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Navigating the Artificial Intelligence Frontier: A Multi-Level Policy Enactment Study of Ethiopian Higher Education

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Abstract

In the age of Artificial Intelligence (AI), Higher Education is facing new challenges and opportunities for sustainable quality education. What mechanisms can Ethiopia Higher Education Institutions (HEIs) employ to tap the opportunities and address the challenges of AI in Education without compromising the quality of Education? This research investigates on AI policy enactment by analyzing the tension between policy level official documents and current practice. Based on Stephen Ball's Policy Enactment Framework, the study focuses on Situated, Material, Professional, and External contexts of AI policy and practice. First, a PRISMA-guided systematic document analysis was conducted on official policy documents at continental, country, sectoral and institutional levels. Then, by selecting key informants from applied and research universities, semi-structured interviews were employed. To appraise the direct and indirect relevance of AI mentioned in the body of the policy documents, the official documents were analyzed based on a Red-Amber-Green (RAG) analysis method. One of the findings of the study was, the Material infrastructure and Professional capabilities of instructors are not at the required level to meet the objectives of external policies. Rather than making argument on embracing or banning AI, this research provides ways for developing policies sensitive to the contexts of HEIs. The results offer a planned roadmap for policy enactment which is culturally sensitive, ethically rooted, and pedagogically sound in the reality of Ethiopian HEIs.

Keywords*: AI, Ethiopian higher education, policy enactment, academic integrity, educational governance*

Background of the Study

AI integration in education is growing fast in universities worldwide, transforming teaching, assessment, research and governance (Maphosa & Maphosa, 2023; Thaldar et al., 2025). The advent of large language models since 2022 set forth a double-edged sword of hope and despair. As a result, higher education institutions (HEIs) are under influence to update and upgrade their instructional guidelines, transform assessment methods, and invest in faculty training (Heil et al., 2025; Yan et.al., 2024). In Africa, AI integration in education

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faces persistent challenges such as limited infrastructure, capacity constraints, and social inequalities (Maina & Kuria, 2024; Maluleke, 2025). Across HEIs in Africa, AI improves personalized learning, operational efficiency, and educational equity and access. Systematic reviews underscore the role of AI in easing adaptive learning experiences, improving student performance, enhancing research output, and good governance (Mabanja et al., 2025; Maina & Kuria, 2024; Maluleke, 2025). A study done in Tanzania and Ghana shows that AI is generally utilized for on-demand clarifications, coding support, feedback, and drafting, frequently along with traditional learning resources.

Integrating AI in education support learning, help to administer assessment for learning, and maximize learning through timely feedback (Heil et al., 2025; Mbemabati & Bakiri, 2025; Yan et al., 2024). Findings of research done in South Africa indicate that AI is deemed necessary for enhancing education and decolonization, if and only if it is immune to ways of knowing in a context (Mabanja et al., 2025; Maimela & Mbonde, 2025). Despite the perceived usefulness of AI in Education, several studies pinpointed unforeseen scenarios of AI challenges in enhancing the quality of education such as data and algorithm bias, narrower epistemology, academic integrity among others (Mabanja et al., 2025; Maluleke, 2025; Yan et al., 2024). Among others the following texts indicate various main apprehensions:

- **Evaluation validity and challenges of academic integrity:** Students could use contract writing in their thesis and could submit assignments done solely by AI which creates havoc for good assessment practices (Mabanja et al, 2025; Maluleke, 2025; Zlotnikova & Hlomani, 2024)
- **Over-reliance and skill erosion:** Concerns about the erosion of critical thinking skills and over-reliance on AI-generated content surface prominently in both scholarly research and public discourse (Wen et al., 2025; Yan et al., 2024; Zlotnikova & Hlomani, 2024). In this regard, an on-going debate is on integrating AI between "prohibition" and "integration" approaches.
- **Algorithmic and epistemic bias:** The use of imported algorithms and AI models trained largely on Eurocentric or Western data threaten to impose digital colonial structures and diminishing African epistemologies, underscoring the pressing need for

localized development (Mabanja et al., 2025; Maimela & Mbonde, 2025; Maluleke, 2025).

- **Data privacy and surveillance:** Inadequate data protection laws and opaque algorithmic amplified by the absence of regulatory frameworks raise concerns about data privacy and surveillance (Mabanja et al., 2025; Owidi et al., 2025; Yan et al., 2024).

A main concern in African academic discourse since 2020 is the prevalence of institutional unpreparedness and fragmented governance responses. Systematic reviews, cross-national, and regional studies show discontinuities between national policy ambitious, institutional frameworks, and actual practice on the ground (Mabanja et al., 2025; Maina & Kuria, 2024; Maluleke, 2025; Matto & Ponera, 2025; Owidi et al., 2025). Though AI is strategically framed at a continent level as a driver of economic development and *Sustainable Development Goals*, its integration is constrained by lack of infrastructure, human capital shortage, and insufficient regulatory oversight (Elnaem et al., 2025; Maina & Kuria, 2024; Maluleke, 2025). Moreover, institutional and national-level analyses reveal substantial heterogeneity and uneven policy formulation:

Within the context of Botswana and broader African higher education, scholarly discourse indicates the absence of explicit regulatory frameworks governing AI. This gap has generated growing advocacy for grassroots policy formulation—one that is essentially informed by academics' experiential knowledge of AI integration in pedagogical and assessment practices (Zlotnikova & Hlomani, 2024). In a similar vain a multi-country digital audit of HEIs in Ghana, Nigeria, and South Africa showed that numerous universities in South Africa have set up formal AI policies, whereas no such policies were known in Ghana or Nigeria. Consequently, academic staff in the latter contexts must rely on individual discretion when evaluating work suspected of being generated by AI (Cudjoe & Adebayo, 2025).

According to Matto and Ponera (2025) existence of ICT infrastructure and policy strategies alone could not imply ease in AI policy enactment. This could be attributed to a simple fact that a limited number of professionals and leaders exist to translate the policy into practice (Tshibangu & Thembane, 2025).

Empirical studies have shown that a substantial practice-policy gap exists. For instance, a study conducted in Ghana using Technology Acceptance Model (TAM) indicates "perceived usefulness" is more important than concerns about ethical uses (Wainania & Sun, 2025). Likewise, using UTAUT2 model has shown future risks have little influence on applying AI in real settings (Salifu et al., 2025).

Recent reviews of AI in African universities highlight the pressing need to move from abstract discussions to the advancement of localized regulatory frameworks (Mabanja et al., 2025; Maina & Kuria, 2024; Maluleke, 2025). Within these studies, there is a clear agreement on several key action items:

- Synchronization of policies at institutional levels with developing strategies and regional digital agenda, agreeing with differentiation based on varying institutional resource bases (Maina & Kuria, 2024; Matto & Ponera, 2025; Owidi et al., 2025; Zlotnikova & Hlomani, 2024).
- Developing African-centric AI resources to counter epistemic reliance and foster decoloniality (Elnaem et al., 2025; Mabanja et al., 2025; Maimela & Mbonde, 2025; Maluleke, 2025).
- AI ethics and oversight frameworks at Institutional level must basically be rooted in local cultural contexts and indigenous language (Mabanja et al., 2025; Maluleke, 2025).
- Committing to AI literacy initiatives for both educators and students that embed technical, socio-political and ethical dimensions (Heil et al., 2025; Mabanja et al., 2025; Mbembati & Bakiri, 2025; Wainaina & Sun; Yan et al., 2024).

