



Instructional Design approaches in African Higher Education: A systematic review of emerging trends and practices

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ABSTRACT

This systematic review aimed to map and analyse the instructional design approaches adopted in African Higher Educational Institutions (HEIs). In line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, 59 peer-reviewed articles from the Scopus and Taylor & Francis databases were systematically analysed to tease out prevailing trends. Out of the 59 reports used, 33 studies that looked at only instructional design approaches were selected and reviewed thematically. A structured process of data extraction and coding, by two independent reviewers, was used to identify commonly used approaches and implementation patterns across different institutions. The Cohen's Kappa-statistic (K) coding process was used to ensure the reliability. The findings show that learner-centred approaches such as blended, experiential, and project-based learning are the predominant approaches used. The study underscores the need for faculty development, policy frameworks, and model-informed planning to sustain innovation in African HEIs. It contributes a continent-wide synthesis that can guide future research in line with instructional design. This paper represents a systematic synthesis of instructional design approaches that are unique to African higher education, bridging theoretical and practical insights to inform pedagogy, policy, and curriculum design.

Keywords: Africa, blended learning, higher education, instructional design, project-based learning

INTRODUCTION

Instructional design (ID) has become a significant aspect of quality instruction and learning in the higher education sector worldwide. ID provides systematic frameworks for creating, implementing, and assessing educational experiences as organisations work to meet the demands of the twenty-first century, which are marked by digitalisation, changing learner expectations, and calls for inclusive pedagogy.¹ In this review, prevailing trends in instructional design studies conducted in African higher educational institutions (HEIs) in conjunction with ID approaches are examined. African higher

¹ Hassan Abuhassna and Samer Alnawajha, "Instructional Design Made Easy! Instructional Design Models, Categories, Frameworks, Educational Context, and Recommendations for Future Work," *European Journal of Investigation in Health, Psychology and Education* 13, no. 4 (2023): 715–35, <https://doi.org/10.3390/ejihpe13040054>.

education literature reflects ID through implemented teaching strategies rather than as clearly articulated formal models.

ID approaches such as blended learning, flipped classrooms, experiential learning, and problem-based learning (PBL) have gained traction, reshaping how teaching is delivered and experienced.² In African HEIs, these ideas have taken hold in diverse and sometimes localised ways. Universities are experimenting with a variety of design approaches, frequently modifying or improving current designs to better suit their unique contextual realities. For instance, blended and remote learning strategies quickly grew during and after the COVID-19 pandemic, allowing for instruction to continue even in the face of infrastructure constraints.³ Learner-centred and constructivist pedagogies are increasingly recognised for their ability to foster engagement.⁴ These initiatives demonstrate a growing understanding of the importance of instructional design in addressing systemic issues, such as the continent's resource shortages, high student-to-faculty ratios, infrastructure inequalities, and technological divides.⁵

Literature on ID studies remains fragmented, much of the research is discipline-specific, institution-bound, or fails to clearly articulate which instructional approach underpins practice. Consequently, little has been done to provide an overview of the prevalent approaches in HEIs across Africa, how they have been utilized, or in which contexts.

This study fills these gaps by conducting a systematic literature review (SLR) of the ID adopted across African HEIs. The analyses of 59 peer-reviewed studies between 2018 and 2025 map emerging trends and explore how ID approaches have been deployed across institutions and disciplines and what patterns and gaps emerge from their use. The review provides a synthesised knowledge base for future researchers, guides faculty development and instructional planning, and enables policy decisions that will make instruction stronger in Africa's higher education sector.

Below are the research questions underpinning the review of the study:

1. What are the prevailing trends in ID studies conducted in African higher educational institutions?
2. How are ID approaches classified and implemented in African higher educational institutions, and what patterns and gaps emerge from their use?

LITERATURE REVIEW

ID in higher education has also changed due to various factors, including changes in ID practices, increased diversity, and advancements in technology. Although there have been various reports and documents concerning the adoption of different forms of ID practices globally, there appears to be a huge gap in the synthesised reports produced concerning the adoption and integration of these IDs in HEIs in Africa. Although most reports or systematic reviews are either geography or theory-centered, minimal reports have offered context-specific analyses, especially concerning African education settings. In fact, a parallel body of literature was observed within the realm of learning design, especially in relation to applying Universal Design for Learning (UDL) within the specific setting of inclusive education. Han and Lei reported that while teachers and learners alike held UDL in positive regard, factors such as a lack of professional development, a lack of flexibility within the curriculum,

² Sofie Otto et al., "Emerging Digital Practices Supporting Student-Centered Learning Environments in Higher Education: A Review of Literature and Lessons Learned from the Covid-19 Pandemic," *Education and Information Technologies* 29, no. 2 (2024): 1673–96, <https://doi.org/10.1007/s10639-023-11789-3>.

³ Rabia Imran et al., *Since January 2020 Elsevier Has Created a COVID-19 Resource Centre with Free Information in English and Mandarin on the Novel Coronavirus COVID-19. The COVID-19 Resource Centre Is Hosted on Elsevier Connect, the Company's Public News and Information*, no. January (2020).

⁴ Pui Ki Patricia Kwok, "Comparing Stakeholders' Perceptions of the Implementation of 'Learner-Centred' Pedagogy: The Case of Rwanda," *Comparative Education* 60, no. 4 (2024): 555–72, <https://doi.org/10.1080/03050068.2024.2345471>.

⁵ Sithabile Ntombela, "Reimagining South African Higher Education in Response to Covid-19 and Ongoing Exclusion of Students with Disabilities," *Disability and Society* 37, no. 3 (June 2022): 534–39, <https://doi.org/10.1080/09687599.2021.2004880>; Oyinlola Omolara Adebola and Cias Tsotetsi, "Collaborative Learning: A Veritable Tool for Promoting Classroom Participation Among Pre-Service Teachers in Rural Universities in South Africa," *Journal of Culture and Values in Education* 5, no. 2 (June 2022): 65–79, <https://doi.org/10.46303/jcve.2022.20>; Oluyomi Susan Pitan and Colette Muller, "Assessment of Strategies for Preparing Graduates for the Disruptive Workplace: Evidence from Nigeria and South Africa," *Journal of Teaching and Learning for Graduate Employability* 14, no. 1 (June 2023): 15–30, <https://doi.org/10.21153/JTLGE2023VOL14NO1ART1576>.

and resource-limited settings were important challenges towards implementing UDL successfully.⁶ In a similarly deliberative study, it was pointed towards a confusion of concepts within UDL & Differentiated Instruction (DI).⁷ While UDL & DI were mixed & matched within certain models, both studies strongly leaned towards theoretical discourse as opposed to implementing UDL within African HEIs, a concept of potentially pivotal importance towards promoting further use within the said sector.

Best practices include the integration of sign language, training teachers, and a national policy to support disabled students, as identified in the literature.⁸ However, this study strayed more towards policies and issues associated with a disabled student, as opposed to approaches of instructional design to implement such policies effectively. Again, the small collection of papers within the study, with a total number of n=15, prevents effective generalisation towards findings within the scope of HEIs globally. In another study, a bibliometric study of 1677 articles related to technology adoption in English language learning was carried out.⁹ Although the study confirmed that technological transformation is having an impact on education, it did not address the instructional aspect of the impact of such technologies. Despite the existing gap in the literature, it is important to note that more needs to be known about the integration of technology in learning design and how it is located from an ID perspective, especially taking into account the African context, where technological influence can be hampered by a lack of infrastructure and related policies.

