexed in Scopus and Web of Science, ERIC, institutional and governmental policy reports, and sector publications such as Times Higher Education and sector bodies including Advance HE and the European Institute for Gender Equality. We conducted data collection for this review between March and May 2025. Search terms combined variants of “women,” “gender,” “higher education,” and “academia” with policy-specific terms including “quota,” “Athena SWAN,” “affirmative action,” “mentorship,” “sponsorship,” and “leadership,” together with regional qualifiers such as “Africa,” “Ghana,” “Nigeria,” “Europe,” and “Germany” to ensure comparative coverage. Table 1 sets out the specific search strings used for each source and the document types they were expected to retrieve.

Table 1: Search Strings by Source

Source	Search String (illustrative)	Document Types Retrieved
Scopus / Web of Science	("gender" OR "women") AND ("higher education" OR "academia") AND ("quota" OR "Athena SWAN" OR "affirmative action" OR "mentorship" OR "sponsorship" OR "leadership")	Peer-reviewed journal articles; conference papers
ERIC	("women faculty" OR "women academics") AND ("policy" OR "leadership" OR "promotion") AND ("higher education")	Peer-reviewed journal articles; education-focused reports
Institutional/governmental websites (Advance HE, EIGE, European Commission, NSF, national ministries)	"gender equality plan" OR "gender policy" OR "charter mark" OR "cascade model" site-restricted to institutional domains	Policy documents; charter and accreditation frameworks; funding-programme guidance; institutional evaluation reports
Sector publications (Times Higher Education, Advance HE case studies)	"female professors" OR "women in leadership" AND ("university" OR "academia")	Sector news and analysis; institutional case data
Targeted supplementary search (Google Scholar, university repositories)	Country-qualified variants of the above (e.g., "Ghana" AND "gender policy" AND "higher education")	Theses, working papers, and regional studies not indexed in the primary databases

Source: Author's documentation of the search strategy.

Rationale for the Publication Window

The review's 2010–2025 window was selected because it captures the period in which the majority of the policy instruments examined here were either introduced or substantially expanded: Germany's Cascade Model and the intensification of its Bund-Länder female professorship programme (Bührer et al., 2020), the Athena SWAN Charter's 2015 expansion beyond STEMM disciplines, the United States National Science Foundation's ADVANCE programme's most active grant cycles, and the European Union's Horizon 2020 and Horizon Europe gender equality plan requirements (formalised from 2022) (Karataş et al., 2025). Restricting the window to this period provides a coherent basis for evaluating instrument effectiveness within a comparable policy era. At the same time, the upper bound of 2025 was fixed in advance of searching to give a closed and reproducible corpus boundary.

Inclusion and Exclusion Criteria

Included sources were required to (a) report on a specific national or institutional policy intervention or evaluation thereof, (b) be published or substantively updated between 2010 and 2025, (c) address women's access to or leadership within higher education or academic careers, and (d) be available in English. We excluded sources addressing gender equality in non-

academic labour markets unless they were directly comparable to academia. Sources discussing student-level, rather than staff- or faculty-level, gender gaps were included only where directly relevant to leadership-pipeline framing.

A source was considered “substantively updated”, criterion (b), where a revised edition, policy document, or dataset reflected a material change in policy content, coverage period, or reported outcome data relative to an earlier version (for example, a charter scheme's expanded disciplinary scope, or a funding programme's revised eligibility rules), rather than a superficial reformatting, republication, or routine annual reissue of an unchanged document. This was assessed by comparing publication or version metadata and, where available, a documented change summary published alongside the source.

Country Selection Rationale

This review focuses on six countries: Germany, the United Kingdom, the United States, Ghana, Nigeria, and South Africa. None was chosen by random or representative sampling. As a review of reviews and targeted supplementary sources rather than an independent cross-national survey, this review's country coverage instead reflects evidence-availability sampling. These countries are where the search strategy identified verifiable, peer-reviewed, or credible institutional-evaluation evidence meeting the inclusion criteria. Germany and the United Kingdom were selected because they host the most extensively documented and independently evaluated instances of, respectively, incentive-linked funding and charter-based accreditation; Ghana, Nigeria, and South Africa were selected because they are the sub-Saharan African countries with the most substantial available country-level policy-implementation literature, including the systematic review absorbed into this synthesis (Kaymakcioglu & Thomas, 2024) and country-specific institutional-implementation research (Abnory et al., 2024). Country coverage therefore reflects where evidence exists. It is not a representative sample of global higher education systems, and the Limitations section returns to the point.

