Research Article

Challenges to the Effectiveness of Higher Education in Madagascar: An Analysis of Key Hindering Factors

Ralaivao Hanginiaina Emynorane*, Muhammad Akmal Ibrahim, Hasniati, and Muhammad Yunus

Doctoral Candidate of Public Administration, Faculty of Social and Political Sciences, Hasanuddin University, Indonesia

Abstract.
This study explores the key factors hindering the effectiveness of the higher education system in Madagascar, with a specific focus on the University of Toliara. Employing a qualitative descriptive approach, the study aims to provide an in-depth understanding of the challenges faced by both students and lecturers within the academic environment. Data were collected through in-depth interviews, direct observation, and a documentation study. The study involved 30 third-year students from the Department of Management within the Faculty of Law, Economy, Management, and Sociology (DEGS), 10 lecturers, and 3 academic staff members from the University of Toliara. The findings reveal a complex interplay of issues impacting the quality and effectiveness of higher education, including insufficient funding and infrastructure, outdated curricula, overcrowded classrooms, unequal access to higher education across regions, political instability, graduate unemployment leading to brain drain, and weak research and innovation capacity. These challenges contribute to a learning environment that struggles to meet both national development needs and international academic standards. The study emphasizes the urgent need for targeted policy reforms, increased investment, and stronger institutional support to enhance the quality, accessibility, and relevance of higher education in Madagascar.

Keywords: challenges, effectiveness, higher education, Madagascar, University of Toliara

Corresponding Author: Ralaivao Hanginiaina Emynorane; email: emynoran-erh24e@ms.unhas.ac.id

OPEN ACCESS

1. Introduction

Higher education plays a crucial role in national development by producing skilled human resources, generating knowledge through research, and fostering innovation [1]. It contributes significantly to economic growth, democratic governance, and social progress [2]; [3]; [4]. In the context of developing countries, particularly in Africa, higher education is increasingly recognized as a critical driver of transformation and sustainable development [5]. However, the effectiveness of higher education systems across the continent remains inconsistent due to a range of structural, financial, and institutional challenges [6]. Madagascar, as one of the least developed countries in the world,

How to cite this article: Ralaivao Hanginiaina Emynorane, Muhammad Akmal Ibrahim, Hasniati, and Muhammad Yunus, (2025), "Challenges to the Effectiveness of Higher Education in Madagascar: An Analysis of Key Hindering Factors" in *The 2nd Doctoral International Conference*, KnE Social Sciences, pages 579–595. DOI 10.18502/kss.v10i18.19486

Page 579

presents a particularly illustrative case of the complexities facing higher education reform and development.

Madagascar's higher education sector is characterized by a centralized and under-resourced system, with a limited number of public universities attempting to serve a growing youth population [7]. Among these, the University of Toliara, located in the southwestern region of the country, serves as a key institution for students from rural and underserved areas ([8]. Despite its strategic role, the university faces numerous challenges that compromise the quality and accessibility of education. These challenges are not only rooted in material deficiencies but also reflect deeper structural and governance issues within the national higher education system.

Students and lecturers at the University of Toliara often contend with overcrowded classrooms, outdated curricula, and inadequate teaching and research resources. Infrastructural decay, frequent political disruptions, and insufficient state funding exacerbate these issues, creating a learning environment that is neither conducive to academic excellence nor aligned with labor market needs [9]. These problems hinder student motivation, academic performance, and post-graduation outcomes, ultimately limiting the university's contribution to regional and national development [10].

While some existing literature has acknowledged the broader challenges facing Madagascar's education system, there is a lack of detailed, institution-specific research that captures the lived realities of stakeholders within the university setting. Most studies tend to generalize the problems across the national system without giving voice to students, lecturers, and staff who directly experience these obstacles [11]; [12]. as a result, there is a limited understanding of how these challenges manifest in daily academic life and what strategies might be employed to address them at the institutional level [13].

This study aims to fill that gap by providing a qualitative, context-rich analysis of the key factors undermining higher education effectiveness at the University of Toliara. By focusing on one institution, the study offers a grounded perspective that reveals both systemic and localized challenges. In doing so, it contributes new empirical insights that can inform national policy discussions and institutional reforms [14]. The research is based on interviews with students, lecturers, and administrative staff, complemented by direct observation and document analysis.

