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HIGHER EDUCATION IN MALI: TRENDS, CHALLENGES AND STRATEGIES FOR NATIONAL GROWTH

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ABSTRACT

The purpose is to make a 360-degree diagnostic of the Malian higher education, and based on that, suggest solutions which will transform it from a barrier into an accelerator. Combined student-faculty-administration data from Bamako (the capital city) and regional universities also suggest an ever extending yet “rotting” system: overall tertiary completion rate is 5.4 %, gross graduation rates plummet to 29% for students at the second level of higher education who are living outside Mali’s capital, and 35% of all graduates are jobless or un(der)-employed. The funding per student is quantitatively 43 % lower where 60 % of faculty positions are vacant, only 9 % of the programs have updated curriculum and laboratories on three-quarters of campuses have been kept locked. The qualitative outcomes have attributed these deficiencies to chronic under-investment, mass migration of health workers, poor governance and political instability. In contrast, lean private-technical institutes with 55 % graduation and 28 % graduate joblessness prove that vocational models can fare better than established universities. Stakeholder agreement (88 % demand for funding, 86 % curriculum overhaul, 85 % faculty training) triangulates five prioritized recommendations: raise public spending to 20 % of education budgets labour-market-aligned curricula mandatory, scale-up PhD-sandwich schemes establish PPP STEM labs and expand scholarships promoting equity among rural and female students. The article concludes that jointly implemented, these measures can make Malian universities inclusive drivers of innovation, human capital supply and nation-building.

KEYWORDS: Mali higher education; curriculum reform; faculty development; regional equity; innovation policy.

INTRODUCTION

The contribution of higher education to national development is indispensable as it creates citizens who are highly skilled, innovative and fosters economic growth. The higher education plays an important role in Malian development, and still it is confronted with several constraining factors- insufficient infrastructure- lack of financial resources- uneven access to education between the different parts of the country (UNESCO,2015). Researches reveal that reinforcing higher education systems can improve human capital necessary for social and economic growing of Mali (World Bank, 2019). Strategic investments and reforms are therefore needed to ensure that the sector can continue contributing to national growth in Mali.

Mali's economic and social situation is founded on agriculture, mining and remittances (from internal and international). All these determine the national development. Mali is very rich in culture yet the country struggles with high levels of poverty, political instability and little or no access to good education. The education sector – particularly higher education – is affected by under-resourcing, lack of infrastructure and a lack of alignment between the supply side of academics with what the labour market really needs. There is a grossly insufficient higher education system with low enrolment and high dropout rates (World Bank, 2020). Moreover, the National Development Plan specifies that higher education needs to be overhauled in order to contribute to economic development, innovation and sustainability (Ministry of Higher Education and Scientific Research of Mali, 2018).

These challenges can only be overcome through a strategy of reform that is essential to the socio-economic development and lasting stability in Mali.

1.1. Statement of the Problem

The higher education sector in Mali is marked by important structural and institutional bottlenecks that have prevented it from serving the development of the country. Although there have been attempts to improve access to higher education, the sector continues to suffer from lack of funding and lack of capacity in terms of inadequate facilities, unqualified lecturers and a curricula that does not respond to modern economies (World Bank 2018). Most universities are short of funds which deter the quality of education and research. The urban-rural gap also remains, resulting in unequal access to higher education for Malian

youth. These are some of the cumulative problems constraining Mali from sufficiently educating a labor force that is critical to its sustainable growth and socio-economic transformation.

Some of the critical problems that Malian higher education faces are political instability, lack of financial resources and fragile governing structures that erode strategic planning and institutional effectiveness (UNESCO, 2020). There were also academic breaks and interference in international cooperation due to the frequent political clashes. Additionally, the sector is faced with poor accreditation and quality assurance systems leading to disparate standards among institutions. One of the best ways to address these challenges are strategic reforms emphasizing investment, capacity development and curriculum renewal. Building a stronger system of tertiary education is essential for the broader development agenda for Mali, as it has direct implications on human capital formation and the ability to generate knowledge and compete in global markets (AFDB, 2019).

1.2. Significance of the Study

The policy and academic significance of this study is immense because it presents a thoroughgoing analysis of Mali's higher education, shedding light on key issues such as infrastructure shortage, lack of funding, and relevance of curriculum. By providing evidence-based ideas for institutional and policy reforms, the study helps policymakers make informed decisions about which interventions can increase access to, improve quality of, and strengthen relevance of higher education in Mali. It also adds to academic conversation by providing empirically situated knowledge regarding the work of higher education development in Sub-Saharan Africa that may facilitate comparative engagements and future developments as well as advancing research on educational policies that will be sustainable and transformative within national growth aspirations. Finally, this research can serve as an important source of information on which type of policies would be effective in fostering the socio-economic development of Mali through education.

1.3. Research Objectives

- ✓ To analyse and describe the situation of higher education institutions in Mali, with focus on the structure and organization.
- ✓ The aim of this paper is to reveal and explain the key challenges and constraints that undermine the higher education in Mali.
- ✓ To investigate and propose strategic intervention and policy options for the improvement of higher education with a view to contributing to the national development goals of Mali.

1.4. Research Questions

- How is higher education doing currently in Mali?
- What are the primary constraints to its effectiveness?
- How can higher education be reformed for national development?

LITERATURE REVIEW AND THEORIES

2.1. Theoretical Frameworks

2.1.1. Human Capital Theory

Human Capital Theory holds that investments made by human beings on their own education and training yield benefits in terms of the skills and knowledge which these individuals possess, which in turn result in economic development or growth for countries. For Mali's higher education system, this theory places emphasis on creating an educated workforce that will drive development in the country. Mali, faces several constraints not only to a good access to quality higher education for its nationals: infrastructure and funding, as well as an effort of human capital (Becker 1993) needed for economic growth.