The results all together pinpoint to "enactment bottlenecks"- stages where ambitious policies meet material constraints, limited professional capacity, and unanswered ethical questions (Mabanja et al., 2025; Maina & Kuria, 2024; Maluleke, 2025; Matto & Ponera, 2025; Tshibangu & Thembane, 2025). Empirical findings from South Africa and Tanzania indicates that historically advantaged and urban universities outpace their historically deprived and rural counterparts, depeening intra-national inequalities (Elnaem et al., 2025; Maimela & Mbonde, 2025; Matto & Ponera, 2025; Tshibangu & Thembane, 2025).

In African context, Ethiopian higher education is probably to come across similar tensions between limiting, risk-averse discourses and those focusing integration and innovation. These changing aspects are reformed by national AI and digital strategies on the one hand, and varied institutional capacities on the other (Mabanja et al., 2025; Maina & Kuria, 2024; Maluleke, 2025; Owidi et al., 2025; Zlotnikova & Hlomani, 2024). In several African systems, findings show that the dominant analytical task extends beyond normative questions of whether AI should be adopted; rather, it necessitates examining how national policies are interpreted, mediated, and contested at the university level, and how material conditions and professional capabilities influence their enactment (Cudjoe & Adebayo, 2025; Mabanja et al., 2025; Maina & Kuria, 2024; Maluleke, 2025; Matto & Ponera, 2025). A study done on African HEIs has shown that most of them are at infancy stage of AI implementation (WISE, 2025). But, beyond conducting policy implementation studies, research on policy enactment gap is worthwhile and timely to investigate the planned and intended policy vis-à-vis the real practice at HEIs.

Research Questions

1. To what extent does AI feature in Ethiopian HEIs in official policy documents?
2. How do the material, professional development, situated contexts of selected HEIs in Ethiopia impact how AI policies are actually used in practice?
3. How do key informants in selected Ethiopian HEIs interpret and explain AI mandates into institutional intentions for educational practice?
4. What strategic frameworks are required to align AI policy at different levels with the practical realities of the HEIs?

Significance of the Study

This research is important for several reasons as described in the following paragraphs:

- This study will give direction at sectoral level for Ethiopian Ministry of Education (MoE) and the Ethiopian Artificial Intelligence Institute (EAII) whether the formulated policies work at institutional realities.

- The study will offer evidence for formulating policies which are feasible at institutional level rather than less attainable abstract policies by pinpointing the infrastructure limitations and professional development challenges as described by key informants which potential mirror the Ethiopian Higher Education contexts.
- At a continuum between “ban and. embrace” debate, this research will position itself at a middle path. It tries to show the mechanism how pedagogical redesign can integrate AI to improve students’ learning without compromising the quality of education.
- Majority of studies in AI education in HEIs have been conducted in North American, European, and Chinese contexts. Hence, this research will contribute to global scholarship through Policy Enactment study in a developing country context.
- Investigating the "Material" and "Situated" contexts, this study will focus on the risk of an "AI Divide." Advocating for inclusive policy, the study will show directions for ensuring that the "*Digital Ethiopia 2030*" vision endorses equitable AI integration across Ethiopian HEIs.

Methods

Using interpretivist paradigm, the study employs Stephen Ball’s Policy Enactment Framework to unpack the complexities AI policy enactment contexts. By utilizing a dual-method approach, the study attempts to bridge the gap between official policy and the actual professional realities experienced by key informants.

1. Systematic Document Analysis

To understand the "official" trajectory of AI in Ethiopia, a systematic document analysis was conducted. The researcher used the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) to comprehensively analyze policy documents published. In this study, policy documents refer to official AI policies, guidelines, and digital strategies. The PRISMA guidelines include three phases: identification, screening, and inclusion (Page et al., 2021). Policy documents searching and data collection were performed from the google search. Then, continental and national policy documents were explored by searching the official web pages of the policy developer. Institutional policy documents were

verified by key informants. The initial search string for selecting policy documents focused on AI and Higher Education. Then, the search is restricted to policy documents based on Ethiopia and Africa containing words "digital", "artificial intelligence", and "higher education."

The results were filtered to include policy documents published after 2020, as the role of AI in education in the African continent has been well recognized since 2020, resulting in 30 policy documents related to digital or AI at continental, Ethiopian national, or institutional level. Then, the policy documents were refined by type to include any official policy documents published; as a consequence, draft policy documents not officially endorsed were excluded, and this left 25 policy documents to be analyzed further.