A major novelty of this study lies in its integrative approach to analyzing the interplay between various factors such as economic, political, pedagogical, and social that collectively hinder educational effectiveness. Instead of isolating one dimension, the

study examines how these elements interact and reinforce one another, producing a complex web of constraints [15]. This holistic approach enables a more accurate diagnosis of the problems and opens the door to multi-dimensional solutions tailored to the specific context of Madagascar. Theoretically, the study draws on the framework of educational effectiveness and institutional development theory, which emphasizes the role of governance, resource allocation, curriculum relevance, and institutional autonomy in shaping outcomes [6]. Applying these lenses to the Malagasy context tests their relevance in a developing country setting and expands their applicability through new empirical data.

Moreover, the study has important policy and practical implications. It highlights the urgent need for targeted interventions that address both immediate infrastructure deficiencies and long-term systemic reforms [16]; [17]. These include investments in facilities, teacher training, curriculum updates, decentralization of governance, and improved access for marginalized communities [14]. The insights from this research can serve as a resource for policymakers, development partners, and university administrators seeking to enhance the quality and relevance of higher education in Madagascar.

By centering the voices of those within the institution and employing a grounded, qualitative methodology, this study provides a unique and valuable contribution to both national discourse and international scholarship [18]; [19]. Ultimately, improving higher education effectiveness is not just a policy priority but a prerequisite for the country's future development and resilience in a rapidly changing global landscape.

2. Methods

This study uses a qualitative descriptive approach to explore the challenges affecting the higher education system at the University of Toliara. Informants were selected purposively, ensuring a diverse range of perspectives. Specifically, 30 third-year students from the Department of Management within the Faculty of Law, Economy, Management, and Sociology (DEGS) were selected, with 10 students chosen from each of the three program options: Finance and Accounting, Marketing and International Trade, and Business and Administration Management. These students were enrolled in the "English for Trading" course during the 2024–2025 academic year. This particular cohort was selected because the course is a mandatory, cross-specialization module that brings together students from different academic tracks, providing a representative microcosm

of the department. Moreover, the course content centered on communication, international commerce, and business practices encourages critical reflection on real-world institutional and economic issues, making these students especially well-positioned to articulate academic challenges from both a theoretical and practical standpoint. This selection helps ensure both the diversity and relevance of student perspectives, while also minimizing potential bias related to program-specific experiences. Additionally, 10 lecturers and 3 academic staff members were chosen based on their direct involvement in the academic processes and their familiarity with the university's operations. In-depth interviews were conducted with these participants, complemented by observations within the university setting, and analysis of relevant institutional documents such as curriculum guides, policy papers, and reports related to the university's performance. The credibility of the data was strengthened by triangulating findings from these multiple data sources. This approach allowed for a well-rounded and trustworthy account of the key challenges facing the university, ensuring that the findings are both reliable and reflective of the academic context.

3. Results and Discussion

3.1. Results

Data collected through in-depth interviews, direct observation, and documents revealed a set of interrelated challenges affecting the effectiveness of higher education at the University of Toliara. The participants consistently reported multiple structural and institutional constraints, which are summarized in the Table 1 below.

3.1.1. Results Student and Lecturer Perspectives

Interviews conducted with students and lecturers revealed that the most frequently cited challenge was the lack of adequate infrastructure and teaching materials. This concern was closely followed by issues related to overcrowded classrooms and unreliable internet access, which were reported to significantly hinder the learning experience and academic productivity. Students emphasized how these conditions negatively impacted their motivation and ability to engage with their studies effectively.

On the other hand, academic staff members, drew attention to the absence of research funding and the limited opportunities available for professional development.

TABLE 1: Summary of Key Hindering Factors Identified in the Study.