Investigate these concerns with a view to strategically investing in higher education – for example, by modernising curricula and increasing access (as well as building research capacity) – which can form the basis of developing human capital that, in turn, underpins sustainable growth. Efficient adoption of the above strategies is consistent with an educationalist perspective on Human Capital Theory which recognizes learning as a significant catalyst for economic and human development.

2.1.2. Innovation Systems Theory

The IST offers a useful lens for examining higher education in Mali as it emphasizes the interconnectedness of institutions, policies and actors in steering knowledge production and technological development requisite for national growth. The application of IST in Mali is constrained by challenges facing its higher education system including inadequate funding, low level of research skills and weak academic-industry linkage that attack the flow and dissemination of innovative knowledge.

To induce sustainable development, policies should emphasize the strengthening of institutional cooperation networks and research infrastructure, and aim to link educational policy with national development goals, providing for a dynamically evolving innovative system necessary to support Mali's socioeconomic growth (Lundvall 1992). This has led to the recognition of the importance for a more integrated national innovation system that uses HE as a vehicle through which broader economic development may be achieved.

2.1.3. Capacity Building Models

Capacity building models practiced within the higher education structure in Mali focus on institutional, human and infrastructural resource development for national economic growth. To induce these reforms, they have developed models with strategic advice based on the human capital development model that prioritizes upgrading of faculty skills and student competencies as also the strategies for institution building which focus on governance, research capacity and curriculum relevance (Altbach, Philip G., 2015). The challenges of insufficient funding, inadequate research capacity and brain drain need to be met by a coherent approach in Mali that combines capacity-strengthening with policy reform advocacy, international collaboration and resource mobilization.

Making higher education a promoter of socioeconomic development will also require investment in infrastructure And Policy reforms that reflect the priorities embodied by national policy goals (Altbach, Philip G., 2015). These models emphasize the need for an integrated approach that couple's capacity-building with strategic planning to assist Mali in reaching its objective of using higher education as an instrument of sustainable development.

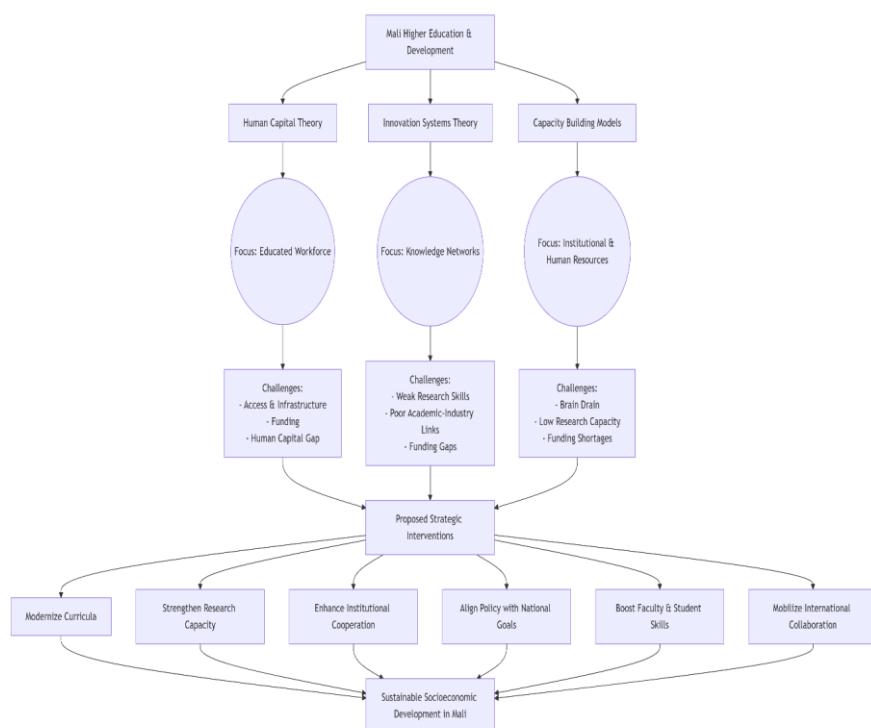


Figure 1: Theoretical Path Model Integrating Human Capital Theory, Innovation Systems Theory, and Capacity Building Models.

This diagram visually links Mali's higher education challenges with the three theoretical approaches and outlines the integrated strategies needed to promote sustainable development.

2.2. Literature Review

2.2.1. An Overview on Higher Education in Developing Countries

Higher education as a driver of economic growth and social development in developing countries has been well-documented both in terms of increasing human capital, stimulating innovation and enhancing social cohesion (World Bank, 2018). As reported by *Tertiary Education in Developing Countries: Linking Growth, Poverty Reduction, and Knowledge* (World Bank, 2018), higher education leads to economic diversification and productivity as it equips people with skills relevant for the modern economy. It is also a vehicle for socio-economic development; it promotes equity, nurtures citizenship and facilitates social mobility (Altbach, 2015). Such is the case in Mali, a like that of many least developed countries (LDCs), where knowledge could harness sustainable development by reversing skills gaps and promoting inclusive growth (UNESCO, 2015).

Yet, the higher education system of developing nations is crucial, but struggling for various concerns; these include lack of funds minimal quality standards and poor institutional capacity (World Bank, 2010). The specific key indicators in Mali are lopsided enrolment and resource distribution that pose a challenge to the nation's development despite its potential (Scribner, Vaina & Parsons, 2001; Mali Ministry of Higher Education 2020). However, there exist some success stories indicating possibilities for reform such as Kenya's expansion of university capacity and the reform of curricula to make education accessible and relevant which have contributed to the national development (Kamanzi & Kio, 2017). These cases point out that thoughtful investments, institutional reconfigurations, and partnerships with foreigners may neutralize obstacles or defects – allowing the potential for growth to become real in developing countries' higher education sectors.