Inclusion and Exclusion Criteria

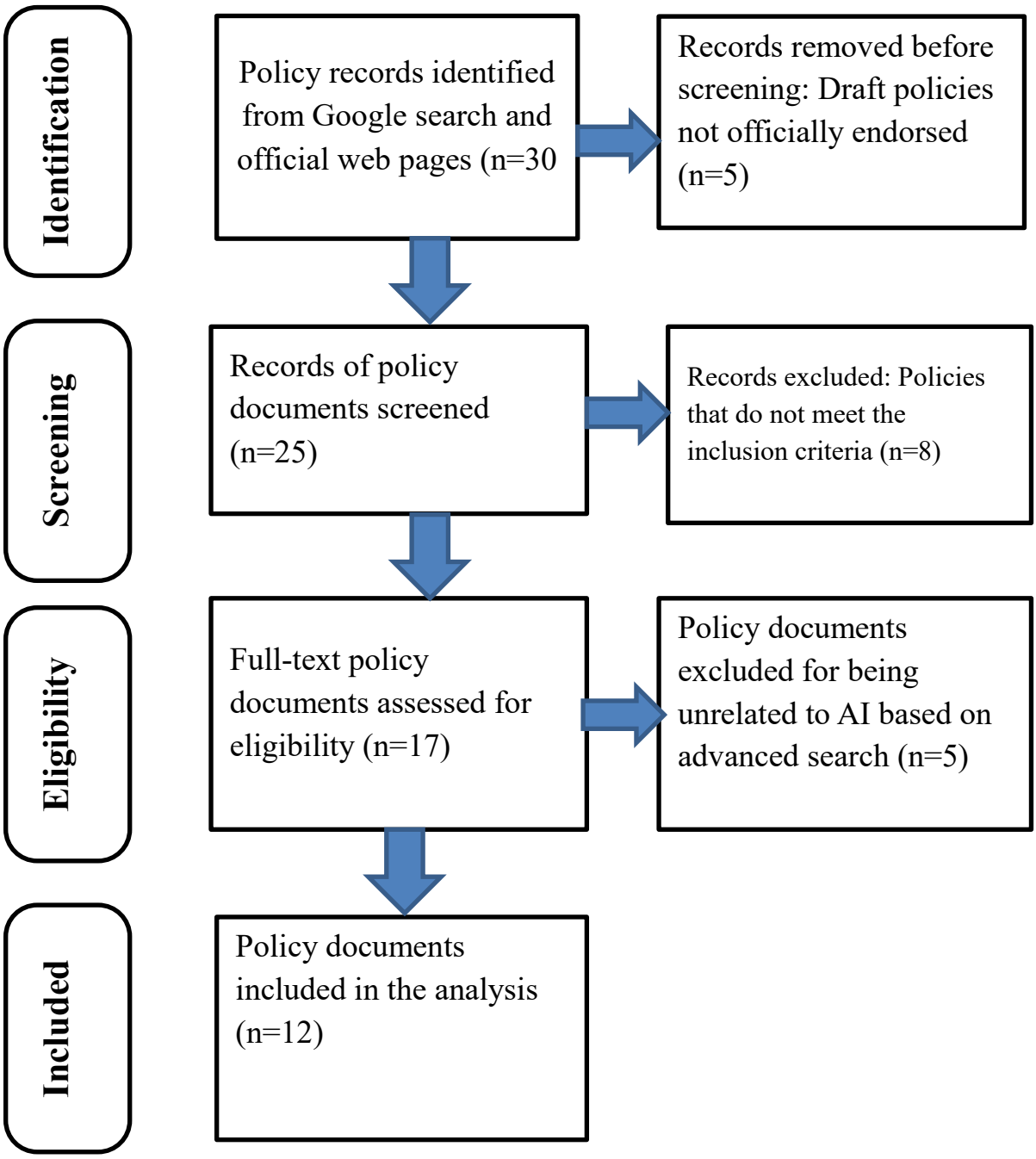
Table 1

Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Language	Policy documents written in English or Amharic	Any other policy documents written in non-English or Non-Amharic Languages
Publication Type	Official policies, guidelines, and digital strategies which deal with AI	Empirical Studies, reviews, conceptual papers, project initiatives reports, non-official policies
Time Frame	2020-2025	Policy related documents published before 2020
Geographical Focus	Continental Policy, Ethiopian national and institutional Policy	Policy documents which are not officially published at the Continental level or Ethiopian national or institutional level
Educational Level	Higher education: universities	Policy documents that do not focus on higher education (e.g., K–12 education, or informal learning settings)
Technology	At least AI technology is mentioned once in a policy document in education context	AI technology is not mentioned at all in a policy document in education context

Figure 1

PRISMA flow diagram of study selection process (Adapted from Moher et al. (2009))



The remaining 25 policy documents were scrutinized based on inclusion and exclusion criteria such as language, publication type, time frame, geographical focus, education level, and technology, as presented in Table 1. Policy documents that did not meet the inclusion criteria were removed, leaving 18 policy documents for further selection. Finally, policy documents were excluded from selection if no AI integration in education is directly or indirectly explicitly written in the documents based on advanced search: this left 12 documents for final policy document analysis. The policy documents selection process is shown in Figure 1.

Data Analysis of Policy Documents

First, the analysis involves an advanced search for the 'AI' or "Artificial Intelligence" term across all selected documents, thorough examination by reading, and interpretation. The corpus of documents was selected using purposive sampling at the continental level, national level, sectoral level, and institutional level listed in Table 2.

Table 2

List of Continental, National, Sectoral, and Institutional Policy Documents

No.	Policy Document Name	Level	Number of pages	Developer and year
1	*African Union (AU) Digital Education Strategy and Implementation Plan*	Continental	84	Africa Union, 2020
2	*Continental Africa Artificial Intelligence Strategy (CESA), Harnessing AI for Africa's Development and Prosperity*	Continental	66	Africa Union, 2024
3	*Digital Ethiopia 2025, A Digital Strategy for Ethiopia Inclusive Prosperity*	National	155	Federal Democratic Republic of Ethiopia, 2022
4	*Federal Democratic Republic of Ethiopia National Artificial Intelligence Policy*	National	78	Ethiopian Artificial Intelligence Institute, 2024
5	*Digital Ethiopia, Vision 2030, Locally Rooted, Digitally Powered*	National	102	Federal Democratic Republic of Ethiopia, 2025
6	*Digital Skills Country Action Plan (DSCAP) For Higher Education and TVET (2021-2030)*	Sectoral	133	Ministry of Science and Higher Education, 2020
7	*Digital Education Strategy and implementation Plan 2023 – 2028*	Sectoral	74	Ministry of Education, 2023
8	*Digital Content Development Guidelines for Higher Education Institutions (HEIs) in Ethiopia*	Sectoral	57	Ministry of Education, 2025
9	*Addis Ababa University (AAU) Artificial Intelligence (AI) Policy and Guidelines*	Institutional	78	Addis Ababa University, 2024
10	*E-Learning Policy and Guideline of AAU*	Institutional	43	Addis Ababa University, 2024
11	*AAU Strategic Plan (2024-2028)*	Institutional	21	Addis Ababa University, 2024
12	*Policy On the Ethical use of AI*	Institutional	10	Addis Ababa Science and Technology University, 2025

These documents were analyzed not as static facts, but as "active texts" to identify how the role of AI is conceptualized and framed within current Ethiopian higher education policy documents and digital strategies. The first search was conducted on the word “AI” and the phrase “Artificial Intelligence” in all pdf official policy documents using advanced search. Second, using excel sheet Red-Amber-Green (RAG) analysis was done on the selected official documents whether the paragraphs where AI is mentioned refer directly, indirectly or are not related at all. At last, the policy documents were appraised on aspects of policy enactment contexts such as situated, material, professional, and external contexts.

2. Key Informant Interviews

To capture the enactment of these policies, semi-structured interviews were conducted with seven (7) key informants. These participants were selected based on their "elite" positioning and expert knowledge within the Ethiopian Higher Education landscape. First, four institutions were selected using purposive sampling, as the researcher had visited all the selected universities more than four times to see their infrastructure readiness to integrate AI in education, among other institutions. Second, they were selected based on the generation of their establishment and weather they are applied, educational, or research universities to investigate AI policy enactments if any.

Then, purposive sampling was used in that all the key informants have first-hand experiences with the AI policy and educational practices of the universities they are currently working in. The informants have taught for more than 10 years in Higher Ethiopian Institutions. On top of this, they have served their institutions in one of the following positions: e-learning directors, Certified Trainers of Master Class Foundation for Online Learning, and ICT and digital learning experts. Except for one participant with a second degree, all interviewed participants hold terminal degrees. All ethical standards were followed to conduct the study. In order to maintain the anonymity of research participants, Pseudonyms were used. Table 3 presents background information on key informants of the semi-structured interview with their code name profiles, roles, and positions.

Table 3

Key Informants' Background Data

No.	Key Informants Pseudonyms	Education Level	Rank	Position or Role	Generation and University Type
1	Chirnet	Ph.D.	Associate Professor	E-learning Unit Leader at University Level	First, Research
2	Begonete	M.Sc.	Lecturer	Certified Trainer, Master Class Foundations for Teaching Online	Second, Applied
3	Selamnew	Ph.D.	Associate Professor	Certified Trainer, Master Class Foundation for Teaching online	First, Research
4	Fikeru	Ph.D.	Associate Professor	Director, Students Career Development Center	Second, Applied
5	Degenet	Ph.D.	Assistant Professor	E-learning Director, Certified Trainer, Master Class Foundations for Teaching Online	First, Research
6	Yohannes	Ph.D.	Assistant Professor	Director, e-learning Management Directorate	First, Research
7	Desta	Ph.D.	Assistant Professor	Directorate Director	First, Education

The interviews focused on the four contexts of enactment (Situated, Material, Professional, and External). The content of the key informants' semi structured interview included: (1) participants' views about what they know about AI policy and its integration in educational practice in their university, and (2) their views on Institutional Support, and how faculty members currently are using AI tools in their educational practices, and the perceived benefits and challenges of using AI in educational practice. Lastly, the interview includes questions about what type of policy changes or guidelines are needed to facilitate the responsible and effective use of AI in educational practice, balancing the potential benefits of AI with the need to maintain academic integrity. The interviews were conducted from December 10, 2024, to December 24, 2024. All of the interviews were administered in Google Meet after the participants gave consent. The interview transcription has been sent to the participants for confirmation. Each interviews took approximately 30 minutes. Thematic analysis was done on the semi-structured interview data.