Quality Appraisal

Because the corpus combines peer-reviewed empirical studies with institutional and grey-literature policy documents, we did not apply a single quantitative appraisal instrument uniformly. Grey-literature and institutional or policy documents (charter frameworks, funding-programme guidance, sector reports) were appraised using the AACODS checklist (Authority, Accuracy, Coverage, Objectivity, Date, Significance), designed specifically for grey literature (Tyndall, 2010). Peer-reviewed academic sources were appraised for methodological transparency (clarity of sample, method, and analytic procedure), scope (single-institution versus multi-institution or multi-country design), and direct relevance to the review's three research questions. Sources that lacked any identifiable authoring body or institutional authority, or that showed clear promotional intent without independent corroboration, were excluded at this stage. A distinct category of source (standing institutional and governmental web documents with no formal publication date, cited here as n.d.) was retained when the authoring body was authoritative and the version consulted could be fixed by date of access. For these sources, inclusion criterion (b) applied to the currency of the policy content described rather than a publication date, and the reference list records the date each was consulted.

Search and Selection Process

Figure 2 documents the search and selection process applied to the sources directly analysed in this review, from initial database and grey-literature searching, through eligibility screening

against the criteria above, to quality appraisal and inclusion in the final synthesis corpus of 21 documents reported in Table 2. As the transparency note within Figure 2 makes explicit, this is the selection process for the sources this review analyses directly; because one of these 21 sources is itself a systematic review that screened 37 primary studies under PRISMA protocols (Kaymakcioglu & Thomas, 2024). The evidence base behind this review is larger than the 21-document corpus alone.

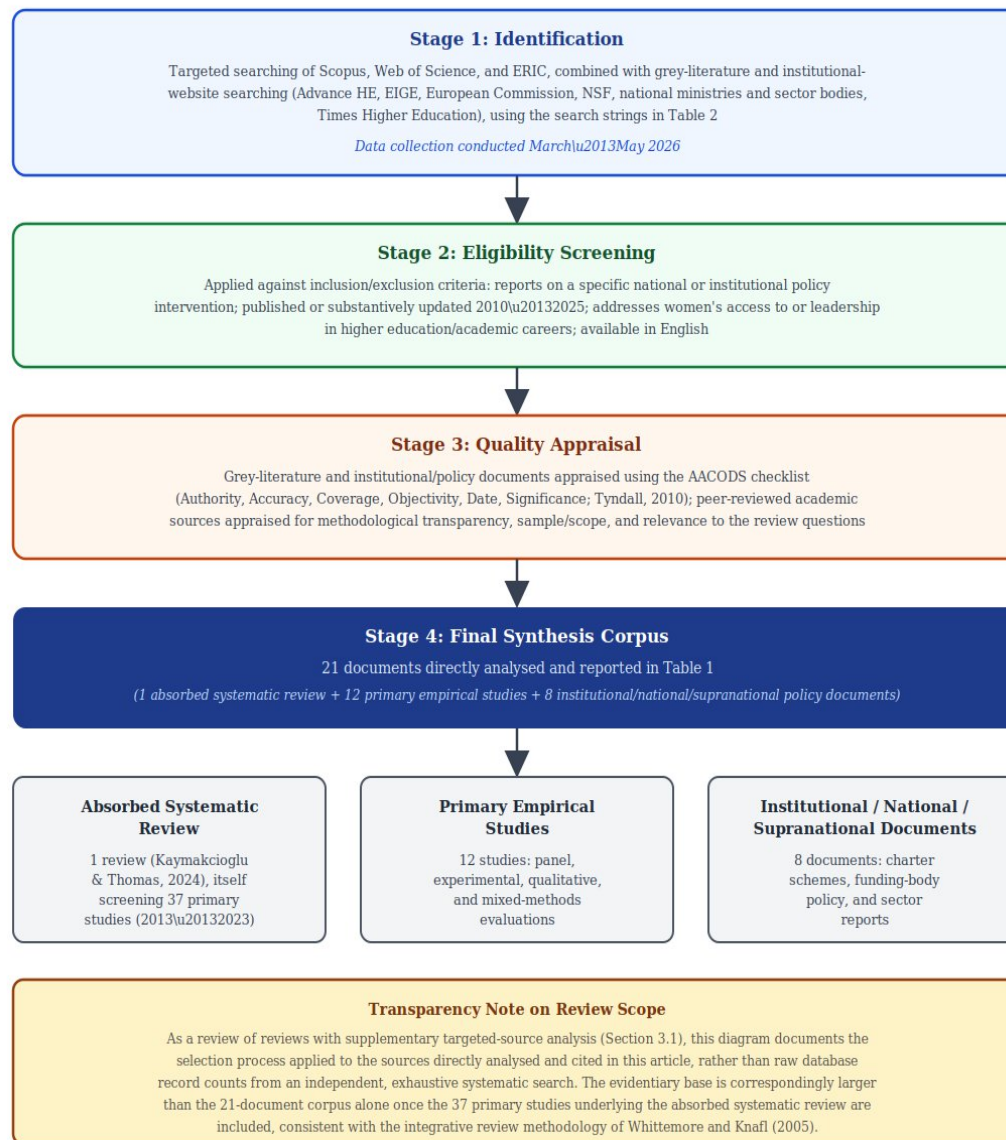


Figure 2: Search and Selection Process for the Documents Directly Analysed in This Review.