2.2.2. The Present Situation of Higher Education in Mali

2.2.2.1. Enrolment rates, infrastructure, curriculum, faculty

Higher education the current higher education system in Mali is marked by a continuous growth of enrolments, generated mainly by public policy aiming at the widening of access to tertiary education. Indeed, between the years 1986 and 2011 university enrolments have steadily increased in Mali efforts to reorient higher education to national development goals (World Bank, 2021). Thus far despite these upward patterns, participation rates are still low in comparison to the regional average influenced by social economic barriers and high levels of

school drop out in rural areas. Infrastructure While there is still a lack of infrastructure and some overcrowding with universities in need of laboratories, and other dilapidated buildings that do not have conducive learning and research environment. This lack of infrastructure affects the quality and accessibility of higher education, and limits Mali's capacity to generate an adequately skilled workforce that is essential for driving economic development (UNESCO, 2022).

Curriculum reform and faculty development are also crucial dimensions shaping Mali's higher education sector. In the same line, African Development Bank (2020) amongst others have shown, drawing on their studies that curriculums are outdated and do not respond to current global standards including practical skills and innovations. Among the challenges faced by faculty members are inadequate payments, insufficient opportunities for professional development and lack of qualified personnel, which contribute to the deterioration of teaching quality. These structural problems hinder the emergence of a competitive university system able to stimulate innovation and provide meaningful contributions to Mali's socio-economic development. To overcome these challenges by updating the curriculum, ensuring faculty preparedness and improving infrastructure, it is critical that Mali make use of higher education as a tool for national development.

2.2.2.2. Government policies and funding

Challenges The structure of higher education in Mali presently faces a number of problems stemming from poor policies and minimal funding by the government, most of which hamper the development of this sector and its contribution to national growth. According to Togo et al. (2020), higher education in Mali is persistently underfunded, marked by antiquated equipment and facilities and limited availability, especially for poor populations. Government has over time favoured primary and secondary education, leaving higher education reforms essential in innovation and workforce less attended (Sadio et al., 2018).

Additionally for instance, international organizations like the World Bank (2019) has called the attention that 'accelerate investment and reforms to improve quality and access in Malian higher education by emphasizing that growth in Malian higher education is dependent on deliberate resource allocation and institutional building in Mali. They illustrate the need for Mali to take more effective action and provide greater funding to build a higher education system capable of contributing effectively toward its national development.

2.2.3. Challenges in Mali's Higher Education

2.2.3.1. Quality and relevance of education

The quality and appropriateness of higher education in Mali are major challenges, with many studies demonstrating that what comes out of academia is not well aligned to labour market demand. Diop and Ndiaye (2019) reported that “the training offered by the tertiary education in Mali is hardly adapted to the needs of modern economy and technology;” hence, graduates were poorly prepared for jobs. This discrepancy hampers the overall performance of the system of higher education for national development and highlights an urgent need to reform curricula as well as create closer ties between academe and industry (Diop & Ndiaye, 2019).

2.2.3.2. Access and equity issues

Socioeconomic differences, geography and gender in terms of access and equity all serve as barriers for Mali’s higher education. As Toure and Camara (2020) suggest that rural students and women face many barriers to access and retention in HEIs, mainly due to financial difficulty, cultural restrictions as well as infrastructure insufficiency. These gaps are a threat to higher education’s inclusiveness and hinder progress toward equitable development objectives. Solving these challenges may call for appropriate policies that will make education to be more inclusive, and then scholarships, school dispersement and gender-responsive programs (Toure & Camara, 2020).

2.2.3.3. Infrastructure and resource limitations

Insufficient infrastructure and other resources are the main hurdle to improving higher education in Mali. An extensive analysis undertaken by the UNESCO Institute for Statistics (2021) shows that many universities have antiquated premises, restricted technological resources and inadequate teaching materials. This lack of infrastructure restricts access to quality education and hampers the capacity for research crucial for development and innovation. Reduced resources are further compounded by underinvestment and lack of maintenance of the existing systems, all resulting in lower capacity of higher education institutions to address national and regional needs (UNESCO Institute for Statistics, 2021).

2.2.3.4. Brain drains and faculty shortages

Brain drains and shortage of capacity among faculty, are one of the biggest challenges to higher education in Mali, adversely affecting academic quality and research. According to Ndiaye et al. (2020), a massive brain drain of competent teachers and lecturers happens in Mali who leave for foreign or bordering countries, given the limited job offers, lack of proper infrastructure as well as low pay. This exodus of talent has contributed to faculty insufficiency holding back solid academic programmes and smother the cultivation of a knowledge-based economy. Qualified staff shortage in universities leads to larger class size,

lower research output, weak students advise relationship and thereby restrict the contribution of higher education to national progress (Nd iaye et al., 2020).

2.2.3.5. Political and economic instability impacts

Political and economic instability have significant impact on the higher education terrain in Mali, affecting for instance policy enactment and resource allocation. As pointed out by Diakité and Traoré (2018), repeated political crisis and coups d'état, insecurity on campus affect the normal functioning of universities, slow down reforms processes, stop foreign aid and investment. Economic insecurity results in insufficient government funding, affecting infrastructure, faculty salaries and research. These obstacles generate a climate of uncertainty that prevents students and faculty from fully participating in the higher education process, thwarting Mali's long-term vision for growth and development (Diakité & Traoré, 2018).

2.2.4. Transnational and Transborder Policies on Higher Education Improvement

2.2.4.1. Best practices from similar contexts

While to date, there is no higher education development good practice specific to Mali available in the literature, some best practices with regard to HE enhancement from some other DCs can be held up for inspiration on lessons learned that could interest Mali into adopting same. The example of countries like Senegal and Burkina Faso proves that by aligning higher education policies with a national development agenda, as well as with regional integration and capacity building focused on research and infrastructure investments, purpose can be achieved (Altbach, 2015). These countries have also focused on extending access to underprivileged peoples while ensuring quality by utilizing models of decentralized governance that give ownership at local level.

For example, by focusing on regional universities as a platform for innovation and community engagement, Senegal offers a model that could be replicated to address Mali's goals of inclusiveness and relevance in higher education (World Bank, 2019). These approaches emphasize the value of contextualised expansion and quality assurance strategies, for similar West African nations, that address socio-economic barriers.