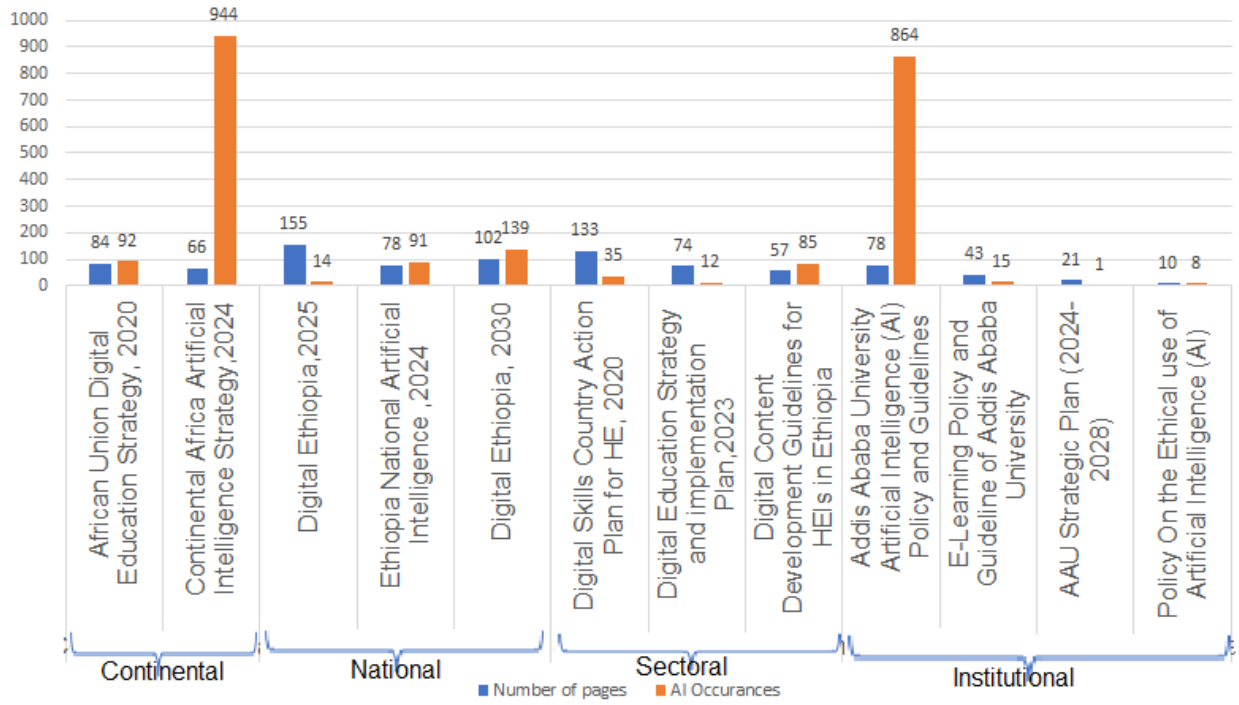
Findings

Policy Enactment Contexts Analysis based on AI Policy Documents

The findings on the Advanced search of the term 'AI' or "Artificial Intelligence" showed a high number of instances in the *Continental Africa Artificial Intelligence Strategy* with 944 occurrences and a low instance in the *AAU strategic plan* (2024-2028) (2024b) with a single occurrence as shown in Figure 2. The RAG analysis at a paragraph or section level depicted the *AAU Strategic Plan (2024b), AAU E-learning Policy and Guideline* (2024c) and two other documents explicitly mentioned AI in educational contexts 100 % as indicated in Figure 3.

Figure 3

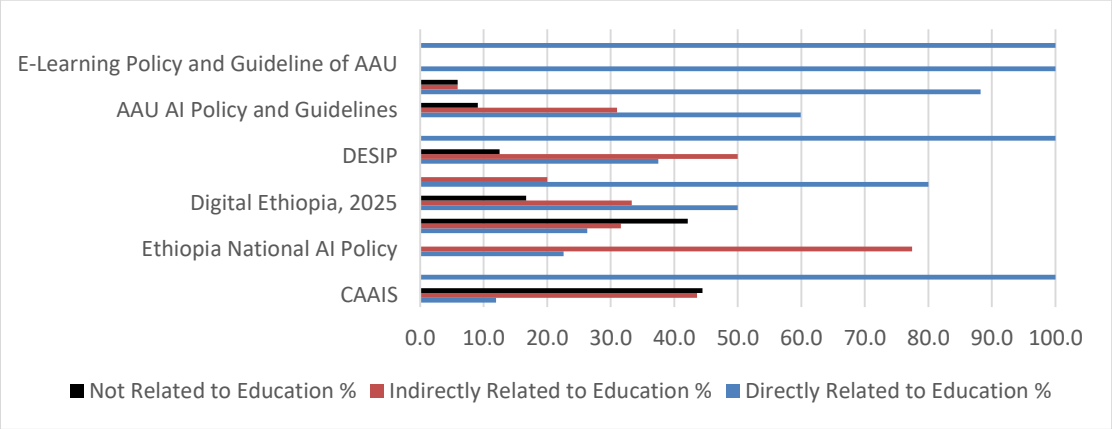
AI instants in the policy documents



Ethiopia DSCAP and Ethiopia National AI policy documents have used AI both directly in education and indirectly in broader capacity-building, skills, research, or sectors that include education tangentially with different percentages. Among the 12 policy documents, the RAG analysis findings showed that five documents describe AI directly and indirectly in an education context; yet they also used AI in other sectors (e.g., agriculture, health, governance, security) with no link to education.

Figure 4

RAG Analysis of AI in Policy documents related to education paragraphs/ Sections Percentages



Situated Enactment Policy Contexts

The situated context of AI was explored in the selected policy documents. Throughout the policy documents under scrutiny, the importance of the local context for AI in education is steadily considered, focusing on tailoring AI to local realities of African and Ethiopian HEIs contexts. For example, the *Continental Africa AI Strategy* notes that "Africa should also build AI skills in higher education… integrating AI into computer science and mathematics education" (p. 43, Para 1) and call for "AI applications specialized to address specific challenges in African education, such as language diversity, access to quality education, and teacher shortages" (p. 43, Para 3). This indicates AI enactment requires its application in authentic contexts of HEIs. Institutional documents like the *AAU E-Learning Policy* (2024c), for instance, explicitly anchor AI in the context of student assessment with the directive: "Students shall not use AI to create content for submitting assignments and thesis for grading" (Policy Direction #35, Guideline d). This creates challenges for applying AI for instruction. *AAU AI Policy* (2024a) emphasized centrally on changing educational landscape on values of leadership, ethics, and risk associated with AI use; however, it offers minimal affecting the core of educational dynamics like instruction. A similar representation is expressed in *Digital Education Strategy for Ethiopia,* which pinpointed a "lack of pedagogical and ethical detail". As a consequence, little guidance has been provided to

change the core of educational transactions for quality education such as instruction and assessment for learning.

Material Policy Enactment Contexts

The *Continental Africa AI Strategy* states, "limited awareness of AI among the workforce is the biggest barrier to AI adoption" (p.30. Para 1). In addition, it asserts that "lack of adequate bandwidth and data sovereignty regulations make it difficult to use such systems to experiment with AI solutions" (p.48. Para 4). Similarly, Digital Ethiopia 2030 (p.4) directly addresses on "AI compute capacity", with national level issues as "sovereign cloud", and "high-speed broadband". Ethiopia has plans to set up AI labs in HEIs as highlighted in *DSCAP*. AI is considered as a generic tool even in *Digital Education Strategy for Ethiopia* instead of using it for instructional practice.