Source: Author's documentation of the review process.

Analytical Approach

Findings were thematically organised around four major policy instrument categories that recurred across the literature: statutory and quasi-statutory gender quotas, institutional accreditation and charter schemes, incentive-linked funding programmes, and mentorship and sponsorship interventions. Within each category, the review distinguishes between studies reporting on representational outcomes (e.g., changes in the proportion of women in specific

roles), structural or procedural outcomes (e.g., changes to hiring or promotion criteria), and cultural or attitudinal outcomes (e.g., perceptions of fairness, institutional climate), consistent with the conceptual framework set out above. A further section addresses the sub-Saharan African policy landscape, given both the documented scale of underrepresentation in this region and the distinct implementation challenges identified in the literature (Adegbile et al., 2024).

Where this review's approach involves document or policy analysis specifically (the qualitative reading of charter frameworks, funding-programme guidance, and institutional evaluation reports, rather than analysis of primary empirical data), the method is directed content analysis. Each document was read against the four policy-instrument categories and three outcome types set out above, with content coded to the category and outcome type it most directly addressed. This approach follows precedent from integrative reviews that combine primary empirical research with policy and grey-literature documents within a single synthesis (Whittemore & Knafl, 2005). Consistent with this review's country-selection rationale, each institutional or policy document is also categorised in Table 2 by policy level (institutional, national, or supranational), so the level of governance at which each instrument operates is explicit, since the effectiveness mechanisms identified in the Discussion (particularly the role of external accountability) differ meaningfully across these levels.

Table 2: Documents Analysed

Source	Region/ Country	Document Type	Policy Level	Key Contribution to This Review
Kaymakcioglu & Thomas (2024)	Nigeria, South Africa, UK	Systematic review (37 primary studies, 2013–2023)	National (comparative)	Comparative barrier analysis across three national contexts; anchor source for RQ3
Forman-Rabinovici et al. (2023).	Europe (multi-country panel)	Primary empirical (panel study)	National	Quota effects on board composition; backlash-effect testing
Fernandes et al. (2023).	Germany	Primary empirical (institutional panel)	Institutional	Mechanism evidence: incentive funding and entry-barrier reduction
Caffrey et al. (2016).	United Kingdom	Primary empirical (mixed methods)	Institutional	Qualitative evaluation of Athena SWAN mechanisms and limits
Wroblewski (2021)	Austria	Primary empirical (feminist institutionalist analysis)	National	Quotas vs gender-competence policy as complements
Zehnter & Kirchler (2020).	Austria / Germany	Primary empirical (experimental)	N/A (attitudinal study)	Fairness-perception asymmetry in quota policy

van Veelen & Derks (2022).	Netherlands (cross-disciplinary)	Primary empirical	N/A (attitudinal study)	Disciplinary variation in perceived glass ceiling thickness
Ayyala et al. (2018).	United States	Primary empirical (qualitative)	Institutional	Mentorship vs sponsorship distinction in academic medicine
Abnory et al. (2024)	Ghana	Primary empirical	Institutional / National	Policy adoption vs implementation disconnect
Diab et al. (2024)	16 African countries	Primary empirical (leadership survey)	Institutional (multi-country)	Continental leadership-representation data
Mama (2003)	Africa (pan-African)	Critical scholarship	N/A (conceptual/critical)	“Restore, reform, not transform” critique underpinning RQ2/RQ3
Ruggi & Duvvury (2022).	Ireland	Primary empirical/critical policy analysis	National	“Institutional peacocking” and problem-representation critique
Advance HE (n.d.)	United Kingdom	Institutional/charter framework	National (sector body)	Athena SWAN Charter structure and disciplinary scope
UCL Office of the President and Provost (n.d.)	United Kingdom	Institutional report	Institutional	Charter-linked representational case data
European Institute for Gender Equality (n.d.)	Germany	Policy/institutional report	National	Cascade Model policy description
European Research Executive Agency (n.d.)	European Union	Policy document	Supranational	Horizon Europe Gender Equality Plan requirement
Publications Office of the European Union (n.d.)	European Union	Policy guidance	Supranational	GEP eligibility-condition detail
National Science Foundation (n.d.)	United States	Policy/institutional document	National	ADVANCE programme design and evaluation mandate