Theme	Description	Data Source(s)
1. Insufficient Funding	Chronic underfunding affecting infrastructure, materials, staff salaries, and research budgets.	Interviews, Documentation
2. Poor Infrastructure	Dilapidated classrooms, inadequate libraries, lack of laboratories and student accommodation.	Observations, Interviews
3. Overcrowded Classrooms	Student-to-teacher ratio is excessively high, especially in the Management Department.	Observations, Interviews
4. Outdated Curricula	Programs do not reflect current labor market needs or global academic standards.	Interviews, Documentation
5. Limited Access to Resources	Inadequate access to computers, internet, academic journals, and learning materials.	Observations, Interviews
6. Regional Inequities	Students from remote areas face greater barriers in accessing and succeeding in higher education.	Interviews
7. Political Disruptions	Academic calendar frequently interrupted by strikes and national instability.	Documentation, Interviews
8. Administrative Challenges	Bureaucratic inefficiencies and lack of transparency in university governance.	Interviews
9. Graduate Unemployment	Students perceive a low return on investment in education due to poor employment outcomes.	Interviews
10. Low Research Output	Minimal research output due to lack of funding, support, and incentives for faculty.	Documentation, Interviews

Many lecturers noted that the lack of financial support from the governement hinder them for conducting research or participating in scholarly activities. This situation has contributed to a stagnation in academic innovation and knowledge production within the institution.

3.1.2. Observational Evidence

Direct observations during the study further confirmed the deteriorating state of physical infrastructure at the University of Toliara. Classrooms were found to be in poor condition, often equipped with broken furniture, insufficient lighting, and a noticeable lack of basic teaching tools such as projectors or whiteboards. These observations aligned with the concerns raised by both students and lecturers regarding the overall learning environment.

3.1.3. Documentary Analysis

Document analysis, including institutional reports and internal memos, revealed a consistent pattern of budgetary constraints. These documents showed that government funding was frequently delayed, and the university often had to rely on external donors to support development projects. Such financial instability has severely limited the institution's ability to maintain and improve facilities, invest in technology, or support research initiatives.

3.1.4. Employability Concerns

Students also voiced strong concerns about the relevance of their academic programs in relation to the labor market. Many expressed uncertainty about their future employability and questioned whether their education would provide them with viable career opportunities. This perceived disconnect between academic training and real-world application was a recurring theme throughout the interviews.

3.1.5. Political and Institutional Instability

Several stakeholders highlighted political instability as a major barrier to academic continuity. Both internal disruptions, such as student and staff strikes, and broader national instability were identified as significant factors that frequently interrupted the academic calendar. These disruptions have contributed to a sense of unpredictability and frustration among both students and faculty, further undermining the effectiveness of the educational process.

3.2. Discussion

3.2.1. Inadequate Funding and Infrastructure

In many African countries, including Madagascar, inadequate funding and weak infrastructure remain among the most pressing challenges undermining the effectiveness of higher education [20]. Public universities in these contexts are often highly dependent on government funding, which is frequently insufficient, irregular, or poorly managed

[21]. As a result, institutions struggle to maintain basic facilities, let alone invest in modernization, research, or student support services. In Madagascar, the national budget allocated to higher education is limited, and even that modest funding is often delayed due to broader economic and political instability. This severely impacts the ability of universities to function efficiently and to provide a learning environment that meets even minimal standards [22].

The University of Toliara exemplifies the consequences of this chronic underfunding. Classrooms are overcrowded and often lack essential equipment such as desks, electricity, and blackboards. Libraries are outdated and understocked, with limited access to current academic resources or digital materials. Laboratory facilities, where they exist, are often non-functional due to a lack of maintenance or basic supplies [20]. In many cases, buildings are physically deteriorating and have not been renovated for decades. These conditions not only hinder the learning process but also discourage both students and faculty from engaging fully with academic life.

The infrastructural deficit is not just about physical spaces but also about the digital divide [5]. Across much of Africa, and particularly in rural areas of Madagascar, access to information and communication technologies remains extremely limited. At the University of Toliara, for example, internet access is unreliable and often unavailable to students and lecturers, restricting their ability to access online journals, participate in virtual conferences, or even communicate efficiently. The absence of digital infrastructure further isolates the institution from global academic networks and impedes the integration of modern pedagogical methods.