AAU E-Learning Policy (2024c) states directives as, "invest in cutting-edge AI technologies," However, no clear description exists in the document on how to adapt a tool and benchmarks to incorporate AI and material needs. Similarly, *AAU AI Policy* (2024a) explains on the infrastructures need to integrate AI, nevertheless no guidelines are provided to solve the challenges of access. Likewise, *African Union Digital Education Strategy* recognizes that "AI uptake in Africa is still nascent due to the limitation of the necessary infrastructure, data to train AI solutions and AI skillsets" (p.83, Para 1) with minimal tangible preparation for solving the challenges. In effect material context will mainly stay the same while being ambitious and not specific enough. Based on *Digital Education Strategy and Implementation Plan*, regarding infrastructure stated a collection of some remedies not specific enough to address barriers to integrate AI in Higher Education.

Professional Policy Enactment Contexts

AAU E-Learning Policy (2024c) gives direction as "course designers, instructors, departments…shall monitor the ethical use of AI tools," recasting instructors in a monitoring capacity. Simultaneously, it provides no road map for professional development of instructors to navigate AI's, critically assess its outputs, or update and upgrade their assessment methods. *The AAU AI Policy* (2024a) reflects similar void to support instructors in a continual basis.

Even if training is recognized very important, its practicality or feasibility is very minimal in contrast with better infrastructure and situated contexts in place.

Based on 12 paragraphs and segments references of the *Continental Africa AI strategy* on Professional Development provides detail explanations inviting African countries to "develop national AI competencies" for instructors and learners and to "invest in capacity-building training educators and students in AI technologies, coding, and data science" (p.43). Correspondingly, *Ethiopia's Digital Skills Country Action Plan (DSCAP)* has detailed on the professional development with 12 paragraphs focusing on capacity development programs to integrate AI in education. Still, the challenge is lack of clear competency frameworks and professional development modules even if there is clear indication of the importance of empowering instructors for ethical use of AI (*Digital Education Strategy for Ethiopia*).

External Policy Enactment Contexts

Digital Ethiopia 2030 as a national policy is somewhat in alignment with external contexts; for instance, the document mentioned the "*UN Global Digital Compact*" at an international level, "*African Union Digital Transformation Strategy*" at continental level, and relative documents such as "Uruguay's Plan Ceibal" and "India's DIKSHA" (pp. 4, 13-14). However, the external context could lead to both positive ends as a catalyst or to negative ends as a distraction instead of living in harmony with the local contexts. For example, the AAU E-learning Policy (2024c) focuses on the external context on banning and regulating AI in education to oversee AI ethical implications under "strict privacy and data protection standards" (Policy Direction #35). This method provides a protective structure, reconciling AI policy enactment with legal and ethical frameworks. The *AAU AI Policy* (2024a) emphasizes on the regulation aspect rather than providing direction on the mechanism to integrate AI effectively in instructional objectives. This trend is observed in Ethiopian AI official policy documents, as the external contexts are used solely as a benchmark rather than using them proactively for instruction purpose strategically. As a result, the external contexts serve regulatory purpose from top-down and weakening in terms of leveraging them for reproducing sensitive AI pedagogies at HEIs.

Summary on AI Policy Enactment Across Contexts

Policy directions are profoundly shaped by continental and national agenda, such as the *AU AI Strategy* and *Digital Ethiopia*, alongside institutional governance frameworks. External contexts exert influence on the official policy documents developed and they primarily serves as a benchmark or regulatory stand points rather than pedagogical strategy tool. The alignment with global norms suggests a risk of policy isomorphism, where local systems adopt governance models that "may not fully align with ground-level realities," for instance, the *Continental AI Strategy's* reliance on UNESCO frameworks (CAAIS, p. 18).

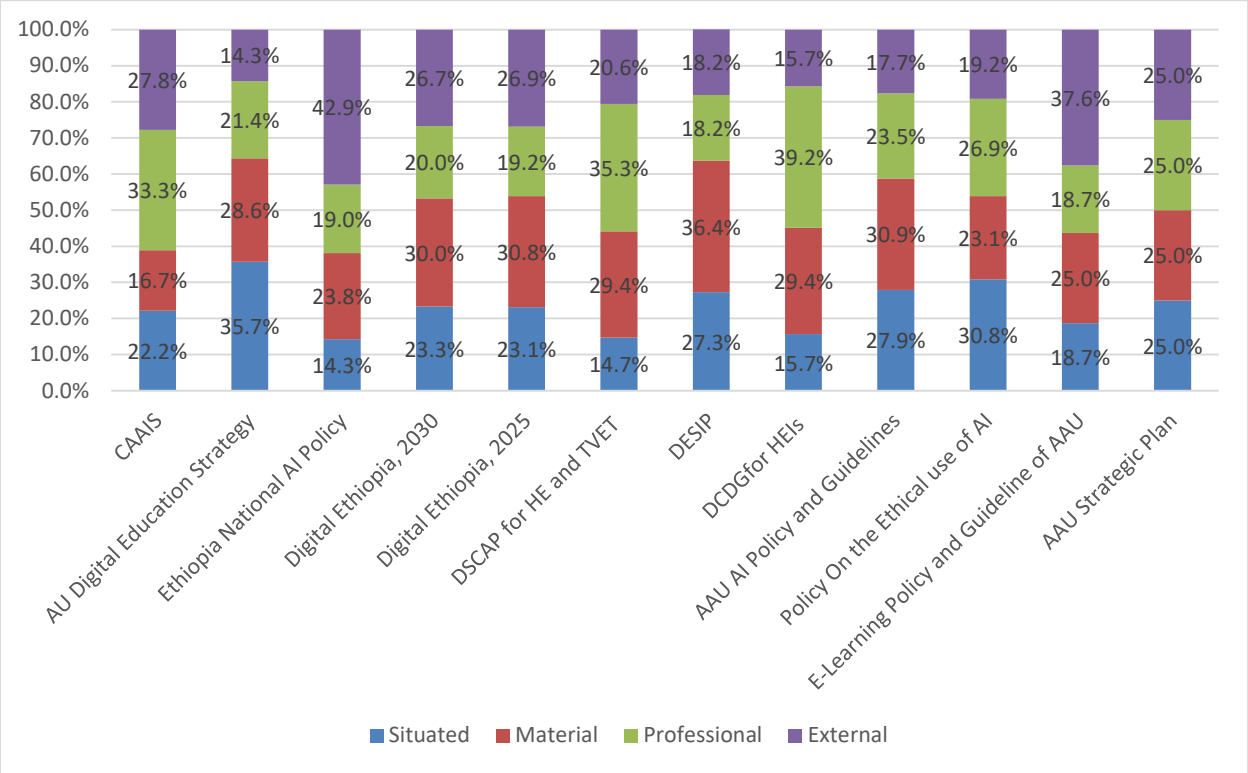
The Professional Context is acknowledged as the most critical yet insistently as an infancy stage for effective AI enactment. The *Continental AI Strategy* (2024) recognizes that instructors have a determinant role in AI policy enactment, however it is only a request and there is a need to support instructors and establish a deliberate effective capacity development program. Similarly, The *AU Digital Education Strategy* (2022) highlights that instructors capacity development is often not prioritized and lack planning ahead of time. The AAU AI Policy (2024a) evaluation is that individual instructors working in silos will create havoc for practice at HEIs which could limit instructors' capabilities harnessing the power of AI for improving students' learning.