In another study, a regional perspective of blended learning in rural universities of the Southern African region was understudied.¹⁰ The authors identified that there are some universities that are still in the initial stages of embracing the concept of blended learning; however, infrastructure and policy constraints were still major setbacks. The research carried out was primarily on the readiness of the institution rather than the methodologies required within blended learning for successful implementation in African HEIs. Such an aspect is especially pertinent within the context of this research, which aspires to contribute to a comprehensive understanding of how blended learning is implemented within African HEIs.

Inquiry-based science education (IBSE) and project-based learning (PBL) are two learning methodologies that have been widely accepted during this short period, especially in Science, Technology, Education and Mathematics (STEM) education. PBL, together with computing, is very important in enhancing STEM education because it promotes equity and a coherent curriculum design.¹¹ However, most research work mainly emphasised elementary schools and did not give much consideration to HEIs. Strat et al discussed IBSE for teacher candidates and concluded that both content knowledge and teaching self-efficacy can be appropriately supported with some techniques that are linked to IBSE; however, their literature review did not give a clear elaboration on such techniques and their design frameworks in a bigger learning design, especially in African HEIs.¹²

In conclusion, ID approaches such as blended learning models, project learning models, inclusive learning approaches, etc., provide much potential in aligning and adjusting developments in education at African HEIs. However, the dispersed features of research studies on higher education in Africa have hindered efforts to align and adjust developments in applying ID approaches in Africa.

⁶ Chen Han and Jianghua Lei, "Teachers' and Students' Beliefs Towards Universal Design for Learning Framework: A Scoping Review," *SAGE Open* 14, no. 3 (June 2024). <https://doi.org/10.1177/21582440241272032>.

⁷ Júlia Grifol-Freixenet et al., "Exploring the Interrelationship between Universal Design for Learning (UDL) and Differentiated Instruction (DI): A Systematic Review," *Educational Research Review* 29 (June 2020): 100306, <https://doi.org/10.1016/j.edurev.2019.100306>.

⁸ Muhamad Murtadlo et al., "Inclusive Education in Africa: Transforming Higher Education in Low-Income Countries," *Scientific African* 28 (June 2025): e02708, <https://doi.org/10.1016/j.sciaf.2025.e02708>.

⁹ Yan Wang and Muhammad Kamarul Kabilan, "Integrating Technology into English Learning in Higher Education: A Bibliometric Analysis," *Cogent Education* 11, no. 1 (June 2024): 2404201, <https://doi.org/10.1080/2331186X.2024.2404201>.

¹⁰ P. Muhuro and S. M. Kang'ethe, "Prospects and Pitfalls Associated with Implementing Blended Learning in Rural-Based Higher Education Institutions in Southern Africa," *Perspectives in Education* 39, no. 1 (2021): 427–41, <https://doi.org/10.18820/2519593X/pie.v39.i1.26>.

¹¹ Samuel Severance, Emily Adah Miller, and Joseph Krajcik, "IF Science AND Making AND Computing: Insights for Project-Based Learning and Primary Science Curriculum Design," *Studies in Science Education* 61, no. 2 (June 2025): 173–237, <https://doi.org/10.1080/03057267.2024.2397300>.

¹² Tonje Tomine Seland Strat, Ellen Karoline Henriksen, and Kirsti Marie Jegstad, "Inquiry-Based Science Education in Science Teacher Education: A Systematic Review," *Studies in Science Education* 60, no. 2 (2024): 191–249, <https://doi.org/10.1080/03057267.2023.2207148>.

METHODOLOGY

The PRISMA framework was created to assist systematic reviewers in openly disclosing the reasons behind the review, the actions taken by the authors, and the conclusions they came to.¹³ The PRISMA approach is used in this study because we aim to enhance the transparency and completeness of reporting in this study, which will ensure that the research methods, findings, and results are clearly and thoroughly described.

The two databases used for this study were Francis and Taylor and Scopus. Majority of the most respected education journals are abstracted and indexed, which is why both databases of publications were chosen. These databases provided a comprehensive coverage of relevant information, ensured credibility and validity, while streamlining the research process. The search results on ID studies conducted in African HEIs from these publication databases were downloaded in comma-separated value (CSV) format with column headings such as author's name, title, abstract, year of publication, DOIs, etc. The DOIs in the column were copied and pasted into the “add by identifier” dialogue box of Zotero reference manager, which allowed us to automatically download and attach almost all of the articles to my library. Those that were unable to download were done manually using our institution's subscription for free.

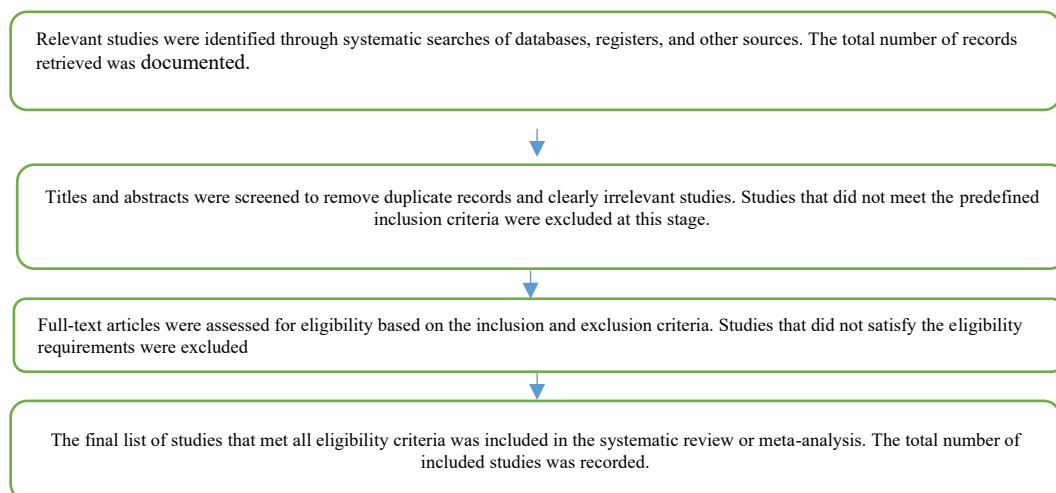


Figure 1: Steps of the SLR Analysis Process Adapted from the PRISMA Flow diagram.

The procedure went through four steps, as shown in Figure 1, before obtaining the 59 most important studies on and a further synthesis of 33 selected reports only on ID approaches conducted in African HEIs.

Search Strategy

The search strategy developed for this study was based on the goals of the research. Keywords were identified, search strings were constructed, the search structure was framed, and the search procedure was finally executed to reduce the quantity of irrelevant papers. The set of keywords was generated to gather studies on instructional design approaches in HEIs in Africa. The main search terms were the following: “instructional design model” OR “instructional design approach” AND “African higher institutions”. All searches spanned from the year 2018 to 2025 and included only journal articles. Further filtering was made on the database engine to obtain studies relevant to the study. The main search string appears in Table 1 below.

¹³ Matthew J. Page et al., “The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews,” *Bmj* 372 (2021), <https://doi.org/10.1136/bmj.n71>.