This situation is further complicated by political instability, which often delays public budget disbursement and impedes long-term infrastructure planning. Frequent changes in political leadership make it difficult to sustain investment in education, linking governance failures directly to infrastructure decay.

In the broader African context, this situation is not unique to Madagascar. Many universities across the continent face similar funding shortfalls and infrastructural challenges, which in turn affect their competitiveness, research productivity, and ability to retain skilled staff. While some countries have made significant strides through targeted investments or partnerships with international donors, many others continue to lag behind due to structural economic constraints and governance issues [23]. For Madagascar, addressing these issues requires both a national commitment to prioritize education in policy and budget decisions, and a more efficient, transparent system

for managing and distributing resources within the higher education sector. Without these changes, institutions like the University of Toliara will remain stuck in a cycle of underperformance and limited impact.

3.2.2. Outdated Curriculum

Outdated curricula represent a significant barrier to the effectiveness of higher education in Madagascar and in many other developing countries. At the University of Toliara, as in several Malagasy public universities, academic programs often fail to reflect current global trends, technological advancements, or the evolving needs of the labor market. Many courses remain theoretical, with limited practical application or interdisciplinary integration. Students frequently report learning from materials that have not been updated in years, and lecturers often lack the resources or training to revise content in line with new developments. As a result, graduates are not always equipped with the skills and knowledge that employers demand, contributing to high levels of unemployment and underemployment among university alumni ([24].

This issue extends beyond Madagascar and is common in several developing nations where education systems are still modeled after colonial-era structures or outdated national policies. In many such countries, curriculum reform is hindered by bureaucratic inefficiencies, a lack of qualified curriculum developers, and limited engagement with industry stakeholders [5]. Furthermore, rapid global shifts such as the rise of digital economies, climate change, and the need for entrepreneurial thinking are often not reflected in university programs [25]. Consequently, students in developing countries are at a disadvantage compared to their peers in more developed nations, not because of a lack of potential, but because their education is not aligned with the realities of the modern world [26].

Political instability also contributes to the stagnation of curriculum reform, as policy discontinuity and weak institutional oversight disrupt long-term academic planning. Frequent changes in educational leadership reduce the consistency and effectiveness of reform initiatives. Addressing this challenge requires a collaborative approach involving academic institutions, government agencies, employers, and international partners to ensure that curricula are relevant, future-oriented, and responsive to national development priorities.

3.2.3. Unequal Access to Higher Education Across Regions

In Madagascar, access to higher education is heavily concentrated in a few urban centers, particularly in the capital Antananarivo and a handful of provincial cities such as Fianarantsoa, Mahajanga, Toamasina and Toliara. Students from remote and rural areas face significant barriers when it comes to pursuing higher education. These include long distances to university campuses, lack of transportation infrastructure, financial constraints, and limited availability of preparatory secondary education. As a result, students from marginalized regions are often underrepresented in public universities, leading to unequal opportunities for academic advancement and social mobility. This imbalance reinforces existing regional disparities in development, as areas with fewer university graduates tend to struggle more with poverty, unemployment, and lack of innovation [27].

The problem is further exacerbated by the limited number of public universities and the highly centralized nature of the Malagasy higher education system [10]. While private institutions have emerged in recent years, they are often located in urban areas and charge tuition fees that are inaccessible to most rural families [28]. Moreover, rural students who do manage to enroll in universities far from home face additional challenges, such as inadequate housing, cultural adjustment, and lack of academic support. Language barriers are especially challenging for students from rural areas who cannot speak French, the primary language of instruction in universities, further complicate their academic journey. These factors combine to create an unequal playing field where access to higher education is determined more by geography and socioeconomic status than by merit or ambition [29].

Political unrest often worsens these disparities, as students from rural areas are disproportionately affected by campus closures and financial aid delays during strikes or government shutdowns. Thus, political instability compounds exist inequalities in access and participation.