The *Continental AI Strategy* and *Ethiopia's Digital Education Strategy* envisage that AI has to be integrated at every institution in Africa; however, the strategies are ambitious. Scholars defend their claims that they are not concrete enough to be actualized in real education settings in HEIs. Moreover, to a greater extent infrastructure divide exists: though the documents concede material deficits such as power and broadband, they provide only vague promises rather than institution-level resources. An important question to ask is the following: can AI strategies flourish if their infrastructure foundations are imagined rather than subsidized? By ignoring the coordinated efforts which works on materials along with clear vision, policy will not be successful to create an authentic equitable learning environment. Could HEIs give priority among the four policy enactments context? Is it possible to provide professional development first without having adequate infrastructure foundations like dependable electricity, internet access and tools? The results offer a recommendation that an integrated balanced approach with due attention to all the four

contexts simultaneously will be a great move to render the official policy documents serve as a spring board towards a sustainable quality education practice.

Figure 5

Situated, Material, Professional, and External Policy Enactment Contexts



Interview Results on the Context of AI Policy Enactment

1. Situated Context: Localized Use and Pedagogical Integration

The key informants responded to how AI is being used (or not used) in specific teaching, learning, and assessment activities. Their responses are depicted below:

- **Current Adoption in Teaching & Assessment:**
    - **Selamnew:** "I have used Generative AI to write a proposal for myself and design instruction and assessment of variety type."

- **Fikeru:** "I used AI in instruction and assessment. It is innovative because it has purpose. I use it for undergraduate, for master and Ph.D. students... It is used to give personalized feedbacks for students."
- **Desta:** "I think Generative AI can be used for instruction and assessment purposes, like take-home assignments, exams, and projects. Especially, it can be used during prewriting and post writing of an assignment or a project."

- **Perceived Benefits for Classroom Practice:**
  - **Chirnet:** "AI will help teachers to use student-centered pedagogy... it will be easy for them to generate instruction and assessment with feedback within a short period of time."
  - **Fikeru:** "Efficiency and speed for instructors for grading. Adaptive instruction and assessment are used for different ability group of students."
  - **Desta:** "For prewriting, it can be used for initial brainstorming ideas and summarizing ideas. For post writing, it could be used for spelling check, grammar, to enhance readability of research and its presentation."
- **Situated Challenges and Risks:**
  - **Chirnet:** "If we give an assignment it is really difficult to know to what extent students used AI."
  - **Selamnew:** "On students' side, it may help them to get short answers. It may generate transcripts for students and they may use it without editing. So, it may be problematic."
  - **Fikeru:** "It may expose students to plagiarism misdeeds, and may create dangerous situations."
  - **Degenet:** "In our instruction and assessments, like in in Master Class on-line trainings, on open response instruction and assessments, people entirely copy everything."

2. Material Context: Tools, Data, and Infrastructure

The respondents also replied to questions related to the technical resources, data relevance, and access issues surrounding AI.

- **Awareness of Tool Limitations:**
    - Chirnet: "Chat-GPT will not have relevant content specifically related to a developing country like Ethiopia as contents trained on Western data are used."
    - Desta: "I see we have limited data in developing country, it is difficult to tap wisdom from indigenous knowledge."
- **Concerns Over Data and Output Quality:**
    - Desta: "They have limitations in that they may generate incorrect answers and compromise privacy concerns."
    - Begonet: "Gen AI has a potential challenge in terms of using data."
- **Infrastructure and Support Gaps:**
    - Begonet: "Even if we have well-organized smart classrooms and good infrastructure like servers and studios... No training program exists on its use in instruction and assessment practice."
    - Yohannes: "Faculty and students are adopting AI tools, but face challenges such as data privacy, security, and accessibility."

3. Professional Context: Educator Capacity and Readiness

- The key informants gave respond on the preparedness, training, and evolving roles of educators:

- **Current State of Faculty Readiness and Training:**
    - **Begonet:** "I am familiar with generative AI but I haven't used it for educational instruction and assessment yet. I have one online training on Generative AI recently."
    - **Begonet:** "Almost half of our faculty certified on Master Class, but no special training has been given on using AI for instruction and assessment."
    - **Degenet:** "One time I told you there was an orientation from this Nigerian professor two years ago. Since then, I have not seen any kind of gathering to talk about the AI or ChatGPT."
- **Identified Need for Professional Development:**
    - **Selamnew:** "AI will help us to save time but it needs proper trainings."
    - **Begonet:** "We need hands on training and workshop for using Gen AI in instruction and assessment."
    - **Fikeru:** "It is left for the teachers. Students don't have any training. It is necessary to have a good judgement when to use and when not to use it."
    - **Chirnet:** "We don't capacitate teachers on generative AI instruction and assessment."
- **Role of Educator Judgement and Ethics:**
    - **Fikeru:** "Human interference is very important to use AI."
    - **Degenet:** "We advise students to use it, but with some kind of responsibility by modifying those answers they get from the ChatGPT."
    - **Yohannes:** "If they use AI responsibly, it has benefits. So, I think we can help our students to use ethically and responsibly."

4.

External Context: Institutional Policies and Strategic Frameworks

Finally, the key informants describe the institutional, national, and global policy environment governing AI use.

- **Existence and Awareness of Institutional Policy:**
    - **Chirnet:** "We have AI policy at Addis Ababa University, but it has risks."
    - **Fikeru:** "Of course, as Addis Ababa University, we have AI policies; however, they have not been fully launched."
    - **Degenet:** "We have neither a policy on Generative AI for Education nor guidelines for using it for instruction and assessment purpose. Even we don't have some policy on how to cite if somebody uses it."
    - **Yohannes:** "In reality, no support has been given for both faculty and students and we don't have any institutional policy."
- **Calls for Policy and Guideline Development:**
    - **Selamnew:** "A well-articulated policy is needed for AI instruction and assessment."
    - **Fikeru:** "First, AI guideline should be in place which needs to be consistent and fair on using AI. Second, data security should be in the Policy for all users of AI in instruction and assessment."
    - **Desta:** "We need to see how different institutions across the world use generative AI and adopt our own... we don't have policy to what extent AI could be used in final cap stone projects in post graduate programs which needs immediate solution."

- **Strategic Recommendations for Institutional Action:**
    - **Begonet:** "I imagine my institution should collaborate with others in building infrastructures for AI... the institutions should have clear instruction and assessment guidelines in AI-powered environment."
    - **Chirnet:** "Instructional designers should develop curriculum and instructional guidelines to balance academic integrity and Generative AI. We need to aggressively work to change the learning and instruction and assessment environment.

Thematic Analysis of Interview Data by Contexts of Enactment

1. Situated Context: Mismatch between Pedagogy and Ground-Level Capabilities

Under this theme the lived experiences about AI use within defined learning environments, showing a mismatch between recognized utility and operational failure in reality are treated. Key informants acknowledge AI's situated advantages for accomplishing tasks effectively and efficiently like fast content generation and feedback in personal ways- for supporting student-centered methods like self-paced assessments. According to a key informant view, it enables educators to "generate instruction and assessment with feedback within a short period of time". However, this usually poses a danger for anyone to take actions assuming it is feasible. A main challenge resides in knowing the extent of AI use by students. As a result, there will be contrary views on pedagogy: even though AI has a high probability to enhance students learning, it will only support surface understanding and promotes "shortcut learning," with students submitting unedited AI-generated content. By this, the trustworthy learning process and critical thinking will be lost within the instruction dynamics

2. Material Context: The Problem of Inappropriate Tools and Insufficient Foundations

This theme is concerned with Western data bias. Foremost AI platforms are considered as deficient and the contents lack sensitivity for developing countries like Ethiopia. The key informants have responded that their institutions have good infrastructure

like smart classrooms, the indispensable tools like adequate internet access. But others remain to be still a challenge.