Times Higher Education (2022)	Germany	Sector publication	National	Disciplinary breakdown of professorship-programme gains
Education Sub-Saharan Africa (n.d.).	Nigeria, Ghana	Sector report	National	Country-specific leadership representation figures
Crimmins & Barnard (2022)	Europe / international	Editorial/sector overview	Supranational	Scale of GEP and certification-scheme adoption across Europe

FINDINGS

Statutory and Quasi-Statutory Gender Quotas

Quotas are the bluntest instrument in this review. They mandate minimum female representation on academic governance bodies, on committees, or among newly appointed professors, and they are legally binding. The clearest evidence base comes from continental Europe, where a substantial body of country-level panel research has tracked quota implementation and its downstream effects (Forman-Rabinovici et al., 2023). Because Germany's composition mandates and its incentive-funding instruments were designed and evaluated as a single national package, both are treated together here rather than split across categories; the wider logic of funding-conditional reform, and its operation outside Germany, is examined separately below.

A panel study covering academic boards and committees across European countries found that state-mandated gender quotas achieved their intended direct effect, with countries that adopted quotas showing an average proportion of women on academic boards roughly 23 percentage points higher than in countries without such quotas (Forman-Rabinovici et al., 2023). The study also examined indirect effects on the broader academic hierarchy. It found limited support for the backlash effects quota critics often anticipate, such as resentment-driven attrition or resistance dynamics that might undermine the policy's broader legitimacy.

Germany offers the best-documented case of national incentive design sitting alongside a quota. The “Cascade Model,” adopted by several German states and made mandatory in North Rhine-Westphalia, requires university management to ensure that the proportion of women among those filling academic qualification positions and professorships is at least as high as the proportion of women at the next-lowest qualification level, with the federal-state Pact for Research and Innovation likewise committing publicly funded research institutions to the model alongside complementary incentives and sanctions (Maggian et al., 2020). At the national level, Germany's Bund-Länder female professorship programme (Professorinnenprogramm), a federal-state incentive funding initiative now in its fourth funding round, has been evaluated by the Joint Science Conference (Gemeinsame Wissenschaftskonferenz) as effective in raising female professorial representation (Löther, 2019): government data show the national proportion of female professors rising from 8.2 per cent in 1995 to 26.3 per cent in 2020. This series begins more than a decade before the programme's launch, and no counterfactual trend is estimated, so the aggregate rise reflects the combined effect of the programme and a longer-running secular increase rather than the

programme alone. This aggregate gain, however, masks a markedly uneven disciplinary pattern, with the proportion of women professors in the humanities rising by 26.6 percentage points over the same period compared with 16.8 percentage points in the natural sciences and mathematics and only 11.5 percentage points in engineering, confirming that science, technology, engineering, and mathematics fields continue to lag behind the humanities and social sciences even under a well-funded, multi-decade national incentive programme (Times Higher Education, 2022).

A complementary institutional-level study of business administration professorships in Germany found that universities participating in an incentive-based affirmative action programme had a higher probability of newly tenured professors being female than non-participating universities (Fernandes et al., 2023). The mechanism was specific. Participating universities did not lower quality thresholds across the board; they lowered the publication-record entry barrier that had previously disadvantaged female candidates, while finding no evidence that the programme imposed a corresponding disadvantage on male candidates' entry barriers. That matters for the policy debate: at least one well-designed incentive programme met its representational goal without the zero-sum cost to men that opponents of affirmative action predict.

Quotas are not without contested legitimacy, however. Experimental survey research using free-association methodology with university students found that preferential treatment favouring women, a comparatively lower-status group in the academic hierarchy, was perceived as systematically less fair than equivalent preferential treatment favouring men, despite the two policies sharing an identical formal mechanism (Zehnter & Kirchler, 2020). This asymmetry in perceived fairness, sometimes discussed in the literature as a manifestation of system-justifying beliefs, helps explain why quota policies, even where empirically effective, face political resistance out of proportion to the evidence on whether they work (Liaquat et al., 2023). Research in Austria using a feminist institutionalist approach found that statutory quotas have increased women's representation in university decision-making bodies. However, this alone has not led to widespread cultural change or removed career barriers. Policies aimed at building organisational capacity and awareness about gender equity, known as 'gender competence' policies, work best when they complement binding quota mechanisms. Additionally, procedures to reduce bias only succeed if those applying them are aware of, accept, and follow them, accept them, and follow them.