Across the African continent, similar patterns are observed. Unequal access to higher education remains a major issue, with students in rural or conflict-affected areas facing the greatest obstacles. Countries such as Nigeria, Kenya, and the Democratic Republic of Congo have experienced rapid growth in student populations, but infrastructure and institutional capacity have not kept pace, especially outside major cities. Gender disparities also persist in rural areas, where cultural norms, early marriage, and lack of support discourage girls from continuing their education beyond secondary school.

Efforts such as distance learning, regional campuses, and scholarship programs have been implemented in some countries to reduce this gap, but challenges remain in ensuring quality and equity. For Madagascar and other African nations, addressing regional inequalities in higher education access is essential for inclusive national development, talent distribution, and long-term social cohesion.

3.2.4. Overcrowded Classrooms

Overcrowded classrooms are a persistent problem in Madagascar's higher education system, particularly in public universities such as the University of Toliara. The number of students enrolling in higher education has increased significantly in recent years, driven by population growth and a growing demand for university degrees. However, this surge in enrollment has not been matched by a proportional expansion in infrastructure, teaching staff, or classroom space. As a result, many lecture halls are filled beyond their intended capacity, with students often standing during lessons or sitting on the floor due to a lack of chairs and desks. This overcrowding limits effective teacher-student interaction, reduces participation, and diminishes the overall quality of education [20].

The problem of overcrowding is indirectly influenced by weak governance, as inconsistent budget allocation and slow administrative processes hinder the expansion of teaching facilities and recruitment of academic staff. Political instability further disrupts efforts to plan or implement sustainable solutions to accommodate growing student numbers.

Overcrowded classrooms are a common and deeply rooted challenge. Rapid urbanization and limited public investment in higher education infrastructure have led to a mismatch between student demand and institutional capacity [22]. In countries across Sub-Saharan Africa and parts of Asia, universities face similar pressures where one lecturer may be responsible for hundreds of students in a single course [2]. This environment makes it difficult to apply student-centered teaching methods, provide individualized feedback, or conduct practical sessions effectively. Overcrowding also contributes to burnout among academic staff and increases dropout rates, as students struggle to find a supportive and conducive environment for learning. Addressing this issue requires not only more physical infrastructure but also strategic policies that include hiring more faculty, expanding digital learning, and decentralizing university systems to accommodate regional growth.

3.2.5. Political Instability and Governance Issues

Political instability and governance issues have long undermined the effectiveness and development of higher education systems in Madagascar and across many African nations [28]. In Madagascar, the higher education sector is frequently affected by the broader political climate, which is often marked by periods of uncertainty, power struggles, and weak institutional continuity. Changes in government are often accompanied by abrupt shifts in education policy, funding allocation, and leadership at universities, disrupting long-term planning and implementation of reforms. These frequent changes hinder the ability of institutions to build sustainable programs or invest in infrastructure and quality improvement initiatives.

One of the most visible consequences of governance issues in Madagascar is the repeated delay in the disbursement of student scholarships. These financial stipends are critical for many students, especially those from low-income backgrounds or rural areas who rely on them for basic needs such as food, transportation, and housing [30]. When scholarship payments are delayed, students often resort to protests and strikes, which are common occurrences on university campuses such as the University of Toliara and others universities in Madagascar. These student-led demonstrations frequently lead to class suspensions and administrative shutdowns, disrupting the academic calendar and contributing to an unstable learning environment. The root of this problem lies in poor financial management, lack of transparency, and bureaucratic inefficiency at both national and institutional levels.

Political instability and governance failures also significantly impact higher education systems. In countries experiencing conflict, contested elections, or authoritarian regimes, universities often suffer from censorship, academic repression, and limited autonomy. Even in relatively stable nations, education ministries may be plagued by corruption, patronage systems, or poor oversight, leading to misallocation of resources and poor policy enforcement. These governance failures not only affect institutional operations but also diminish public trust in the value and credibility of higher education. As in Madagascar, students in other African countries also mobilize around issues like fee hikes, poor living conditions, or inadequate funding, with protests sometimes escalating into nationwide crises.

To address these challenges, the government must strengthen higher education governance through improved financial management, institutional autonomy, and transparent decision-making processes. The establishment of mechanisms for student participation in governance and accountability can also help reduce tensions and build a more responsive academic environment [16]. Moreover, stable political leadership that prioritizes education as a pillar of development is essential for ensuring long-term improvements in the quality, accessibility, and relevance of higher education. Without tackling these political and governance issues, efforts to reform or modernize university systems will likely fall short of their intended impact.