Table 1: The Search Query

Search String
("Instructional design approach" OR "instructional approaches" OR "learner-centered" OR "problem-based learning" OR "constructivist learning" OR "competency-based learning" OR "inquiry-based learning" OR "collaborative learning" OR "project-based learning" OR "blended learning" OR "flipped classroom" OR "experiential learning" OR "cognitive apprenticeship" OR "scaffolded instruction" OR "UDL" OR "Universal Design for Learning" AND "higher education" OR "tertiary education" OR "university" AND africa OR "African countries" OR "Sub-Saharan Africa") AND PUBYEAR > 2017 AND PUBYEAR < 2026 AND (LIMIT-TO (DOCTYPE,"ar")) AND (LIMIT-TO (LANGUAGE,"English"))

Inclusion and Exclusion Criteria

A crucial prerequisite for creating exceptional research procedures is the establishment of inclusion and exclusion criteria,¹⁴ Figure 2 illustrates the screening process used in this study, following the PRISMA framework, and shows how the inclusion and exclusion criteria were applied to arrive at the final set of articles. During the screening phase, two reviewers independently assessed the relevance of titles, abstracts, and full texts against the inclusion and exclusion criteria. Cohen's Kappa was computed to assess the level of agreement between the reviewers. The resulting Kappa (K) score was **.80**, indicating substantial agreement.

Exclusion

- Not addressing the ID model or approach. As a result, 15 reports were discarded.
- Study not conducted in an African university or context
- Conference papers, magazines, books, patents, thesis.
- Unrelated field or topic

Inclusion

- Papers are written in the English Language only
- Articles must be peer-reviewed only
- Papers limited to the education, humanities, social sciences, and sciences, but not medical sciences.
- Extracted papers were limited to African higher institutions and countries.
- The extracted papers include only papers published between 2018 and 2025.
- An article that reports an ID model or ID approaches
- Articles with full text

Data Extraction and Coding Reliability

Following the PRISMA screening phase, we proceeded to code the selected articles to extract relevant data. To guide this process, we designed a structured data extraction sheet that was meticulously aligned with the review objectives. This coding sheet included categories such as author(s), year of publication, topic, ID approach used, contribution, research design, results or conclusion, and what the author(s) missed (delimitation). The coding procedure permitted us to methodically analyse the content of the 33 studies on ID approaches conducted in African HEIs. To ensure the reliability of the coding process, we independently coded all included studies, and Cohen's Kappa-statistics ($K = 0.81$) were calculated to measure the degree of agreement.

¹⁴ Cecilia Maria Patino and Juliana Carvalho Ferreira, "Inclusion And Exclusion Criteria In Research Studies," *Jornal Brasileiro de Pneumologia* 44, no. 2 (2018): 84.

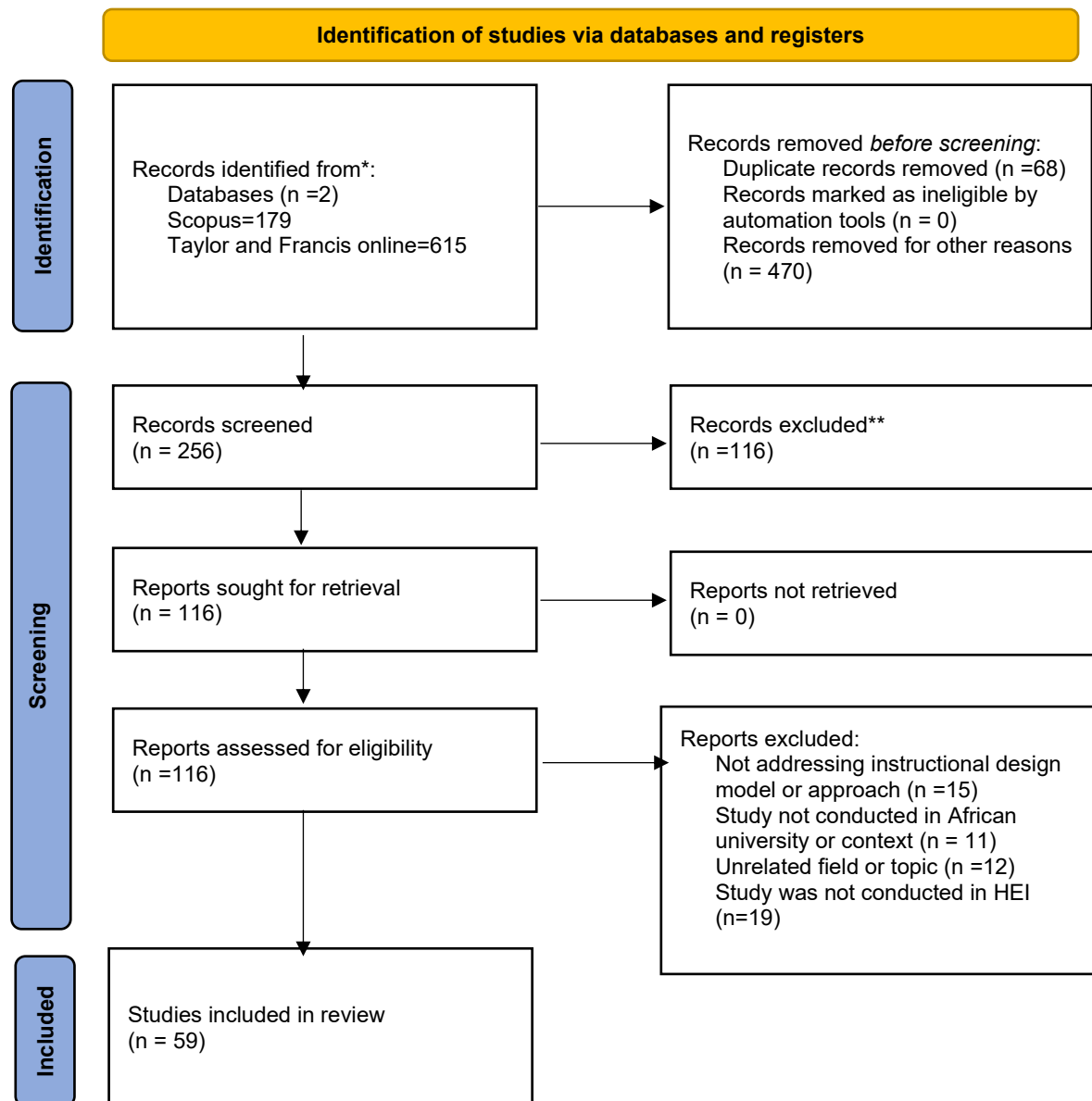


Figure 2: The PRISMA Flow Diagram for Inclusion and Exclusion Criteria of Literature.¹⁵

Table 1: Included Articles

Author(s) and Year of Publication	Instructional Design Approach Used	Topic	Contribution	Research Design	Conclusion
Okeke, Uchenna Kingsley, and Sam Ramaila (2025)	Cognitivist and constructivist	Impact on students' attitudes toward physics	Constructivist approaches improve attitudes	Comparative analysis	Constructivist methods outperform cognitivist ones in engagement
Angela Stott (2025)	Project-based learning	Chemistry workshop in	PBL engages teachers in short-	Qualitative	Enhances teacher engagement and

¹⁵ Areti Angeliki Veroniki et al., "Update to the PRISMA Guidelines for Network Meta-Analyses and Scoping Reviews and Development of Guidelines for Rapid Reviews: A Scoping Review Protocol," *JBI Evidence Synthesis* 23, no. 3 (2025): 517–26, <https://doi.org/10.11124/JBIES-24-00308>.