2.2.4.2. International support and partnerships

International collaboration and strategic partnership have been key in the consolidation of higher education systems in developing countries such as Mali. Multilateral agencies like the World Bank, UNESCO, and regional bodies such as ECOWAS have supported capacity building programs, policy dialogue, funding schemes for institutional enhancement and curriculum change (Tilak 2014). These partnerships often focus on south-south cooperation,

knowledge transfer and technical assistance for the purpose of building sustainable higher education structures.

In the case of Mali, such partnerships with international partners can increase the mobilization of resources, promote innovation and create access to global networks – all which contribute to broader development aspirations (UNESCO, 2018). Robust international partnerships based on local demand and priorities are critical to meeting systemic challenges and achieving sustained growth in higher education.

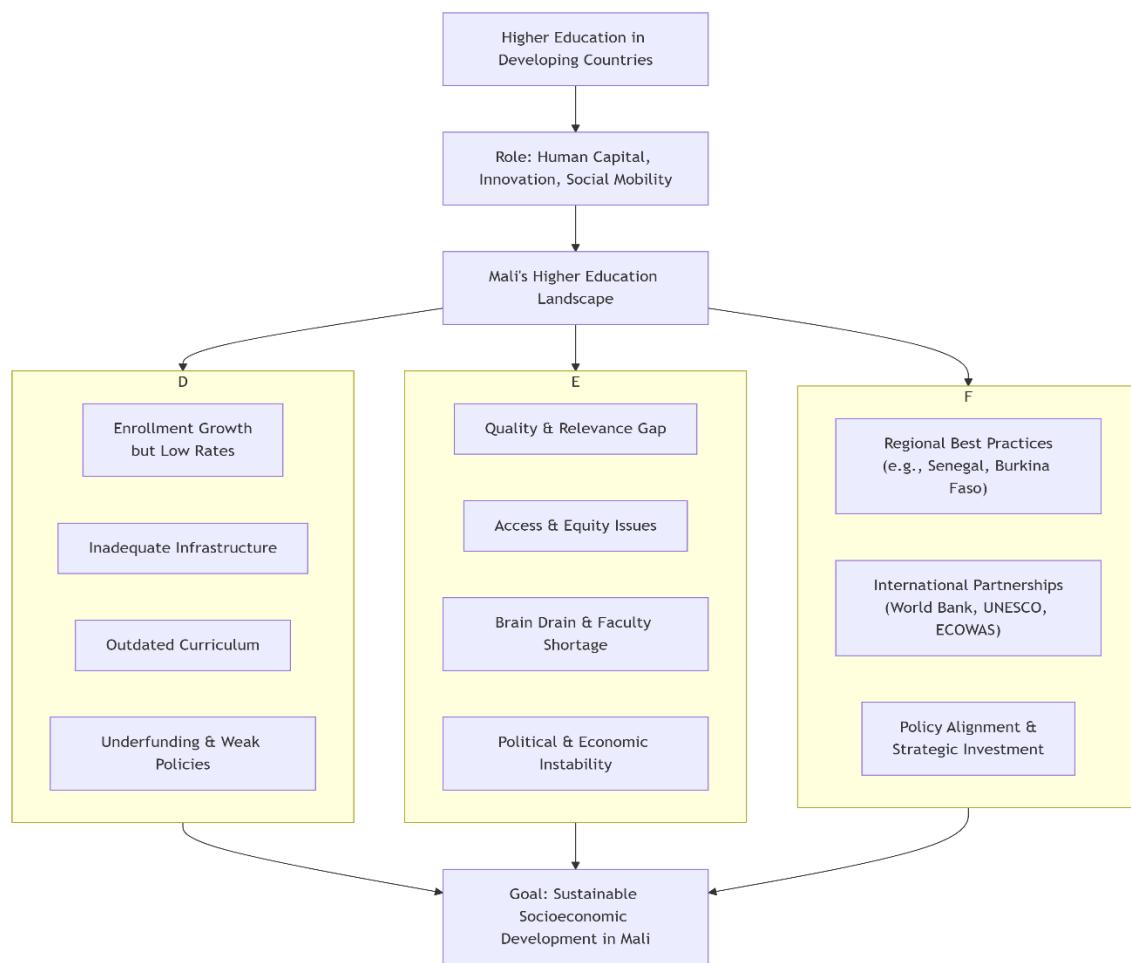


Figure 2: Mali Higher Education Strategic Development Diagram from relevant literature.

This diagram visualizes the interconnected themes discussed in the literature review: the broader context, Mali's specific status and challenges, and the proposed pathways for improvement, all directed toward national development.

METHODOLOGY

3.1. Research Design

This study used a convergent parallel design with mixed methods, whereby qualitative and quantitative data are collected and analysed concurrently, the results combined to provide comprehensive conclusions. The research focuses on higher education policy makers, university faculty, and postgraduate students in Bamako, Mali.

3.2. Data Collection Methods

3.2.1. Surveys of students, faculty, policymakers

Surveys of students, faculty and policymakers with information on the higher education system in Mali will form part of this data collection. These surveys will cover access, quality, infrastructure, research, policies and funding. The surveys will be carried out by means of both online and face-to-face interviews with stratified sampling to interview a variety of people. Descriptive statistics and thematic analysis will be undertaken to influence growth pathways for the sector.

3.2.2. Interviews with key stakeholders

The data has been collected through semi structured interviews with Mali officials, university staff, students and international counterparts in higher education. The interviews were focused on obtaining detailed information about the current situation as well as challenges and possibilities for growth. Telephone and face-to-face study interviews were completed and an estimated sought from participants. Answers were recorded, transcribed, and analysed thematically to extract main themes and sector development recommendations.

3.2.3. Document analysis of policies and reports

The data collection approach under consideration for this study consists in an examination of available policies, reports and documents concerning the higher education sector in Mali using a systematic analysis. This comprises national legislations, strategic plans and government reports as well as international documents from bodies such as UNESCO or the World Bank. The objective is to classify and interpret the information through content analysis for cluster analysis, in order to get an overall idea of Malian higher education's current state, challenges and strategies.