3. Professional Context: Professional development challenges and Digital Literacy

A prolonged lack of structured, ongoing professional development initiatives and capacity-building are treated under this theme. Capacity building is usually provided for a single shot as explained by key informants or is completely not present, not preparing instructors very well to integrate AI into their pedagogical practices. This void feeds into unorganized, silo trials with AI, happening without reaching agreement at institutional level. Key informants emphasize that meaningful engagement with AI excels instructors' competency. The projected change in educator identity is considerable: shifting from transmitter of content to ethical mediator and critical facilitator, competent enough to model responsible AI use and supporting students to alter the response they obtained appropriately.

4. External Context: Policy Void and the Requirement for Legitimizing Frameworks

AI policies exist at continental, national and institutional level; however, they are not enacted properly in reality. For Example, key informants explained that Addis Ababa University AI policy is rarely used by instructors or remains poorly understood, showing a pronounced guideline absence. This policy void leaves educators searching for directing high-stakes decisions without clear protocols regarding suitable use, citation practices, or academic integrity standards, forcing them to operate in a vague regulatory space. Key informants unanimously call for active and structured institutional engagement. This comprises the development of strong, contextually grounded policies that address data security, accessibility, and ethical frameworks. The desired external context is not one defined by preventive prohibition, but rather by legitimizing scaffolding that provides well-articulated guidelines for instruction and assessment with illustrative examples —enabling responsible and effective enactment across all other contextual dimensions.

Discussions

This study examined the enactment of AI policy across four critical contexts: Situated, Material, Professional Development and External. Although Ethiopian and Africa Union policies reveal strength in framing AI as an external strategic priority and categorization of

material requirements, they are constantly lacking in stipulating the trails important to translate these ambitions into educational practice. This finding echoes with broader African studies, which show signals on enactment barriers where ambitious external goals crash with material restrictions and inadequate professional readiness (Mabanja et al., 2025; Maina & Kuria, 2024). In Ethiopia, this pressure displays as a top-down, compliance-driven approach that privileges governance and infrastructure while neglecting the pedagogical and human capacities essential for meaningful use of AI in Education.

A core finding deals with the crisis within the Professional development Context. Even though policy documents rhetorically position teachers as the key actors, they lack concrete, scalable plans for professional development—a pattern reflected in research works from Tanzania and Botswana, where instructors are left to work without any support (Matto & Ponera, 2025; Zlotnikova & Hlomani, 2024). The key informants interview data corroborate this gap, revealing that training opportunities are irregular and deficient. Without a critically literate and competent instructors pedagogically, investments in the Material Context—such as AI labs and broadband infrastructure—risk being underutilized or misapplied, possibly worsening rather than mitigating educational inequities. This concern resonats with studies examining intra-national disparities in South Africa (Maimela & Mbonde, 2025; Tshibangu & Thembane, 2025).

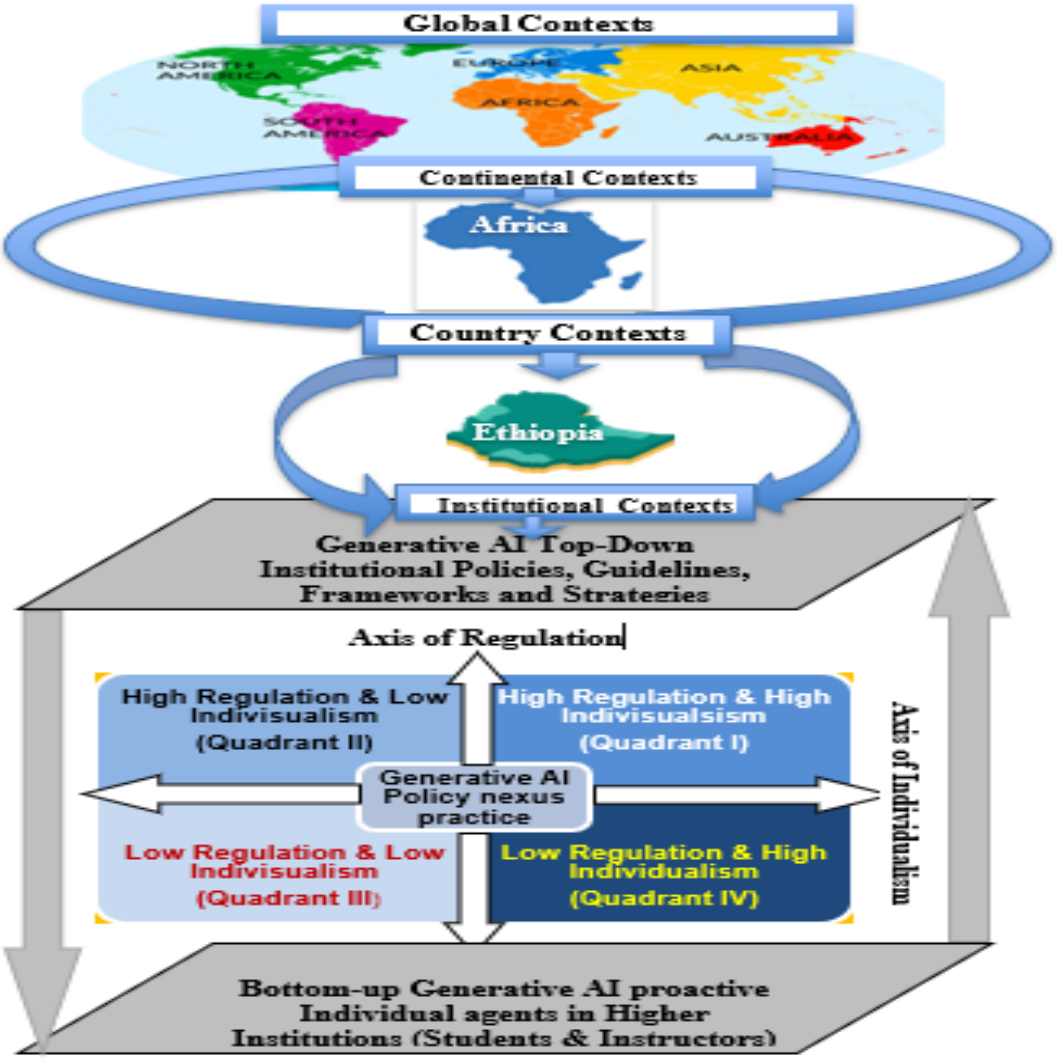
Moreover, the study sheds light on a continuing pressure within the Situated Context. While both policies and educators admiting AI's potential to enhance personalization and efficiency—a perception supported by student-focused studies in Ghana and Tanzania (Mbembati & Bakiri, 2025; Salifu et al., 2025)—its actual enactment is frequently marked by not working well. The validation catastrophe in assessment and the inescapable danger of shortcut learning rule practitioner experience, prompting restrictive, prohibitive guidelines hinder pedagogical innovation. This not proactive and contradicts with pedagogically integrated models supported in the literature (Heil et al., 2025). Additionally, the Material Context is constrained not merely by infrastructure gaps but by the fundamental irrelevance of available tools, reflecting concerns over data bias originating from the North featuring algorithmic epistemic dominance,dynamics that scholars argue is a form of digital colonialism (Mabanja et al., 2025; Maimela & Mbonde, 2025).