		developing world	duration workshops		practical application
Golightly, Aubrey, and Sandra Sprenger (2024)	Teacher-centered and learner-centered	Geography teachers' instructional strategies in South Africa	Moderate relationship between teaching experience and teacher-centered strategies	Case study	Teachers with more experience use more teacher-centered strategies; large classes hinder learner-centered approaches
Mgeni, Mwanajuma Suleiman et al. (2024)	Mobile application-enhanced learning	Mobile learning in higher education in Tanzania	Positive student views on mobile apps for learning	Survey	Mobile apps enhance accessibility and engagement in learning
Kwok, Pui Ki Patricia (2024)	Learner-centered pedagogy	Implementation challenges in Rwanda	Stakeholder perceptions vary on LCP implementation	Qualitative	Policymakers must address diverse stakeholder needs
Bimerew Kerie Tesfaw et al. (2024)	Context-based problem-posing	Student engagement in data handling	Problem-posing enhances engagement	Mixed methods	Significant improvement in cognitive and behavioral engagement
Musundwa, Sedzani (2024)	Constructivist teaching	Inclusive practices in accounting education	Facilitates positive outcomes for underrepresented students	Qualitative	Recommendations include peer learning and mentorship
Teane, Florah M (2024)	Blended learning	Teachers' adoption challenges	Requires management support and training	Qualitative	Teachers need reliable technology and time
Sanders, Debbie A, and Shirley S Mukhari (2024)	Blended learning	Lecturers' perceptions in South Africa	Requires institutional support and training	Qualitative	Challenges include internet reliability and time constraints
Uribe-Banda, Constanza et al. (2023)	Blended and online-only formats	Teacher professional development in Kenya	Both formats effective; blended preferred	Experimental	Teachers prefer blended format; cultural challenges exist
Pitan, Oluyomi Susan, and Colette Muller (2023)	Experiential learning	Preparing graduates for disruptive workplaces in Nigeria and South Africa	Gaps in experiential learning and career guidance	Survey	Differences in employability perceptions between countries
Mbofheni Abbie Mulaudzi et al. (2023)	Hybrid problem-based learning	Technology teacher preparation	hPBL gives students a voice in learning	Concurrent triangulation	hPBL actively involves students in constructing knowledge
Dalmé Mulder, Hermanus Johan Bloemhoff (2023)	Adventure-based experiential learning	Communication competence in adult learners	AEL improves communication skills	Pre-test–post-test	Significant improvement in communicative adaptability

Ademola, Omotosho et al. (2023)	Entrepreneurial projects	Skills gap in higher education	Entrepreneurial projects need mentoring and support	Survey	Inadequate skill levels despite project involvement
Micah S. Hughes, Victor O. Popoola (2023)	Experiential learning	Racial bias in study abroad programs	Study abroad influences racial identity development	Qualitative	Integrates race-conscious curriculum and fosters critical consciousness
Marnewick, Carl (2023)	Project-based learning	Agile project management education	PBL enhances student experiences	Qualitative	Students value real-world applications
Okyerere Gabriel A. et al. (2023)	Blended problem-based learning	Student satisfaction in Ghana	BPBL improves self-directed learning	Survey	Higher satisfaction compared to traditional methods
Kruger Corné, Jan Buley (2022)	Collaborative learning	Critical reflection in teacher education	Diverse contexts foster critical reflection	Action research	Collaborative learning across contexts enhances reflective skills
Abiolu, Rhoda T.I et al. (2022)	Reflective writing	Inclusivity in higher education	Reflective writing nurtures inclusivity	Qualitative	Enhances self-awareness and social cohesion
Becheikh Nizar et al. (2022)	Case-based learning	Business education in MENA region	Challenges and initiatives for case-based learning	Exploratory research	Community building is key to successful implementation
Ntombela, Sithabile (2022)	Inclusive education	Higher education for students with disabilities	Need for responsive curriculum reforms	Qualitative	Highlights systemic exclusion and need for inclusive practices
Makura, Alfred Henry (2022)	Blended learning	Female academics' WFH experiences	Blended learning offers professional growth opportunities	Qualitative	Challenges include time constraints and technology access
Liesel Cilliers, Johannes Pylman (2022)	Flipped classroom	Student perceptions in South Africa	Flipped classroom enhances engagement and flexibility	Survey	Positive student experiences
Ravat, Sadiya et al. (2021)	Blended teaching	Physiotherapy education in South Africa	Blended teaching is as effective as traditional methods	Comparative study	No significant difference in outcomes between blended and traditional teaching
Hilke Steenkamp (2021)	Blended learning	Journalism education in South Africa	Overcomes creation anxiety through blended learning	Qualitative	Blended learning fosters inclusivity and engagement
Chinaka, Taurayi Willard (2021)	Phenomenon-based experiential learning	Projectile motion in physics	Real-world engagements enhance understanding	Experimental	Combines simulations and hands-on activities
Breed, Christina, and Helge Mehrtens (2021)	Live projects	Urban green infrastructure design	Real-world projects aid transformative learning	Case study	Enhances social empathy and interdisciplinary skills

Zimba, Z. F. et al. (2021)	Blended learning	Social work education	Facilitates student engagement	Qualitative	Positive impact on interaction and flexibility
Pretorius, Rudi Wessel et al. (2021)	Real-world engagements	Sustainability learning in ODeL	Mobile technologies mitigate ICT limitations	Qualitative	Successful despite challenges in Global South context
Singh-Pillay, Asheena (2020)	Project-based learning	Education for sustainable development	PBL enhances sustainable development skills	Qualitative	Positive impact on student engagement and problem-solving
M. Faadiel Essop, Leandrie Beselaar (2020)	Cooperative learning	Physiology education	Feasible in large classes with support	Qualitative	Improves critical-thinking and collaboration
Abbott, D et al. (2020)	Problem-based learning	Engineering education in Africa	PBL broadens curriculum and attracts diverse students	Case studies	Links to sustainable development goals
Kofi Poku Quan-Baffour, Akwasi Arko-Achemfuor (2018)	Experiential learning	Quality assurance in distance education	Experiential learning ensures quality in distance education	Survey	Positive stakeholder perceptions

PRESENTATION OF FINDINGS

This section presents a narrative synthesis that begins with the use of pivot tables and charts to visually present study trends. This procedure helps in identifying patterns in the existing literature, such as commonly researched topics, year of publication, countries involved, and focus areas. After visually mapping the data, a thematic analysis follows, where instructional approaches are discussed under key themes. This method enables both a wider overview and a detailed investigation of how ID approaches are being applied in higher education across Africa. By integrating visual summaries with thematic discussion, the review presents a balanced and insightful synthesis of the literature.