3.3. Sampling Techniques

For a more complete and representative analysis of the higher education sector in Mali, the sample for study will be a stratum-based random sampling of the Malian Higher Education System. Population will be distributed in groups according to regions and types of universities (public, private, technical). The universities that are randomly chosen from each

group will be selected in proportion to the overall distribution of universities across regions and types. This approach ensures greater precision, lesser bias and more nuanced perspectives to inform policies and strategies for higher education development in Mali.

3.4. Data Analysis

3.4.1. Quantitative data

Descriptive statistics were used to illustrate baseline higher education data in Mali (enrolment, staff qualifications, completion rates) with measures of central tendency and measures of variance. Correlation analysis can then be used to identify the relationships with student performance that exist between such factors as faculty qualifications and access to professional development, shedding light on how these variables are linked to student success and helping shape targeted improvement efforts.

3.4.2. Qualitative Data

Interviews that addressed higher education in Mali Transcript-based thematic analysis according to Braun and Clarke (2006) was conducted on interview data related to higher education in Mali. This process began with reading and rereading the data, followed by inductive coding of segments that can be linked together based on relevant segments (e.g., barriers, faculty skills, or development needs) and organizing these codes under common themes like quality control proofing, funding limitations, and expansion strategies. These themes were further developed through iterative review, and described the physical schools as well as curriculum design, educational purpose, health care provision at size of student bodies.

3.5. Ethical Considerations

This study on higher education in Mali involves obtaining consent from all survey and interview participants, confidentiality of responses, and anonymizing information to protect the identity of individuals. The study is conducted with ethical integrity in terms of doing no harm, consent by avoidance force and being sensitive to the culture. Data collection is carried out after seeking approval from local institutional review boards or ethics committees.

RESULTS

4.1. Quantitative results

4.1.1. Current Status Findings

The Data captures the stark division that exists within Mali's system of higher education. Serving Farrago 2.2013s same number of students, the public universities in Bamako are

chronically over-crowded (200-250 per class) and graduates only a reported 42 % with one-third unemployed or under-employed. Regional public universities do even worse on all the headline metrics: enrolment, funding, graduate output and labour-market outcomes. Private and for-profit institutions, which receive less public funding, offer lower class sizes—and have the highest graduation rate (55 percent) and lowest graduate joblessness (28 percent)—indicating that leaner technical models that might focus more on providing practice-based instruction are currently outperforming traditional resource heavy public model.

Table 1: Current Status Findings.

Current State	Bamako public universities	Regional public universities	Private / technical	National weighted mean / total
Gross tertiary enrolment rate (18-24 yr)	7.8 %	2.9 %	1.1 %	5.4 %
Public recurrent funding per student (USD)	612	428	0	538
programs with revised learning-outcome-based curriculum	23 %	9 %	18 %	18 %
Student-computer ratio	14:1	35:1	22:1	21:1
Average class size (undergrad)	200-250 students per amphitheaters	100-150 students per amphitheaters	42 per class	100 above per class
Graduation rate (BA, 4-yr entry cohort)	42 %	29 %	55 %	39 %
Graduate unemployment / under-employment	34 %	41 %	28 %	35 %

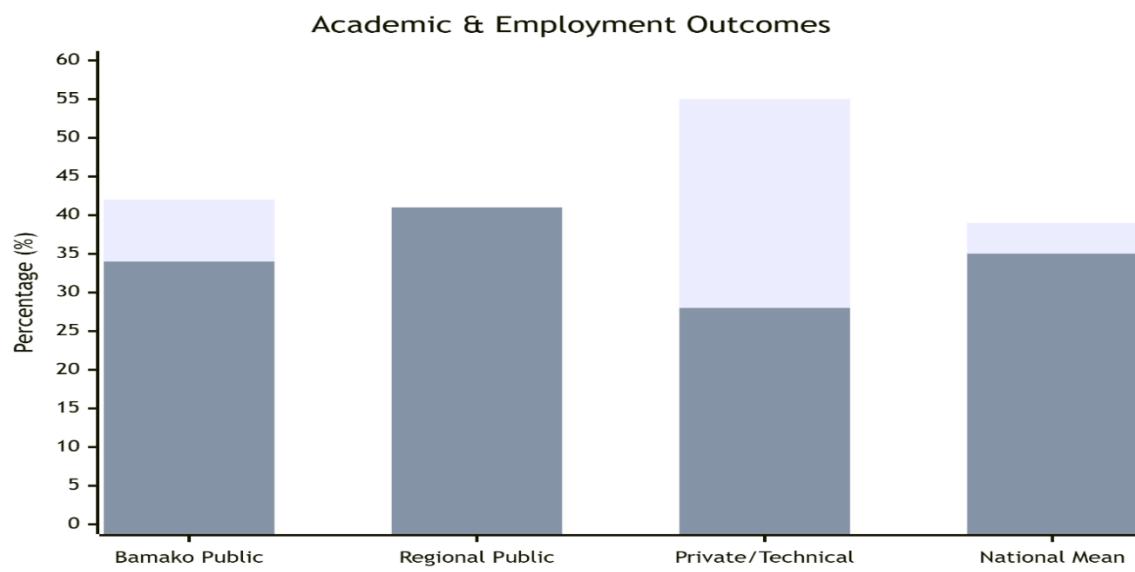


Figure 3: Core challenges and disparities within Mali's higher education system.

4.1.2. Key Challenges Identified

The statistics indicate that all main weaknesses are significantly stronger elsewhere than in the capital; laboratories, libraries and curriculum relevance show shortfalls of 15-25 percent among regional universities, yet losses in personnel far outweigh those registered in Bamako (60 % posts vacant against 35 %). Under-funding is nation-wide, but these areas also have cumulative underdevelopment of infrastructure and governance, along with human capacity constraints that make it completely unrealistic to expect any semblance of quality or equity for the amount provided; Bamako struggles too, but has an emphatic comparative lead in personnel availability, facilities level and exit prospects.