Institutional Accreditation and Charter Schemes: The Athena SWAN Model

A second major category of reform, most fully developed in the United Kingdom and now exported to other Anglophone systems, including Ireland and Australia, comprises voluntary institutional accreditation or “charter mark” schemes. The most prominent example is the Athena SWAN Charter, a national-level sector-body scheme established in 2005 to recognise and incentivise institutional commitment to advancing women's careers in science, technology, engineering, mathematics, and medicine, and expanded from 2015 onward to cover arts, humanities, social sciences, business, and law, as well as professional and support staff roles and trans staff and students (Hannon-Fletcher, 2021).

The Charter operates through a self-assessment and action-planning process: institutions and departments analyse gender-disaggregated data, identify barriers, and commit to action plans, which are then externally reviewed for award at Bronze, Silver, or Gold levels (Schmidt et al., 2020). Institutional case data illustrate the kind of representational change associated with sustained engagement: at University College London, the proportion of female heads of

department nearly doubled, from 15.9 per cent in 2014 to 30 per cent in 2019, and the institution reports that, following a reformed senior academic promotions framework introduced as part of its Athena SWAN action planning, over 30 per cent of its professoriate is now female. These figures are institutionally self-reported and uncontrolled; they describe change concurrent with sustained Charter engagement rather than change attributable to it.

Independent qualitative evaluation of the Charter's mechanisms offers a more nuanced picture than headline representational statistics alone suggest. A mixed-methods institutional study combining survey free-text responses and narrative interviews with women and men in medical science departments at a research-intensive UK university found that participation in Athena SWAN was widely perceived to have generated genuine structural and cultural change, including increased support for women's careers and greater institutional recognition of caring responsibilities (Ovseiko et al., 2017). Critically, however, study participants attributed much of this positive change less to the Charter's design than to what was attached to it. For a period, Athena SWAN award status was connected to eligibility for certain government research funding streams, creating institutional incentives that a purely reputational award might not have generated on its own. The same study identified significant limitations: participants raised concerns that the Charter had limited capacity to address entrenched pay and power imbalances, that work-life balance pressures in academic medicine remained largely unaddressed, that the sustainability of charter-driven changes beyond the assessment cycle was uncertain, and that the Charter could become a self-referential institutional goal, accumulating award status as an end in itself rather than as a marker of substantive change (Ovseiko et al., 2020). The study concluded that Athena SWAN has a positive impact on advancing gender equality. However, it cautioned that there are limits to how much a charter mechanism confined to higher education and research policy can achieve without wider societal and welfare-state change, including policies that incentivise men's participation in unpaid caregiving (Ovseiko et al., 2017)

Charter schemes clearly do some things well: they generate internal data-driven reflection, departmental accountability, and gradual improvement in the leadership pipeline, but that, consistent with feminist institutionalist theory, they are unlikely on their own to resolve the deeper structural and societal drivers of gender inequality in academia, including the gendered division of unpaid care labour beyond the university's institutional boundary. This tension is reflected in critical commentary describing a pattern of “institutional peacocking” (Yarrow & Johnston, 2022) in which institutions visibly engage in equality work to demonstrate reputational compliance. In contrast, vertical gender segregation, gender pay gaps, and a disproportionate burden of unpaid equality labour falling on women remain largely unchanged beneath the surface, a dynamic closely related to what Ruggi and Duvvury (2022) describe, in the Irish context, as gender-equality policy that manages the visible symptoms of a “problem” without disturbing the institutional arrangements that produce it.

Incentive-Linked Funding Programmes

While Germany's federal and state-level programmes represent a well-evaluated example of funding-conditional gender reform (Karataş et al., 2025), the broader logic of linking institutional funding eligibility to demonstrated gender-equity progress recurs across the literature as a recognised lever. Its mechanism differs from both quotas (which mandate composition directly) and charter schemes (which rely mainly on reputation and self-assessment). The European Union's Horizon Europe programme exemplifies this logic at supranational scale: since calls with deadlines in 2022, public bodies, research organisations,

and higher education institutions from European Union member states and associated countries have been required to have a Gender Equality Plan, or equivalent strategy, in place as a condition of funding eligibility, with mandatory requirements including a publicly available document endorsed by senior management, dedicated resources for implementation, sex- and gender-disaggregated data collection with annual monitoring, and staff training on gender equality and unconscious bias (European Research Executive Agency, n.d.; Publications Office of the European Union, n.d.). This supranational requirement has driven rapid institutional uptake: sector-wide reviews document as many as 113 distinct gender and diversity certification and award schemes now operating across Europe alone, reflecting how thoroughly the funding-conditional logic has permeated the sector beyond any single national programme (Crimmins & Barnard, 2022).