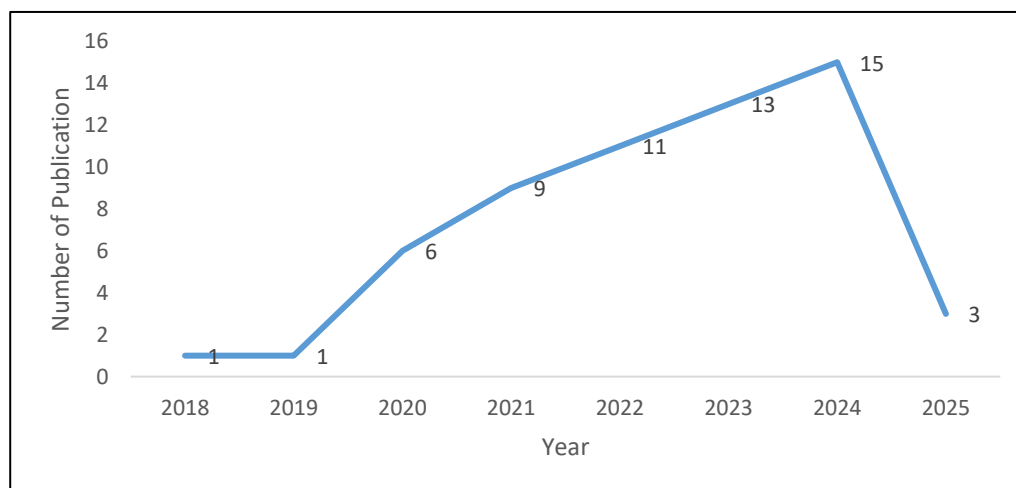


Figure 3: Publication Trends in Primary Articles from 2018 To 2025

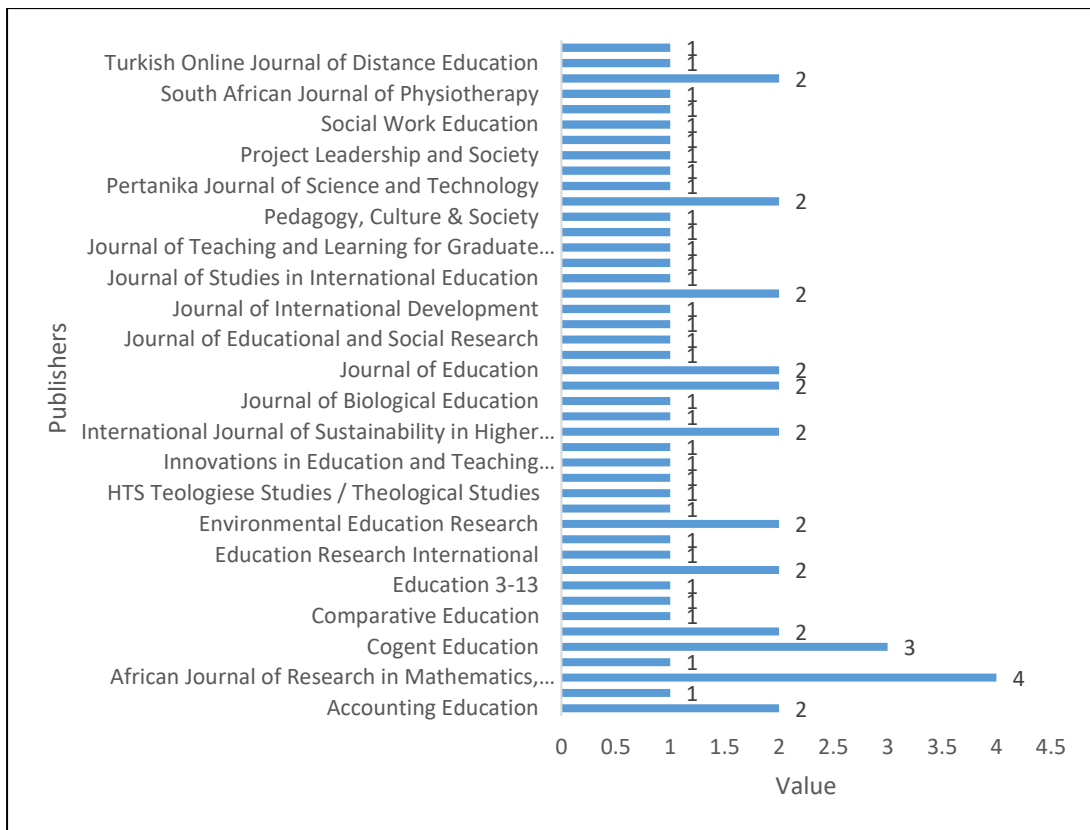


Figure 4: Publication Outlets from the Primary Studies

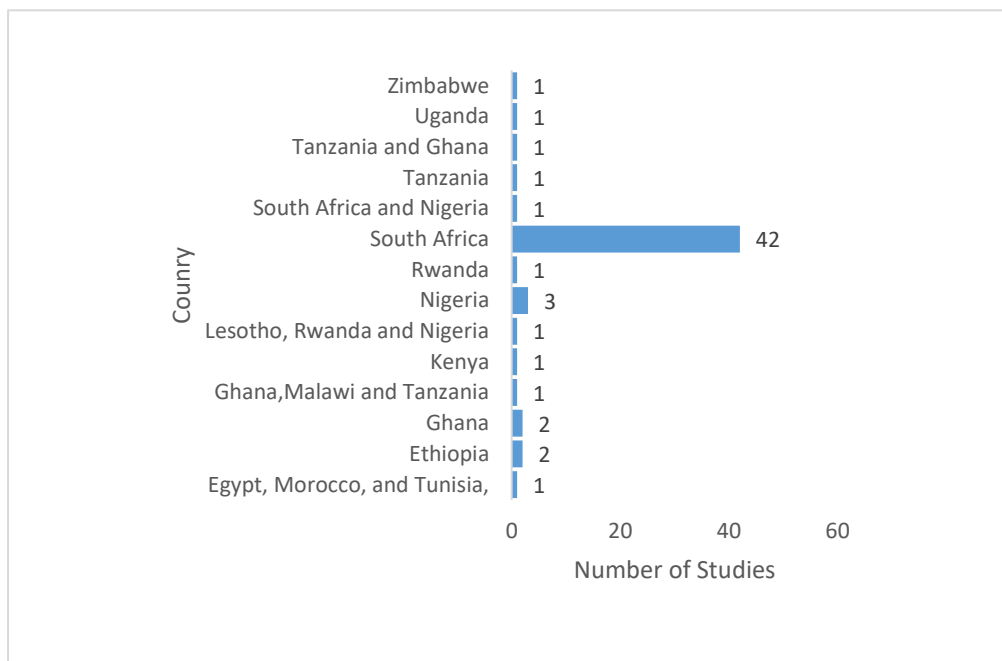


Figure 5: Distribution by Country, Based On Host of Study

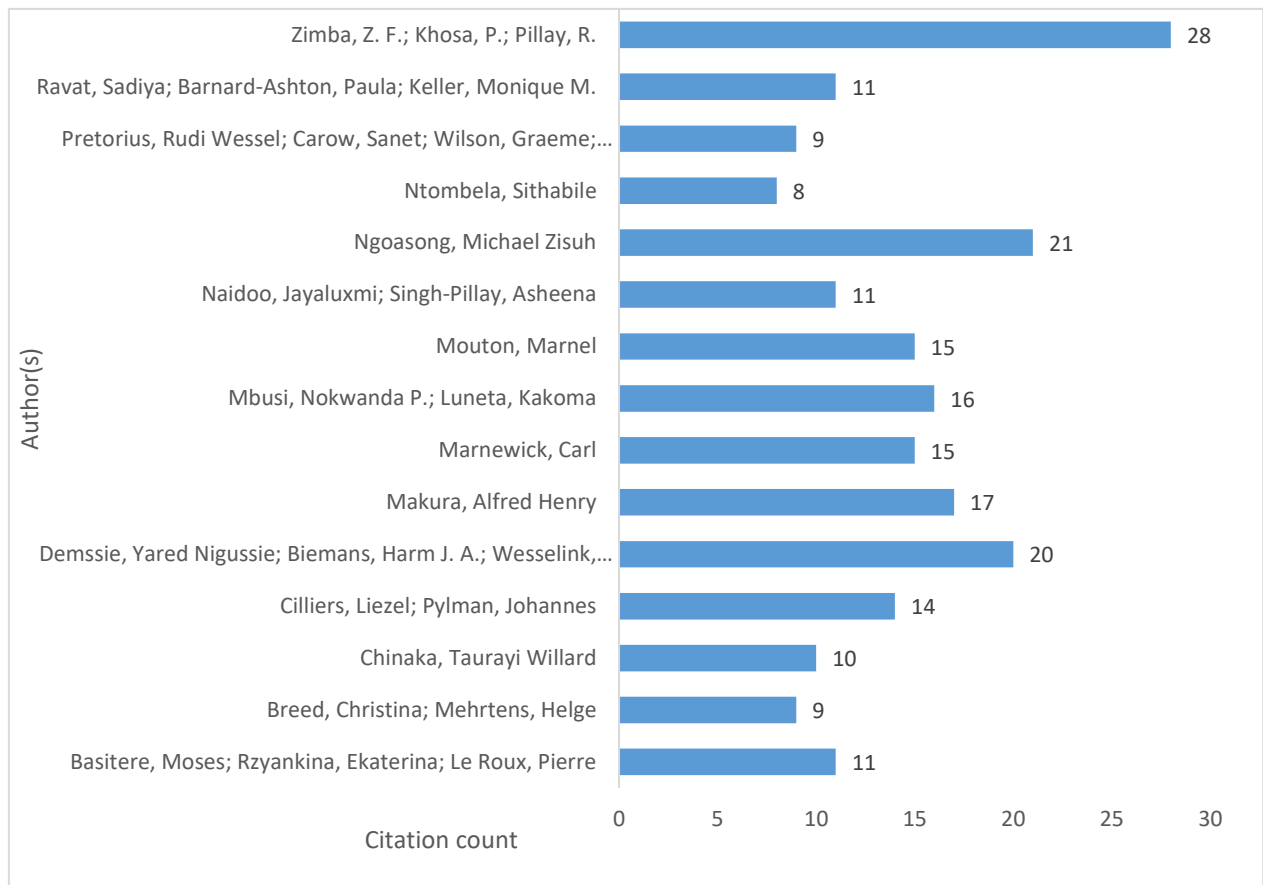


Figure 6: Top 15 Influential Author(s) Based on Citation Count



Figure 7: Co-authorship Diagram <https://tinyurl.com/29w7f25t>

DISCUSSION

This review sought to examine the prevailing trends in ID studies from 2018 to 2025, and how ID approaches are classified and implemented in African HEIs, and their patterns and gaps that emerge from their use. The study reveals a growing enthusiasm for pedagogical innovation across the continent, though the intensity and consistency of ID practice vary widely. The results are reported in relation to the research questions and thematically organised to achieve breadth and depth of ID activity within African HEIs.

1. Prevailing trends in instruction design studies conducted in African higher education institutions?

Throughout the review period (2018–2025), scholarly attention to ID in African higher education has gradually increased, according to the analysis of publication output in Figure 3. In 2018 and 2019, the field started small, with just one study each. But after 2020, research output increased dramatically, with six studies in 2020, nine in 2021, eleven in 2022, and thirteen in 2023. The upward trend peaked in 2024, when there were fifteen publications, the most in the dataset. This increase comes as higher education was disrupted by the COVID-19 pandemic, forcing institutions to investigate blended, remote, and technology-enhanced pedagogies. In this way, the pandemic spurred innovation and scholarship in ID by encouraging African scholars to look into methods that guaranteed learning continuity, engagement, and inclusivity.

Rather than a true decline in scholarly activity, the modest decline in 2025 (three publications) is probably the result of incomplete indexing for the year. Looking at the publication outlets shown in Figure 4 illustrates the distribution of the literature on ID conducted within the African higher education sector across several journals. The literature has not been published in a single journal. Most journals have a limited number of publications, whereas a few journals, such as the Journal of Education, Sustainability, African Journal of Research in Mathematics, Science and Technology Education, the Journal of Management Education, and International Journal of Sustainability in Higher Education, have more than one publication. This explains the distribution of the literature on ID in various journals.