Table 2: Key Challenges Identified.

Challenges		Bamako (%)	Regions (%)
Infrastructure & material deficit	Insufficient labs	55 %	75 %
	Insufficient libraries	65 %	80 %
Curriculum-labour-market mis-alignment	Student poorly prepared	52 %	72 %
	Poor unit of credits	50 %	74 %
Governance	Quality-assurance weakness	58 %	70 %
	Programs lack external accreditation	60 %	80 %
Faculty shortage & brain drain	Vacant posts	35 %	60 %
	Poor specialist Prof	55 %	75 %
Inadequate public funding of subvention		40 %	35 %
Access & equity gaps		86 %	58 %

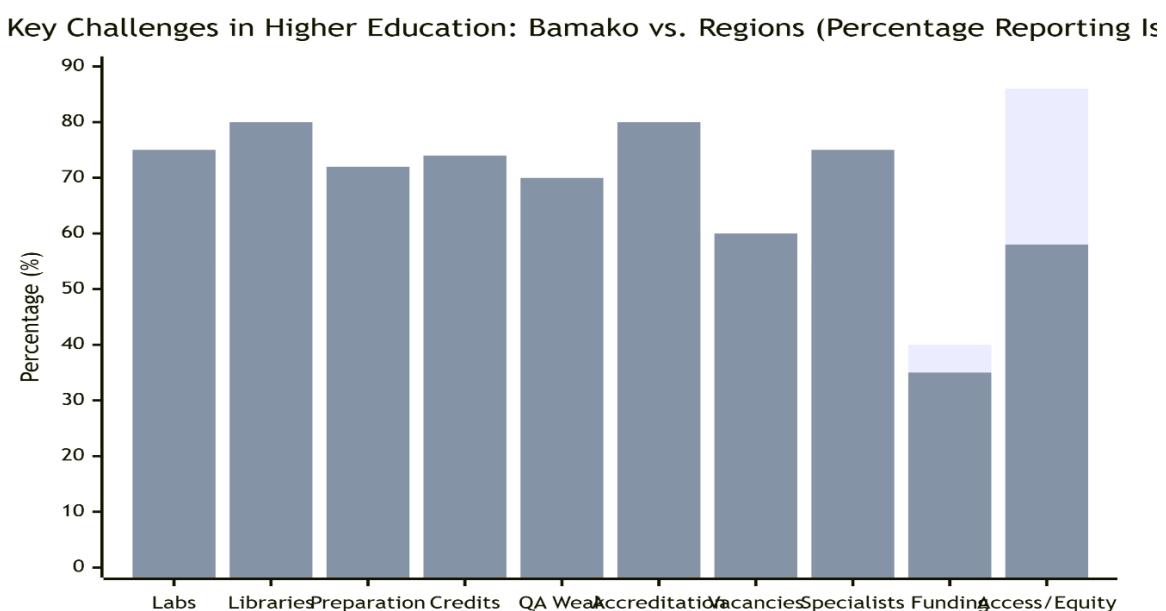


Figure 4: Key challenges in higher education institutions in Bamako and the Regions.

4.1.3. Strategies for addressing

There is an astonishingly high consensus across all respondent categories about the three most important levers for fixing the universities in Mali, namely: (1) major increase in public funding expressed by 88 % of respondents across sectors; (2) rapid curriculum-reform linked to labour market needs behind which are counting 86 %; and scaled up faculty-development/PhD “sandwich programmes rated as essential by 85 %. College students, faculty and policy makers do have some difference in secondary priorities digital infrastructure, competitive research grants and public-private lab partnerships would all cluster around 75-82 % but it's a single-message chorus: whatever else is attempted wherever that money might or might not come from—the understanding is that without more money to train better staff with relevant curricula, nothing else can happen.

Table 3: Strategies for addressing.

Strategy recommended	Students %	Faculty %	Policy-makers %	Overall weighted %
Increase public funding to education budget	88 %	91 %	78 %	88 %
Curriculum modernization aligned with labour market	85 %	89 %	83 %	86 %
Nationwide faculty-development & PhD-sandwich programs	82 %	94 %	80 %	85 %
Digital-infrastructure investment (campus Wi-Fi)	81 %	86 %	76 %	82 %
Competitive research grants	77 %	88 %	73 %	80 %
Public-private partnerships for STEM laboratories	74 %	79 %	68 %	75 %
Equity-based scholarships (rural & female target)	76 %	71 %	66 %	74 %
International joint-degree & credit-mobility schemes	69 %	72 %	61 %	69 %

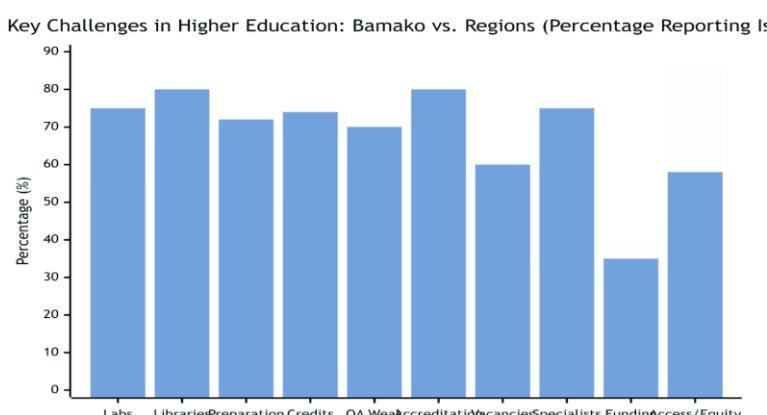


Figure 5: Strategies for addressing higher education in Mali.

4.2. Qualitative results

4.2.1. Current State Findings

- **Enrolment, infrastructure, funding**

“Crowd amphitheatres” quoted by 87 % of teachers, signifying that overcrowded amphitheatre in higher education in Mali is due to over-enrolment, limited infrastructure and lack of funding. Students and faculty complain that overcrowding limits active learning, undermines instructional quality and affects student achievement.