The answer to our overarching research question is clear: no single strategy whether professional development comes first or having adequate infrastructure can flourish if the remaining contexts are neglected. What is vital is an integrated and recursive framework, involving national strategy (external) localized infrastructure (material), which in turn enables sustained, context-sensitive teacher development (professional), eventually empowering educators to design and implement ethical, transformative AI-augmented pedagogy (situated). In the future, efforts must concentrate on closing these enactment loops, fostering policies that are not merely impracticable but mutually reliant on one another and operationally grounded on realities of all four contextual dimensions.

The integration of AI in Ethiopian HEIs as this study shows is characterized by a critical disconnection between top-down policy and bottom-up practice. Even if global, continental, and national frameworks back up AI integration from the top as shown in Figure 6 the absence of clear, actionable institutional policies has created a regulatory vacuum. This vacuum has created a fragmented, bottom-up landscape in which faculty and student engagement with AI ranges widely, from active integration to complete escaping, driven by individual discretion rather than coherent institutional strategy. The existing state aligns with Quadrant IV (Low Regulation, High Individualism), where unchecked, unrestricted use risks fostering over-reliance and academic integrity alarms while failing to harness AI's full pedagogical potential. To progress towards Quadrant, I (High Regulation, High Individualism), a symmetrical approach is imperative: institutions must develop enforceable, context-sensitive policies and guidelines, while at the same time empowering educators through structured training and professional autonomy. Such a balanced framework would enable ethical, human-centered AI integration, transforming irregular individual experimentation into a coherent, institutionally supported practice that aligns both with national aspirations and classroom realities.

Figure 6

Reconciling Perspectives from Top-down and Bottom-Up

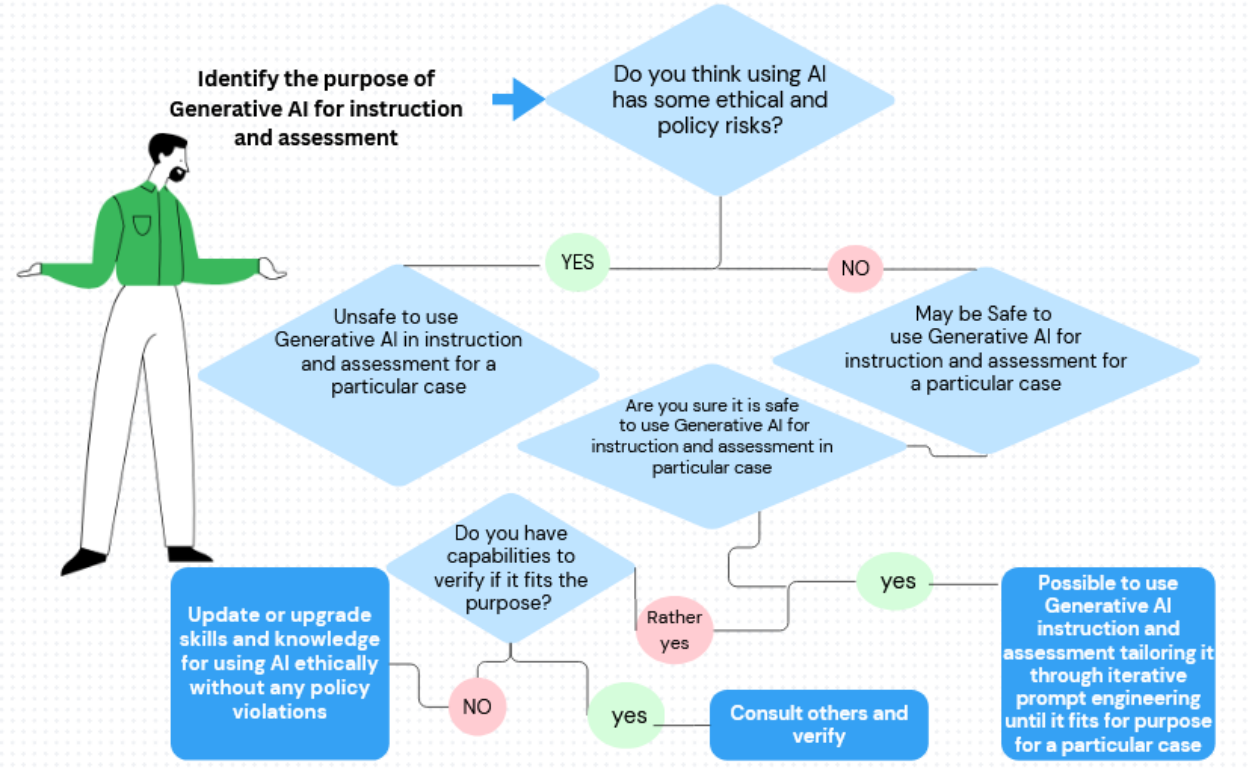


Instruction and assessment can be done at the college, school, or institutional level. For example, Ph.D. students should be trained before teir professors assess student projects' similarity or plagiarism index using Turnitin. Instructors in higher education institutions could use generative AI for formative and/or summative assessment. The decision-making tree for using generative AI in instruction and assessment is shown in Figure 2. First, instructors in higher education institutions could identify the purpose of instruction and assessment before using generative AI. After selecting an appropriate generative AI, having in

mind the limitations, instructors should consider the risks of using the tool with respect to policy and ethical standards. Instructors need to screen generative AI tools for continuous assessment and summative assessments. If it has some risks, instructors don't need to use it. If instructors think that using generative AI for instruction and assessment has only a little risk, they could use it, but they need to be cautious that they have the expertise to ensure that it is fit for purpose. Further, they need to take full accountability if they use the tool and further make sure it fits for purpose making all the necessary revisions.

Figure 7

Decsion -making Tree to Use Generative AI for Instruction and Assessments



Conclusions

The core findings of the study suggest that the existence of policy alone cannot guarantee enactment as intended without looking through the practice at the ground level in a

given context at HEIs. If we wish great accomplishments for improving the quality of education by linking the high-level policy official documents and the existing realities of different HEIs, it is better to choose a 'middle-out' approach. As this study shows, the HEIs have started the journey beyond the false dichotomy of prohibition versus integration by emphasizing on how to enact AI without compromising institutional integrity while at the same time coming in agreement with international technological changes. Finally, the enactment of AI must be equipped with adequate infrastructure and used in a given context properly to guarantee that AI development is applied into authentic pedagogical quality.

The study has shown that navigating the frontier of AI in Ethiopian HEIs establishes a process of complex negotiation rather than simple linear adoption. Through a multi-level analysis of continental, national, and institutional policy documents integrated with the key informants' views, the research has indicated a profound "enactment gap." The global context has external contexts in alignment with *Digital Ethiopia 2030*. However, challenges exist on the material and professional development aspects which could impact the enactment of the policy in real settings of HEIs.

Directions for Future Research

The study recommends the following areas of research on AI in Education in HEIs:

1. The Student Perspective (Bottom-Up Enactment): Future research should employ large-scale quantitative surveys or ethnographic focus groups to explore how Ethiopian students are utilizing AI tools "below the radar" of official policy, identifying the gap between student practice and institutional governance.

2. Longitudinal Enactment Studies: As the national AI strategy matures toward 2027 and 2028, longitudinal studies are required to track how different generations of Ethiopian universities (Research vs. Applied) adapt their organizational structures and ethical guidelines in response to emerging AI capabilities.

3. Pedagogical Reconfiguration: There is a critical need to investigate the "professional" context in depth specifically the challenges instructors face when shifting from traditional examinations to process-based assessments, such as portfolios and oral defenses.

Research should focus on the impact of this shift on faculty workload and equitable access for students with varying levels of digital literacy.

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