There is a definite regional concentration in the studies' geographic distribution as depicted in Figure 5. South Africa leads with almost half of the review study, followed by Nigeria, Kenya, Tanzania, and Ghana. However, unlike the distribution of literature with respect to publication outlets, many African regions continue to be underrepresented, especially in Central and Francophone Africa, which suggests that institutional participation and scholarly voices are not distributed evenly. The need for more cross-national cooperation and assistance for underrepresented contexts is highlighted by this regional imbalance.

The growing impact of specific academics in the field is further highlighted by authorship analysis in Figure 6. Recurring appearances of highly cited authors like Demssie et al. and Zimba et al. demonstrate their consistent contributions to discussions of instructional design.¹⁶ Their work frequently combines local adaptations with global models, which makes them significant in influencing discourse and practice. This is further supported by the co-authorship diagram in Figure 7, which showcases networks of co-authorship mainly centered on South African authors, with sporadic cross-regional connections. The fragmented and siloed nature of ID scholarship on the continent is once again reflected in the fact that many collaborations are still national in nature rather than pan-African.

When combined, the authorship networks, geographic distribution, and publication trends show a field that is expanding but still solidifying. Even though the field has not yet matured, as evidenced by the unequal country representation, dearth of centralized publication platforms, and lack of cross-national cooperation, it can be deepened and expanded by encouraging regional networks,

¹⁶ Yared Nigussie Demssie et al., "Fostering Students' Systems Thinking Competence for Sustainability by Using Multiple Real-World Learning Approaches," *Environmental Education Research* 29, no. 2 (February 2023): 261–86, <https://doi.org/10.1080/13504622.2022.2141692>; Z. F. Zimba, P. Khosa, and R. Pillay, "Using Blended Learning in South African Social Work Education to Facilitate Student Engagement," *Social Work Education* 40, no. 2 (June 2021): 263–78, <https://doi.org/10.1080/02615479.2020.1746261>.

creating specialised publication channels, and investing in scholarly capacity in underrepresented fields.

2. Classification and Implementation of Instructional Design Strategies in African HEIs

Of the 59 studies reviewed in terms of trends under research question one, 33 of them addressed ID design approaches specifically in an effort to provide insight into this particular research question. The synthesis of the 33 studies reviewed shows that approaches to ID in African HEIs are primarily practice-oriented and context-responsive, as opposed to being driven by formalised ID models. Throughout much of the literature, instructional approaches are differentiated largely along pedagogical orientations: constructivist, learner-centered, blended, experiential, and problem or project-based, reflecting efforts by educators to respond to contextual challenges such as large class sizes, limited infrastructure, demands for employability, and inclusivity concerns.