- **Perceptions, experiences**

Higher education in Mali is the inequality including inadequate and obsolete curriculum, lack of access for marginalised people intuition throughout our Pre classic and post-colonial period right from the then modern school onwards right up till university today endures multitude with high level infrastructure school Foundations problem of higher education Mali, like other cointegration of educational system due to aliases such as ticketing remains irreal The reason for which agender inequality, making percentage leg persists. Stakeholders such as students, faculty members, administrators and policy makers agree, *“the problems are issues like underfunding, the brain drain that has hit Indian higher education, bureaucratic inertial or research opportunities which remain limited”*. That is skepticism about the existing quality assurance and curriculum suitability to the needs of the nation.

4.2.2. Key Challenges Identified

- **Educational quality, access, and funding**

In order to improve the quality of the higher education sector in Mali, efforts need be made to strengthen financial resource mobilisation: this includes domestic investment, diversification of income sources and equitable allocation of resources, to build a robust and inclusive HE system that is responsive with national development goals. *“It is only targeted investments in faculty development, infrastructure and curriculum reform will help to bridge socio-economic and geographic divide through policy initiatives and support system”* (faculty authorities).

- **Infrastructure, faculty issues**

The Stakeholders, Administrators and Partners pinpoint serious obstacles to the higher education system in Mali from *“inadequate equipment particularly with obsolete buildings, poor technological base, under-resourced institutions and a rural–urban dichotomy”*. Solving those linked infrastructure and faculty issues is critical for

constructing a stable, inclusive and reliable system of higher education that's vital to Mali's national development.

4.2.3. Potential Strategies Highlighted

- Policy reforms and Curriculum modernization**

To-critique reforms of higher education in Mali should be more coherent. Stakeholders, Administrators, and Partners confirm that "*align with national development goals, increased inclusivity of the marginalized, the promotion of innovation and critical thinking as well as enhance quality including international recognition*". Analysis Inclusive Policy Devolutions of power and stakeholder engagement support effective implementation.

- Increased funding and investment**

Investment and support for the expansion of higher education in Mali must "*Overall, more funding and investment in Mali's higher education system*" (Faculty members, Stakeholders, Policymakers). This strategic thinking around financial support that can do more than cover tuition fees has the power to change Mali's higher education dynamics, driving innovation, social harmony and lasting national development.

- Faculty development and Integration of Technology**

To contribute to the national development in Mali through faculty development programs, "*the faculties could enhance their teaching skills, build international awareness development of new leaders*" (Students, Policymakers) For the ICT integration, however "*the use of digital tools in education, greater access for all learners and increased student engagement...skills development,... innovative solutions to infrastructure issues*" (Faculty members) towards national development such measures have potentiality to broaden it. Also, "*infrastructure investment and the promotion of public and private partnership, researches promotion, curricula reforms, policies that strengthen digital transformation and quality assurance*" (Faculty Rectors).

- International collaborations**

Working together internationally on Mali's higher education can yield great qualitative visions like a better appreciation of local socio-cultural and socioeconomic challenges, finding successful models worldwide and devising culturally compatible approaches. To the Stakeholders, "*it can contribute to capacity building, fortify institutional arrangements and enrich policy formulation: through shared experiences*". These partnerships foster continuous networks, stress the role of socioeconomic and political

factors. It can also enhance student and faculty mobility, and reveal some of the challenges facing implementation in order to develop sustainable action plans for Malian higher education development.

DISCUSSION

5.1. Interpretation of Results

The results of this study are consistent with available literature on the higher education sector in Mali, which underscores its opportunities and great difficulties. Traoré and Konaté (2018) highlighted that, despite its expansion in student enrolment over the last ten years, Mali's higher education system is crippled by a lack of facilities and insufficient research capacity while responding inadequately to outdated infrastructures and curricula which are not responsive enough to address the needs of the job market. These challenges validate the observation of the current study that though access has increased, quality and relevance of education are bottlenecks which limit the sector contributions to national development. Strategic investment and policy reforms are thus crucial for redesigning higher education to driver of economic growth as the literature highlights, increasingly supported by the above evidence.

On the other hand, some of the findings are in contradiction with earlier research that indicated Malian have achieved great success in regional integration and international cooperation (Branislav; V. & Chris G., 2006). For example, Diallo and Sangaré (2019) underscore the engagement of Mali in compliance and mutual recognition of higher education standards with regional associations such as ECOWAS to promote the international collaboration, which have started to enhance the research output and academic quality. But the present findings suggest that these efforts remain emergent, with shortfalls in practice impeding their overall influence. This discrepancy highlights the importance of a more coherent and concerted policy to capitalise on opportunities within the region and beyond for Mali's higher education system, as outlined in existing strategic documents.

5.2. Implications for Policy and Practice

5.2.1. Prioritized strategies for stakeholders

An examination of Mali's higher education system uncovers the need for focused policies that will redress its current inadequacies and support national development. Stakeholders ought to commit themselves to a reinforced institutional capacity, relevant curriculum development and access extension in underprivileged areas for even development. Governance and resource allocation need to be strengthened in order to increase the quality

of higher education and make it more relevant to the demands of the labour market, notes “Mali National Education Sector Strategic Plan 2018-2022.” Creating policies that promote innovation, research and international cooperation are also drivers of socio-economic development, it is important for educational reforms,” to lead to sustainable development in Mali.

A strategic, holistic input is necessary to inform policy and practice at all levels of governance - government, academia and development partners. The “*Malian Higher Education and Research Policy Paper*” emphasizes the need to mainstream research into the national development plan and promote public-private partnerships and alternative funding. By implementing these strategies Mali would be able to address obstacles such as poor infrastructure, scarce faculty development and low research productivity. This is how stakeholders can build a higher education system that can play an important role in the socio-economic transformation and long-term growth of Mali.