3.2.6. Post-Graduation Unemployment

Post-graduation unemployment is a growing concern in Madagascar, where a significant number of university graduates find themselves unable to secure employment that matches their qualifications. This situation stems from several interconnected factors, including a mismatch between academic training and labor market needs, limited private sector development, and a lack of entrepreneurial support. Many degree programs remain heavily theoretical, with little emphasis on practical skills, internships, or industry collaboration. As a result, graduates often lack the competencies and experiences employers are seeking. Additionally, the public sector, which traditionally absorbed a large share of graduates, has reduced hiring due to budget constraints, while the private sector remains too small and underdeveloped to offer enough opportunities.

These employment challenges are worsened by political instability, which discourages investment, slows economic growth, and reduces job creation. This highlights how weak governance not only affects education systems but also constrains the labor market's capacity to absorb graduates.

Rapid expansion in higher education access has led to a surge in the number of graduates, but job creation has not kept pace. Structural issues such as weak economic diversification, insufficient support for small and medium enterprises (SMEs), and underdeveloped vocational training systems contribute to a labor market that cannot absorb the growing pool of educated youth. High graduate unemployment has led to frustration, social unrest, and increased migration, as young people seek better prospects abroad (Nadia et al., 2020). Addressing this issue requires not only reforms in higher education curricula but also broader economic strategies that promote

innovation, entrepreneurship, and inclusive growth to create sustainable employment pathways for graduates.

3.2.7. Insufficient Support for Academic Research and Innovation

In Madagascar, academic research and innovation suffer from chronic underinvestment and a lack of institutional support, severely limiting the contribution of universities to national development (Cummins, 2016). At institutions like the University of Toliara, research activities are minimal due to the absence of dedicated funding, inadequate infrastructure, and limited access to scholarly resources. Most lecturers are overwhelmed with teaching responsibilities and receive little to no encouragement or incentives to engage in research. As a result, academic output is low, and the research that does exist is often not published, disseminated, or used to inform public policy or industry practices. This weak research environment contributes to the gap between academia and the practical needs of the country's socio-economic development.

Moreover, the lack of a national research agenda and weak coordination among universities, government institutions, and the private sector further hampers innovation. There is little collaboration between academia and industries that could otherwise help transform research findings into applicable technologies or solutions. Students also face significant barriers, including lack of mentorship, absence of research training, and limited access to academic journals or databases. In many cases, research projects that do receive support are funded by foreign donors and aligned with external priorities rather than national development goals. This external dependence can result in fragmented and unsustainable research efforts that fail to build long-term institutional capacity.

The challenges observed in Madagascar mirror those faced by many African countries, where research systems remain underdeveloped due to historical neglect, low public investment, and limited strategic planning. According to UNESCO, Africa produces less than 1% of the world's scientific publications, despite being home to about 17% of the global population. This disparity reflects systemic weaknesses such as underfunded universities, brain drain of talented researchers, and poor infrastructure, including labs, libraries, and data centers [12]. Furthermore, many African governments have yet to meet the African Union's recommended target of allocating 1% of GDP to research and development, leaving their institutions reliant on international grants with often short-term or externally defined objectives.

To reverse this trend, the government must prioritize investment in research and innovation as key drivers of economic transformation. This means not only increasing national research budgets but also creating enabling environments through policy reforms, institutional strengthening, and partnerships with the private sector. Strengthening postgraduate programs, encouraging interdisciplinary research, and promoting open access to scientific information are essential steps toward building a robust research culture. By doing so, universities can become engines of innovation, helping to solve local challenges while positioning themselves within the global knowledge economy. Without these strategic shifts, higher education systems in Africa will continue to fall short of their transformative potential.