The United States National Science Foundation's ADVANCE programme offers a parallel, though structurally distinct, national-level model: rather than a funding eligibility condition applied to all institutions, ADVANCE provides direct, multi-year institutional transformation grants to individual universities to redesign hiring, tenure, and promotion practices and to address unconscious bias and organisational climate, with awards explicitly required to include a rigorous evaluation component to build the broader evidence base on what strategies are effective (National Science Foundation, n.d.). The UK research funding linkage to Athena SWAN status, discussed above, exemplifies a third hybrid model that combines national charter-scheme features with funding-conditional incentive design (Ovseiko et al., 2017). Across all three approaches, the perceived effectiveness of financial linkage, as reported by participants in the qualitative Athena SWAN evaluation cited above, offers indirect but consistent evidence that money strengthens institutional commitment more than reputation alone.

Mentorship and Sponsorship Interventions

A fourth category of reform operates at a more interpersonal and relational level: structured mentorship and sponsorship programmes intended to address the informal networks, visibility, and advocacy that formal policy alone often fails to reach. The literature draws an important conceptual distinction between mentorship, which typically provides guidance, advice, and psychosocial support, and sponsorship, which involves an influential, well-positioned individual actively using their organisational standing to advocate for a colleague's visibility, access to opportunities, and advancement (Schwartz et al., 2023).

Qualitative research at a United States academic medical centre paired department chairs (as sponsors) with faculty on an executive leadership programme (as protégés). It identified sponsorship as functionally distinct from mentorship, described by participants as more episodic, opportunity-specific, and dependent on the sponsor's willingness to take on reputational risk on the protégé's behalf. Participants considered sponsorship critical to successful career advancement, with women perceived as both disproportionately in need of this support and less likely than men to seek it out actively (Ayyala et al., 2018). This evidence base is, however, notably thin: within this review's corpus the sponsorship finding rests on a single qualitative study at one United States academic medical centre, and the inferences drawn from it should be read as indicative rather than established. With that caveat, the mentorship and sponsorship literature reinforces a theme that recurs across all four policy categories reviewed in this article: interpersonal or culture-focused interventions appear most effective not as substitutes for structural and policy-level reform, but as a necessary complement operating at a different, more relational layer of the institutional system.

The Sub-Saharan African Policy Landscape

Sub-Saharan Africa presents both the starkest documented gender gaps in academic leadership among the regions covered in this review and a distinct, under-researched policy-implementation landscape. Gender-disaggregated leadership data collected across sixteen African research-intensive universities found that women held only approximately 13 per cent of vice-chancellor positions, the most senior executive academic leadership role, with this underrepresentation replicated at every subsequent leadership tier: the median university had fewer than 30 per cent female deans, and in half of the sample women held under half of all executive leadership team positions (Diab et al., 2024). A companion survey reported within the same study, covering faculty at the dean level and above across institutions in South Africa, Ghana, and Rwanda, found a striking divergence in how men and women explained this gap: women attributed their underrepresentation primarily to systemic institutional failures, while men more often attributed it to women's insufficient qualifications or lack of aspiration to senior roles, a divergence with direct implications for the kind of policy reform each group might be inclined to support.

Country-specific data corroborate the severity of the leadership gap. In Ghana, sector research conducted in partnership with the African Association of Universities and the Ghana Tertiary Education Commission found that only approximately 8 per cent of professors are women, while in Nigeria, women hold only around 17 per cent of university principal officer positions (“Women Leading in Education,” 1995). Research specifically examining gender policy implementation processes within Ghanaian higher education institutions, at the institutional level, identifies a critical disconnect: a growing number of institutions have developed formal gender policies, often in response to international development partner expectations or national policy frameworks, yet the existing scholarship pays comparatively little attention to how, or whether, these policies are actually implemented in practice, and the available evidence suggests that formal policy adoption frequently outpaces substantive enforcement or behaviour change (Abnory et al., 2024). This implementation gap echoes a long-standing critique in African higher education gender scholarship, which has argued that gender reforms in African universities have at times restored or formally reformed existing institutional arrangements without transforming the underlying gendered politics that produce leadership underrepresentation in the first place (Mama, 2003).

A systematic review comparing women's academic leadership experiences in Nigeria, South Africa, and the United Kingdom, drawing on thirty-seven articles published between 2013 and 2023 and screened using ERIC, Scopus, and Web of Science under PRISMA protocols, found that while broadly similar categories of barrier (limited cooperation from colleagues and mentors, scarcity of visible role models, selection and promotion bias, and inadequately designed gender policy) recur across all three national contexts, the UK context showed comparatively more developed and apparently more effective institutional initiatives, in contrast to the Nigerian and South African contexts, where the persistence of underrepresentation despite the presence of formal national gender policy remains comparatively under-explained in the existing literature (Kaymakcioglu & Thomas, 2024). This pattern (formal policy present, outcomes unchanged) is, on this review's assessment, the most distinctive feature of the sub-Saharan African policy landscape relative to the European and North American contexts discussed above, and represents a priority area for future implementation-focused research.