One of the major categories that has been formed through the literature review is the one that differentiates traditional cognitivist or teacher-centric design from the constructivist or rather learner-centric design. This category is supported by evidence that suggests the implementation of learner-centered and constructivist approaches. The first study examines how effective directed vs. minimally focused inquiry-based teaching methods to enhance students' perceptions of physics. The effects of the Cubing instructional strategy (CIS) and the cognitively guided instructional strategy (CGIS) on student attitudes were specifically compared. In another study, findings indicate that while less experienced lecturers did practice more learner-centered approaches, there was no major resistance towards changing approaches on grounds of their more learner-centric philosophies, and that class size, which approximated classroom sizes, was the major structural factor that limited their application.¹⁷ Meanwhile, at the policy and system levels, Kwok illustrated that the application and implementation of learner-centric approaches in Rwanda differed widely between different stakeholders. The study makes the case that policymakers must take into account the various needs and viewpoints of all stakeholders in addition to addressing globally recognised issues if reform visions are to be realised.¹⁸

Blended learning proved one of the most implemented IDs from the reviewed studies, amidst realities such as technology and infrastructure. These were found in several studies through regular arguments in both affordances and constraints for blended learning in South African HEIs.¹⁹ While blended approaches were known to support engagement, inclusivity, and continuity of learning, their sustainability was often hampered by unreliable internet access, limited time, and a lack of institutional support. Continuing on the theme, the effectiveness of the blended and completely online formats in Kenyan teacher training had been observed to be equally good, although the former formats have been the preference due to certain cultural and contextual.²⁰ Meanwhile, a blended problem-based learning was conducted in Ghana to examine how students at Kwame Nkrumah University of Science and Technology (KNUST) felt about blended problem-based learning (BPBL) during the Enhancing Entrepreneurship, Innovation and Sustainability in Higher Education in Africa (EEISHEA). According to the study's findings, roughly 67.35 percent of students believed that lecturers had included some

¹⁷ Aubrey Golightly and Sandra Sprenger, "A Balancing Act: South African Geography Teachers' Implementation of Teacher-Centered and Learner-Centered Instructional Strategies in Their Classrooms," *Journal of Geography* 123, no. 1 (June 2024): 3–13, <https://doi.org/10.1080/00221341.2024.2307051>.

¹⁸ Kwok, "Comparing Stakeholders' Perceptions of the Implementation of 'Learner-Centred' Pedagogy: The Case of Rwanda."

¹⁹ Florah M Teane, "Technological Literacy and Its Influence on Teachers' Adoption of a Blended Learning Approach," *Reading & Writing* 15, no. 1 (June 2024), <https://doi.org/10.4102/rw.v15i1.426>; Debbie A Sanders and Shirley S Mukhari, "The Perceptions of Lecturers about Blended Learning at a Particular Higher Institution in South Africa," *Education and Information Technologies* 29, no. 9 (June 2024): 11517–32, <https://doi.org/10.1007/s10639-023-12302-6>; Alfred Henry Makura, "South African Female Academics' Work from Home Experiences during the COVID-19 Pandemic: Challenges and Opportunities," *Journal of Culture and Values in Education*, ahead of print, 2022, <https://doi.org/10.46303/jcve.2022.3>; Hilke Steenkamp, "From Alienation To Place-Making: Overcoming Creation Anxiety in Journalism Students Through Blended Learning," *Communitas* 26 (June 2021): 179–97, <https://doi.org/10.18820/24150525/Comm.v26.11>; Zimba, Khosa, and Pillay, "Using Blended Learning in South African Social Work Education to Facilitate Student Engagement"; Sadiya Ravat, Paula Barnard-Ashton, and Monique M. Keller, "Blended Teaching versus Traditional Teaching for Undergraduate Physiotherapy Students at the University of the Witwatersrand," *South African Journal of Physiotherapy* 77, no. 1 (June 2021), <https://doi.org/10.4102/sajp.v77i1.1544>.

²⁰ Constanza Uribe-Banda et al., "Assessing Blended and Online-Only Delivery Formats for Teacher Professional Development in Kenya," *Cogent Education* 10, no. 1 (June 2023): 2191414, <https://doi.org/10.1080/2331186X.2023.2191414>.

problem-based learning (PBL) components in their instruction. Approximately 72.13 percent of respondents said that the PBL's integration sparked their collaborative and self-directed learning and enhanced their problem-solving abilities.²¹

Project-based learning (PjBL), PBL, and other experiential learning demonstrated another obvious way of classifying learning and development in the different studies in the STEM field and occupation categories. Various studies found a positive correlation between teaching and learning in the development of PBL, such as engagement, application, and solving skills.²² In terms of learning in engineering studies and project management, PBL was instrumental in incorporating more learning to meet sustainable development goals SDGs.²³ However, there were also evident difficulties in implementing PBL. Literature demonstrated that entrepreneurial projects were not necessarily linked to the development of skills without proper guidance.²⁴ Other studies also pointed to shortcomings in experiential learning to prepare the workforce in Nigeria and South Africa.²⁵

Experiential learning was conducted using various formats, such as live projects, adventure-based learning, real-world engagements, and phenomenon-based learning. Research conducted revealed the impact of experiential methods in improving communication, conceptual knowledge, sustainability knowledge, social empathy, and critical consciousness.²⁶ These studies, in their entirety show how experiential learning has been appreciated for its application of theory to practice. However, their findings further reveal how these methods tend to be institution-specific.

Inclusive and participant pedagogies were less common, even though they were very enlightening. Studies in this area highlighted the value of the constructivist approach to pedagogy, writing reflective essays, and inclusive education for marginalized learners, as well as promoting cohesion.²⁷ At the same time, these papers revealed the existing discrepancies in inclusive policy and its implementation in the classrooms. Cooperating and socializing in large classrooms became possible through the implementation of cooperative learning.²⁸

Technology-aided design in teaching was reflected in mobile learning, hybrid PBL, and learning through applications. Positive attitudes among students in Tanzania towards mobile learning were

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- ²¹ Gabriel A. Okyere et al., "Students' Satisfaction of Blended Problem-Based Learning: An Academic Experience at Kwame Nkrumah University of Science and Technology," *Education Research International* 2023 (2023), <https://doi.org/10.1155/2023/6005752>.
- ²² Angela Stott, "Project-Based Learning in a Short-Duration Chemistry Workshop in the Developing World: Insights from Teacher Engagement," *African Journal of Research in Mathematics, Science and Technology Education*, June 16, 2025, 1–15, <https://doi.org/10.1080/18117295.2025.2494165>; Carl Marnewick, "Student Experiences of Project-Based Learning in Agile Project Management Education," *Project Leadership and Society*, ahead of print, 2023, <https://doi.org/10.1016/j.plas.2023.100096>.
- ²³ Abbott, Chipika, and Wilson, "The Potential of Problem-Based Learning To Enhance Engineering Education in African Universities"; Marnewick, "Student Experiences of Project-Based Learning in Agile Project Management Education."
- ²⁴ Omotosho Ademola, Mathew Kimweli Kimanzi, and Alfred Modise, "Investigating the Pedagogical Potential of Entrepreneurial Projects in Higher Education," *Journal of Educational and Social Research* 13, no. 3 (June 2023): 273–83, <https://doi.org/10.36941/jesr-2023-0076>.
- ²⁵ Oluyomi Susan Pitan and Colette Muller, "Assessment of Strategies for Preparing Graduates for the Disruptive Workplace: Evidence from Nigeria and South Africa," *Journal of Teaching and Learning for Graduate Employability* 14, no. 1 (June 2023): 15–30, <https://doi.org/10.21153/jtlge2023vol14no1art1576>.
- ²⁶ Dalmé Mulder and Herman J. Bloemhoff, "The Impact of a Oneday Adventure-Based Experiential Learning Programme on the Communication Competence of Adult Learners At a Business School," *Communitas* 28 (June 2023): 151–65, <https://doi.org/10.38140/com.v28i.7622>; Christina Breed and Helge Mehrtens, "Using 'Live' Public Sector Projects in Design Teaching to Transform Urban Green Infrastructure in South Africa," *Land* 11, no. 1 (June 2021): 45, <https://doi.org/10.3390/land11010045>; Taurayi Willard Chinaka, "The Effect of PhET Simulation vs. Phenomenon-Based Experiential Learning on Students' Integration of Motion Along Two Independent Axes in Projectile Motion," *African Journal of Research in Mathematics, Science and Technology Education* 25, no. 2 (2021): 185–96, <https://doi.org/10.1080/18117295.2021.1969739>; Rudi Wessel Pretorius et al., "Using Real-World Engagements for Sustainability Learning in ODeL in the Global South: Challenges and Opportunities," *International Journal of Sustainability in Higher Education* 22, no. 6 (June 2021): 1316–35, <https://doi.org/10.1108/IJSHE-08-2020-0287>.
- ²⁷ Rhoda T.I. Abiolu, Linda Z. Linganis, and Hosea O. Patrick, "Nurturing Inclusivity among Durban University of Technology Students through Reflective Writing," *HTS Teologiese Studies / Theological Studies* 78, no. 2 (2022): 1–7, <https://doi.org/10.4102/hts.v78i2.7680>; Sedzani Musundwa, "Implementing Constructivist Teaching to Foster Inclusive Educational Practices in Accounting Programmes," *Accounting Education*, 2024, 1–34, <https://doi.org/10.1080/09639284.2024.2367132>; Sithabile Ntombela, "Reimagining South African Higher Education in Response to Covid-19 and Ongoing Exclusion of Students with Disabilities," *Disability and Society* 37, no. 3 (2022): 534–39, <https://doi.org/10.1080/09687599.2021.2004880>.
- ²⁸ X. M.Faadiel Essop and Leandrie Beselaar, "Student Response to a Cooperative Learning Element within a Large Physiology Class Setting: Lessons Learned," *Advances in Physiology Education* 44, no. 3 (2020): 269–75, <https://doi.org/10.1152/ADVAN.00165.2019>.