4. Conclusion

This study has explored key factors limiting the effectiveness of higher education at the University of Toliara, including insufficient funding and infrastructure, outdated curricula, overcrowded classrooms, regional inequities in access, graduate unemployment, political instability, and limited research and innovation capacity. These interconnected issues mirror wider structural weaknesses within Madagascar's higher education landscape. Improving infrastructure and resource availability calls for increased public investment, better budget management, and stronger collaboration with development partners through coordinated funding strategies and public–private partnerships. Curriculum reform requires regular review mechanisms and greater input from employers and industry experts to ensure academic programs are aligned with labor market demands and global trends. Professional development opportunities for faculty can also support more dynamic and relevant teaching. To ease classroom overcrowding, expanding physical capacity, hiring more teaching staff, and integrating digital learning methods would help improve the learning environment and instructional quality. Reducing regional disparities in access to higher education will depend on the decentralization of institutions, the establishment of regional campuses, and targeted financial and academic support for students from underrepresented rural areas. Improving graduate employability involves forging stronger links between universities and the labor market, incorporating entrepreneurship training into degree programs, and increasing opportunities for internships and experiential learning. Political instability and governance issues could be mitigated through enhanced institutional autonomy, more transparent administrative systems, and consistent scholarship disbursement processes that minimize

disruptions to the academic calendar. Strengthening research and innovation requires the creation of a coherent national research agenda, increased funding for academic inquiry, and incentives for partnerships between universities, government, and industry. Expanding access to research materials and support for postgraduate training would also build long-term institutional capacity. Future studies could extend this research by including additional universities across Madagascar or conducting comparative analyzes with similar institutions in other low-income countries. Quantitative methods could also be employed to measure the impact of these challenges on educational outcomes and broader development goals.

References

[1] Murtadlo M, Albana H, Nisa YF, Izazy NQ, Sumiati NT, Dewi MS, et al. Inclusive Education in Africa: Transforming Higher Education in Low-Income Countries. Sci Afr. 2025;02708:e02708.

[2] Dunlop E, Bekkouche Y. It's our turn (not) to learn: the pitfalls of education reform during post-war institutional transformation in Burundi. Int J Educ Dev. 2024;104:102966.

[3] Suyadi N, Nuryana Z, Sutrisno, Baidi. Z., Sutrisno, & Baidi. Academic reform and sustainability of Islamic higher education in Indonesia. Int J Educ Dev. 2022;89:102534.

[4] Valakas, G., Sostaric, S. B., & Adam, K. Project Development Management for Innovation and Research: A module approach for researchers in Higher Education Institutions. Procedia Computer Science, 253, 815–824. https://doi.org/10.1016/j.procs.2025.01.143.. .

[5] Da Costa Marques MD. The Management of Higher Education Institutions in Portugal from a Sustainable Perspective. Procedia Comput Sci. 2025;256:706–17.

[6] Abdiraiymova, G., Duisenova, S., & Shayakhmetov, S. Reforming of System of the Higher Education in Kazakhstan (Based on Results of Sociological Research). Procedia - Social and Behavioral Sciences, 82, 397–403. https://doi.org/https://doi.org/10.1016/j.sbspro.2013.06.28..

[7] Price F, Randriamiharisoa L, Klinges DH. Enhancing demographic diversity of scientist-community collaborations improves wildlife monitoring in Madagascar. Biol Conserv. 2023;288:110377.

[8] Murtadlo M, Albana H, Nisa YF, Izazy NQ, Sumiati NT, Dewi MS, et al. Inclusive Education in Africa: Transforming Higher Education in Low-Income Countries. Sci Afr. ;02708: https://doi.org/10.1016/j.sciaf.2025.e02708.

[9] Brazy-Nancy E, Mattern C, Rakotonandrasana BI, Ravololomihanta V, Norolalao P, Kapesa L. A qualitative analysis of obstetric violence in rural Madagascar. Heliyon. 2023 Feb;9(3):e13905.

[10] Hoadley U. How do structured pedagogy programmes affect reading instruction in African early grade classrooms? Int J Educ Dev. 2024;107:103023.

[11] El-Halwagy E. Towards waste management in higher education institute: the case of architecture department (CIC-New Cairo). Results Eng. 2024;23:102672.