DISCUSSION

Representation Versus Structural and Cultural Change

One theme runs through all four policy categories, and the framework in Figure 1 anticipates it: gains in representation are not the same as gains in structure or culture. Quotas and incentive-funding programmes demonstrate the clearest representational gains, in part because their mechanisms operate directly on appointment or governance composition. Institutional charter schemes and mentorship and sponsorship programmes, by contrast, operate primarily at the level of process, awareness, and relational support, and accordingly show more modest, harder-to-isolate representational effects, even where participants regard them highly. Even the strongest performers hit a ceiling. Germany's Cascade Model and affirmative incentive programmes raised representation, but neither did much about pay gaps, power imbalances, or culture unless society changes too (Fernandes et al., 2023). The biggest factor is the unequal division of unpaid care work, which shapes academic careers well beyond the reach of any single university policy (Bam et al., 2023). Ruggi and Duvvury's (2022) critique of how gender-equality policy can come to manage the appearance of a problem without disturbing its structural causes offers a compact theoretical statement of exactly this gap between representational and structural/cultural change.

The Role of External Accountability and Financial Stakes

A second cross-cutting finding, addressing this review's first research question directly, concerns the apparent importance of external accountability, particularly financial stakes, in determining policy effectiveness. The German funding-incentive literature, the European Union's Horizon Europe Gender Equality Plan requirement and the more than 100 certification schemes it has helped proliferate across the sector (Crimmins & Barnard, 2022), the United States National Science Foundation's ADVANCE programme, and the UK Athena SWAN evaluation all point toward a common underlying mechanism. Universities commit far more when real money depends on results, whether that is eligibility for research funding or an allocation of professorship posts (Fernandes et al., 2023). Schemes offering only reputational reward achieve less. This suggests that policymakers designing future reforms, particularly voluntary or charter-based schemes, need to build in real accountability without losing the flexibility that makes voluntary schemes attractive in the first place.

Legitimacy, Fairness Perceptions, and Backlash

Despite generally positive findings on the effectiveness of quota-based mechanisms, the literature consistently highlights a legitimacy and fairness-perception challenge that policymakers cannot responsibly ignore (Clayton et al., 2025). Experimental evidence on asymmetric fairness perceptions between quotas favouring women versus men (Zehnter & Kirchler, 2020), and qualitative reports of resentment toward perceived positive discrimination within Athena SWAN-engaged departments (Ovseiko et al., 2017), both point to the same underlying dynamic: what works and what feels fair do not always align. A policy can deliver results and still breed resentment, and that resentment, left alone, can wear it down over time. Encouragingly, the available European panel evidence (Forman-Rabinovici et al., 2023) finds little support for the most severe anticipated backlash effects, suggesting that initial resistance narratives may moderate over time as quota policies become institutionally normalised. However, this remains an area warranting continued longitudinal attention.

The Global Implementation Gap

Perhaps the most policy-relevant cross-cutting finding of this review, and the direct answer to research question three, is the marked divergence between policy adoption and policy implementation, a gap present to some degree across all regions studied but most acute and most consequential in the sub-Saharan African context. The contrast is sharpest when the European and Ghanaian evidence are placed side by side: where Forman-Rabinovici et al. (2023) document quota-adopting European systems in which women's representation on academic boards stands some 23 percentage points above that in non-adopting systems, a cross-national association rather than a demonstrated within-country before-and-after gain, Abnory et al. (2024) documents a Ghanaian institutional context in which formal gender policy adoption has become widespread without a comparably documented behaviour-change or enforcement mechanism to translate that adoption into outcomes. This is not simply a difference in policy design; it is a difference in the regulatory and monitoring infrastructure surrounding the policy. Whereas European reforms benefit from comparatively well-resourced regulatory and monitoring infrastructure, many sub-Saharan African higher education systems have adopted formal gender policy commitments without commensurate investment in monitoring, enforcement, or the institutional capacity required to translate policy text into changed practice (Kaymakcioglu & Thomas, 2024; Mama, 2003). This suggests that future policy transfer or “lesson-learning” exercises between regions must attend not only to which policy instruments appear effective in their originating context, but to the institutions and resources that made it work. Those do not travel with the policy.