evident.²⁹ While active engagement of pre-service technology teachers in knowledge building through hybrid problem-based learning was demonstrated in another study.³⁰ Becheikh et al. continued to advance the discussion with their presentation on case-based learning in the Middle East and North Africa (MENA), region showing also the role that academic societies take upon themselves to improve state-of-the-art practices for teaching.³¹

Considered together, the included studies present some general trends and gaps. The approaches prevalent in African HEIs have been generally learner-centered, blended, experiential, and problem-oriented. However, prevailing practices are largely determined by individual lecturers or small-scale projects rather than institutional policy imperatives. While a significant number of approaches presented record positive learning benefits, concerns regarding scalability and sustainability, faculty preparedness, and infrastructural support are generally poorly addressed. Further, the literature tends to be fragmented by institution and discipline, generally limiting the potential for comparison and knowledge accumulation.

Overall trends point to the use of adaptive and contextually embedded design strategies in African HEIs, which demand more redeployment and reinvention to go beyond pockets of innovations and towards a more systematic and sustainable trajectory.

Key Patterns and Gaps in Instructional Design Approach

From the application of ID methodologies in HEIs in Africa, some patterns have been visible. First, both learner-centric, blended learning, project-based, and experiential learning methods have continued to dominate the learning landscape when applied to HEI education in Africa, signifying an increasing movement away from traditional lecture-style learning approaches that are so prevalent in Africa's HEIs. Again, whereas the various methods have presented rather promising outcomes in the study, scalability and sustainability specifically are presently limited by faculty capacity in training and a dearth of strong theoretical foundations. One of the major gaps that is visible in the current literature is that there are no coordinated approaches towards innovation in instruction. Usually, there are no collective strategies that can be implemented in institutions or on a national framework level that will allow for comparisons in learning. Moreover, there seem to be studies that document teaching practices rather than making a qualitative judgment of their long-term impact on learners.

In conclusion, the various design methods in African HEIs are context-driven and are rapidly moving towards being more learner-focused. However, their application is still unbalanced and very reliant on individual effort rather than an institutional framework. Closing the gap between design methods and institutional policies would ensure that best practices diffuse from pockets of success to be an important part of the bigger picture in African higher education systems.

RECOMMENDATION

From the analysis conducted in this paper, there is a need for better institutional and policy support aimed at improving the uptake and effectiveness of instructional design approaches in HEIs in Africa. In view of the success of learner-centered, blended, project-based, experiential, and inclusive instructional approaches in enhancing engagement and real-life learning of students, institutions must continuously invest in lecturers' skills in pedagogy and technology. There is a need for HEIs to integrate effective instructional approaches in curriculum development and policies, rather than simply focusing on classroom approaches. It is also necessary that investments are made to enhance technological infrastructure to support blended and technology-mediated approaches. With regard to the specific

²⁹ Mwanajuma Suleiman Mgeni et al., "Adoption of Mobile Application for Enhancing Learning in Higher Education: Students' Views from the State University of Zanzibar, Tanzania," *African Journal of Science, Technology, Innovation and Development* 16, no. 2 (June 2024): 265–73, <https://doi.org/10.1080/20421338.2023.2289248>.

³⁰ Mbofheni Abbie Mulaudzi, Adri Du Toit, and Aubrey Golightly, "Hybrid Problem-Based Learning in Technology Teacher Preparation: Giving Students a Voice in Their Learning Process," *Journal of Education*, no. 90 (June 2023): 128–48, <https://doi.org/10.17159/2520-9868/i90a07>.

³¹ Nizar Becheikh, Maha Mourad, and Ahmed Tolba, "Promoting Case-Based Learning in Business Higher Education in the Middle East and North Africa Region," *Journal of Management Education* 46, no. 4 (June 2022): 778–808, <https://doi.org/10.1177/10525629211062108>.

environment in which African HEIs operate, such as having many learners per classroom and limited resources, it is important that teachers customize their teaching based on the environment.

CONCLUSION

The goal of this review was to examine the most common trends in ID research from 2018 to 2025, as well as how ID approaches are categorised and applied in African HEIs, and the patterns and gaps that result from their application. Two striking trends are highlighted in the latter. First is that, increasingly, learner-centered and constructivist methods are popular, including project-based learning, experiential learning, blended learning, and inclusive pedagogies. This range of approaches has been particularly useful given infrastructure constraints, where these tactics have successfully addressed the enhancement of engagement and theory-practice gaps. The way forward for greater integration of ID into teaching and learning practices requires policy-level commitment, cross-institutional collaboration, and faculty training. In the end, the review indicates that ID approaches, when contextualised to the local conditions, can have an influential role in setting the course of higher education in Africa. Conversely, African HEIs may opt for a coordinated innovative practice with institutional strategies and structured design models to advance to more scalable, sustainable, and significant educational transformation.

LIMITATIONS AND FUTURE RESEARCH

This review has some limitations. First, although it comprised 59 studies conducted during 2018–2025, works from the grey literature or beyond major databases might have been missed. Second, there was a limited generalisability of the reviewed studies to the broader African setting, as most of them tended to be institution or country-specific. Third, the ID models were inconsistent across studies; many claimed to use the term ID in a generic sense and were not specific to a particular model or framework, making comparison of data difficult in an organised fashion.

Future research should focus more on comparative research across different nations and institutions, so that more empirical data is produced that represents the diversity of the continent. Furthermore, longitudinal studies are essential to ascertain the enduring impact of instructional innovations—such as project-based learning, blended learning, and flipped classroom methodologies—on institutional transformation. It is also essential for future studies to consider the policy dimension, in particular, the study of the influence of policy in institutions and the nation at large on the adoption, implementation, and sustainability of innovations in ID. This will not only enhance the field but also help in the formulation of strategies for successful educational improvement initiatives.

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