[12] El-Halwagy E. Towards waste management in higher education institute: the case of architecture department (CIC-New Cairo). Results Eng. 2024;23:102672.

[13] Pilz, M., Tögel, J., Albers, S., van den Oord, S., Cramer, T., & Vítečková, K. Teaching with business cases in higher education: Expectations and practical implementation by lecturers of management. International Journal of Management Education, 22(3). ht.

[14] Worku MY. Access-equity tensions in education: examining Ethiopia's educational reforms through a distributive social justice lens. Soc Sci Humanit Open. 2025;11:101443.

[15] Ibidunni, A. S., Nwaodu, B. Y., & Mdaka, L. E. Bringing quality management to perspective in higher education institutions' research output: A focus on selected private universities in Nigeria. Heliyon, 9(4). https://doi.org/10.1016/j.heliyon.2023.e15443...

[16] Pilonato S, Monfardini P. Performance measurement systems in higher education: how levers of control reveal the ambiguities of reforms. Br Account Rev. 2020;52(3):100908.

[17] Schweisfurth M, Davies L, Symaco LP, Valiente O. Higher education, bridging capital, and developmental leadership in the Philippines: Learning to be a crossover reformer. International Journal of Educational Development, 59, 1–8. https://doi.or

[18] Bolhaar, J., Kuijpers, S., Webbink, D., & Zumbuehl, M. Does replacing grants by income-contingent loans harm enrolment? New evidence from a reform in Dutch higher education. Economics of Education Review, 101. . https://doi.org/10.1016/j.econedurev.2024.102546.

[19] Francesconi M, Slonimczyk F, Yurko A. Democratizing access to higher education in Russia: the consequences of the unified state exam reform. Eur Econ Rev. 2019;117:56–82.

[20] Khatri P, Duggal HK, Lim WM, Thomas A, Shiva A. Student well-being in higher education: Scale development and validation with implications for management education. International Journal of Management Education, 22(1). https://doi.org/10.10

[21] Khatri P, Duggal HK, Lim WM, Thomas A, Shiva A. Student well-being in higher education: Scale development and validation with implications for management education. International Journal of Management Education, 22(1). https://doi.org/10.10

[22] Ortega JL, Aguillo IF. Mapping world-class universities on the web. Inf Process Manage. 2009;45(2):272–9.

[23] Emynorane, R. H., Ratna, H. E., Citriadin, Y., Arrive J. T., & Larissa, R. Conflict Management between Teachers and Students: Case of Esperanto Private High School in Madagascar. Jurnal Pendidikan: Teori dan Praktik, 9(2) 165-174. Doi.org/10.26740/jp.v9n2.

[24] Xie Q. Application of Q-learning algorithm based on heterogeneous sensor networks in higher education teaching management. Meas Sensors. 2024;33:101188.

[25] Kountouris Y. Higher education and fertility: evidence from reforms in Greece. Econ Educ Rev. 2020;79:102059.

[26] Heitor, M., & Horta, H. Reforming higher education in Portugal in times of uncertainty: The importance of illities, as non-functional requirements. Technological Forecasting and Social Change, 113, 146–156. https://doi.org/10.1016/j.techfore.2015.09.027.. .

[27] Emilia C, Cecilia SI, Cristina CI. Higher Education Reform in Romania. Present and Perspective. Procedia Soc Behav Sci. 2012;46:1096–100.

[28] Elliott RW, Paton VO. U.S. higher education reform: origins and impact of student curricular choice. Int J Educ Dev. 2018;61:1–4.

[29] Obeso, M., Pérez-Pérez, M., García-Piqueres, G., & Serrano-Bedia, A. M. Enhancing students' learning outcomes through smartphones: A case study of using instagram in higher management education. International Journal of Management Education, 21(3). https.

[30] Rodríguez-Rodríguez, D., Knecht, N., Llopis, J. C., Heriarivo, R. A., Rakotoarison, H., Andriamampionomanjaka, V., Navarro-Jurado, E., & Randriamamonjy, V. Socioeconomic impacts of small conserved sites on rural communities in Madagascar. Environmental De. https://doi.org/10.1016/j.envdev.2024.100965.