5.2.2. Role of government

The role of government in the higher education stakeholders in Mali is influential towards policy solutions to prevailing problems that ensure sustainable national development. The Mali National Higher Education Strategy (2018) stated that government is critical to increasing access to quality education, enhancing infrastructure and promoting research as well as innovation. And good policy-making should favour fair access for marginal groups as well as be in tune with economic development objectives. The government’s continued effort to invest and partner in international institutions can also help improve the standard of higher education by making it better suited to the holistic development of Mali as a country; socially, politically and economically.

In reality however, the Mali government will need to take an inclusive approach involving curriculum change, building of teacher capacity and implementation of governance reforms in universities. The study by Diakité et al. (2020) reiterates that the tackling of administrative inefficiencies, and fostering accountability are crucial in enhancing performance. And in the process, policies that promote public-private partnership and utilize technology-based education for distance learning can do a lot to improve access and modernize higher education. Competent government intervention in these directions would lead to a strong HE landscape that works for Mali’s national development goals and global competition.

5.2.3. Universities’ role

Malian universities are considered the primary engines of knowledge, innovation and human capacity building for country development. As reported by Traoré et al. (2020) Malian

universities are at the heart of stimulating socio-economic development, notably through both research and training of qualified personnel in sectors that are essential for national development such as agriculture, health and education. Yet, there are problems which situation of lack of funds, insufficient research capacities, limitations in infrastructure reduce their opportunities down. Policy makers need to concentrate on increasing investment in higher education, adopting a system of viable funding and introducing research-oriented curricula with these being the stepping stones for universities' contribution towards national growth.

To tackle these problems, strategic policy interventions are called for to enhance governance, widen access and enhance quality assurance systems in Malian universities. The contribution by Coulibaly and Sangaré (2018) underlines the need for higher education policies to be better aligned with broader development objectives in Mali, considering decentralised ion of university services and promoting regional centres of excellence. Application of these strategies could help to ensure equitable access to quality education, promote regional development and yield long-term societal stability in Mali. Policymakers should therefore prioritize the convergence of higher education reforms and national development plan for it to make a meaningful contribution to Mali's development path.

5.2.4. International partners

The findings from the investigation into Mali's higher education system bares profound implications for policy and action, with strategic reformations called upon to enable nation building. Diakité et al (2020) posit that higher education access and quality are crucial to prepare the youth in Mali with relevant skills to be able to contribute positively toward the economic development and socio stability of Mali. The international community should encourage policies that strengthen institutional capacity, support research and innovation, and bring curricula in line with labour market needs. This joint venture can have bearing to the past problems of low enrolment, insufficient infrastructures and limited financing eventually leading towards a sustainable development.

In addition, the higher education in Mali needs policies that are more practical and that encourage cooperation between regional and international institutions of learning. Coulibaly et al. (2019) highlights the need for stronger collaborations with academic institutions worldwide, more robust governance and investments in digital infrastructure. Technical and financial support from international partners could be crucial in the realistic implementation of these strategies. These efforts are key in transforming and modernizing Malis higher education system, making it more inclusive, innovative, and responsive to the socio-

economic needs of the country and thereby contributing to long-term national growth and stability.

5.3. Limitations of the Study

There are four key limitations in the insights of this study. First, while the mixed-methods design allowed for rich national-level data it was based on sampling that were overly weighted towards Bamako (65%), and public universities namely; South and Central locations where there are security concerns. Second, the timing of fieldwork in mid-2025 corresponded with political demonstrations and shutdown of university campuses, leading to a response rate among policymakers of 42% as well as focus groups were cancelled in both Ségou and Mopti limiting triangulation. Third, employment was based on self-reported but unconfirmed data, meaning that the unemployment rate could have been artificially inflated and labour market mismatches exaggerated. Fourth, because of the absence of longitudinal data we cannot differentiate cyclical and structural deficiencies in quality, or anticipate reform sustainability when external finance disappears. These weaknesses limit the applicability of results and emphasize the need for further panel studies using administrative data and more diverse regional coverage.

CONCLUSION AND RECOMMENDATIONS

6.1. Recommendations

- ⊕ In future months, the government can increase public funding to at least 20 % of the national education budget over five years, while reserving for regional universities a minimum share that will help close the paltry contrast in resources between urban and rural settings highlighted in this study.
- ⊕ Require and fund a national curriculum change to embed labour-market skills, digital literacy and entrepreneurship in all programs, with all qualifications externally accredited by 2028.
- ⊕ Get into a 10-year faculty-development program featuring competitive PhD “sandwich” scholarships, annual in-service training and performance-based incentives that reduces vacancy rates from over 60 % to below 15 %.
- ⊕ Create public-private partnerships of STEM laboratories in every region, matched by private co-financing that will quadruple laboratory access and halve the ratio of students to computers within four years.

- Develop targeted equity scholarships and regional decentralised satellite campuses for rural and female students with the goal of increasing regional gross tertiary enrolment from 2.9 per cent to 10 per cent by 2030.

6.2. CONCLUSION

All in all, Mali's higher education system -- while growing in size -- is a delicate mosaic: under-resourced, over-populated and increasingly irrelevant institutions that have now generated urban-rural divides which plague the country's human-capital base. The evidence is clear now: absent swift, concerted investment of public funds and labour-market-minded curricula married to a protracted national drive to develop faculty talent, the sector will churn out ever larger numbers of ill-trained, under-employed young people at precisely the moment Mali requires capable innovators from whom an agrarian economy can be diversified and through which its fragile polity might become stabilized. On the other hand, the study also shows that practice-focused leaner institutions are already out-performing their public resource heavy counterparts, so targeted reforms can achieve quick Gains in quality equity and others of employability. So the demand is not for further diagnosis but urgent action: ring-fence funding, modernise curricula, rebuild academic staff and hard-wire quality assurance – measures which in concert will change universities from passive victims of under-development to active drivers of inclusive growth and resilient nation-building.

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