LIMITATIONS OF THE REVIEW

This review to several limitations. First, because this review synthesises an existing systematic review and additional primary studies rather than conducting an independent, exhaustive primary-source database screening, it is necessarily shaped by the scope and quality of the underlying reviews and studies on which it draws. Many of those sources are qualitative and cover a single institution or a single country, which limits what can be said about cause and effect. Second, the English-language restriction applied during source identification likely underrepresents policy reform and evaluation literature published in French, Portuguese, Arabic, and other languages relevant to comparative coverage of Africa and other Global South regions; (Kehm & Teichler, 2007). Third, the available evidence remains heavily weighted toward European and, to a lesser extent, North American and selected sub-Saharan African contexts. This review accordingly confines its comparative claims to these three regions; South Asian, East Asian, Middle Eastern, and Latin American policy experience is not represented in the evidence identified through this review's search strategy and is correspondingly absent from the Findings and Discussion. That gap is flagged below as a research priority, not treated as a finding. Fourth, the country-selection approach described in the Methodology (evidence availability systems means the country-level findings reported here should be read as illustrative of the instruments and dynamics identified, not as a representative account of gender policy across all higher education systems, even within the three regions covered. Fifth, and most consequentially for how these findings should be used, the corpus itself is small: 21 documents supporting a synthesis that spans three world regions and a fifteen-year policy window. That figure follows from evidence-availability sampling and from the decision to build on an existing systematic review rather than screen primary sources exhaustively. However, it remains a slender base for multi-regional comparative claims. The findings reported here should therefore be read as a snapshot of the accessible English-language literature on these

four policy instruments, not as a comprehensive global audit of gender-equity policy in higher education. Regions, instruments, and national systems that are under-represented in that literature are correspondingly under-represented in this review, and the absence of evidence at several points below should not be read as evidence of absence.

CONCLUSION AND POLICY IMPLICATIONS

This review has synthesised evidence on national and institutional policy reforms addressing women's access to and leadership within higher education between 2010 and 2025, organised around four major instrument categories: statutory quotas, institutional charter and accreditation schemes, incentive-linked funding programmes, and mentorship and sponsorship interventions, and analysed through the integrated conceptual framework set out in the Conceptual Framework section. Across this evidence base, several conclusions emerge with reasonable consistency, directly answering the three research questions posed in the Introduction.

First, in answer to research question one, the instruments that bind, quotas and incentive funding, produce the clearest and best-documented gains in representation (Fernandes et al., 2023), and the strongest available evidence finds limited support for the backlash effects often invoked to argue against such mechanisms (Forman-Rabinovici et al., 2023). Second, voluntary institutional charter schemes such as Athena SWAN provide valuable internal accountability, data-driven reflection, and incremental progress in leadership pipelines. However, their effectiveness appears substantially strengthened when linked to external, particularly financial, accountability mechanisms, and they remain .Theylimited in their capacity to resolve entrenched structural and cultural barriers absent broader societal change, a pattern directly relevant to research question two. Third, mentorship and sponsorship interventions address an important relational and informal dimension of career advancement that formal policy alone cannot reach. However, they work best alongside structural reform, not instead of it. This conclusion rests on a thinner evidence base than the other three. Fourth, in answer to research question three, and most pressingly for future research and policy attention, the sub-Saharan African policy landscape exhibits a pronounced and under-addressed gap between formal gender policy adoption and substantive implementation.that future reform efforts in this and comparable regional contexts must prioritise implementation capacity and enforcement infrastructure alongside policy design itself.

For institutional and national policymakers, this review suggests that effective reform is unlikely to result from any single instrument applied in isolation. Rather, the evidence points to the value of layered, mutually reinforcing reform strategies: binding structural mechanisms to secure representational gains; steady accountability, ideally with money attached, to sustain momentum; and mentorship and sponsorship to address informal barriers that survive even good policy. For higher education institutions in lower-resource contexts specifically, the evidence underscores the importance of investing in implementation and monitoring capacity at the point of policy adoption, rather than treating policy formulation as an endpoint.

For future research, this review identifies four priority directions, extending the three implicit in the original analysis to reflect explicitly the geographic and methodological limitations acknowledged above. First, systems, comparable in design to the European panel studies on which much of the current evidence base for quota effectiveness rests. Second, comparative research is needed on the conditions under which institutional charter and accreditation schemes can be meaningfully adapted and linked to accountability mechanisms outside the

specific UK research-funding context in which Athena SWAN's strongest documented effects have emerged. Third, further research should examine the long-term career and institutional outcomes of mentorship and sponsorship interventions using outcome-based rather than purely perception-based evaluation designs, building on the relatively thin but growing evidence base currently concentrated in academic medicine. Fourth, and directly responding to this review's own geographic limitation, future systematic reviews should extend comparable search strategies to South Asian, East Asian, Middle Eastern, and Latin American higher education systems, and, where feasible, to non-English-language literature, to establish whether the representation/structural-change distinction and the implementation gap identified in this review hold beyond the three regions for which evidence was available here. Addressing these gaps will be essential to closing not only the gender gap in academic leadership itself, but the evidentiary gap that continues to constrain confident, context-sensitive policy design in the regions where the need for effective reform remains most acute.

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