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The LMD reform in Maghreb Countries: A comparative analysis of its implementation in Algeria, Morocco, and Tunisia

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Abstract--This article examines the implementation of the LMD (Licence-Master-Doctorate) reform in the Maghreb countries—Algeria, Morocco, and Tunisia. Introduced to align higher education systems with European and global standards, this reform aims to modernize higher education and enhance graduates' employability. Morocco was the first to adopt this system in 2003, followed by Tunisia in 2005 and Algeria in 2008. Through a comparative analysis, the article highlights each country's strategies, the challenges faced, including inadequate infrastructure, insufficient teaching resources, faculty resistance, and the outcomes achieved. While the reform has led to some improvements, issues such as the mismatch between taught skills and labor market demands remain.

Keywords---LMD Reform, Higher Education, Maghreb, Alignment, Education.

Introduction

The LMD (Licence-Master-Doctorate) reform was introduced as part of an effort to harmonize higher education systems at the European and global levels. Initially adopted in France in the early 2000s, this reform seeks to modernize and structure higher education by establishing a clear and coherent degree framework. The LMD system is based on three levels of study: the Licence

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(Bachelor's degree, 3 years), the Master (Master's degree, 5 years), and the Doctorate (Doctoral degree, 8 years), thereby enhancing the transparency and recognition of qualifications in the international labor market (Jeune Afrique, 2012; Le Parisien, 2017).

This initiative addresses the growing need for academic and professional mobility, facilitating exchanges between students and researchers both within Europe and beyond. In the Maghreb countries, the LMD reform holds particular significance. The Algerian, Moroccan, and Tunisian educational systems have long struggled with rigid structures that no longer met contemporary labor market demands. Implementing the LMD framework in these countries aims not only to improve the quality of higher education but also to promote regional and international integration for students. For instance, Morocco was the first to adopt this system in 2003, followed by Tunisia in 2005, while Algeria began the process in 2002 and expanded it nationwide in 2008 (Jeune Afrique, 2012; Sencampus, n.d.).

The objective of this article is to analyze and compare the implementation of the LMD reform in Algeria, Morocco, and Tunisia. Through this comparative analysis, we will examine the strategies adopted by each country, the challenges encountered during the reform process, and the results achieved thus far. By highlighting these aspects, we aim to contribute to a deeper understanding of the impacts of the LMD reform on higher education in the Maghreb and to propose recommendations for improving future educational policies.

1. Theoretical and Historical Framework

1.1. Origin of the LMD Reform:

1.1.1. Historical Background of the Adoption of the LMD Reform Worldwide

The LMD (Licence-Master-Doctorate) reform was first introduced in France in the early 2000s, in response to the need for harmonizing higher education systems within the European Union. This initiative aimed to address several challenges, including the diversity of degrees, the academic and professional mobility of students, and the alignment of programs with labor market demands. The process was driven by the Bologna Process, which sought to establish a European Higher Education Area (EHEA) by facilitating the recognition of degrees and promoting a student-centered approach.

The implementation of the LMD system was gradual, starting with experimental phases in certain universities before being expanded nationwide. The system is based on a clear structure divided into three cycles: The Licence (3 years), the Master (2 years), and the Doctorate (3 years), enabling students to acquire specific skills at each level while enhancing their employability. The overall objectives of the Reform are: Harmonization of degrees and improvement of the quality of education.

1.1.2. The Main Objectives of the Reform:

- ✓ Harmonization of Degrees: The LMD aims to create a coherent framework for university degrees, facilitating their recognition internationally. This allows students to continue their studies or work in other countries without facing obstacles related to the recognition of their qualifications.

- ✓ Improvement of the Quality of Education: The reform seeks to modernize teaching methods by integrating active and participatory approaches, thereby promoting more effective and relevant learning. This includes the introduction of practical work, supervised projects, and continuous assessments, which are essential for developing students' professional skills.
- ✓ Facilitation of Academic Mobility: By structuring degrees within a common framework, the LMD encourages exchanges between academic institutions, both nationally and internationally. This allows students to access a variety of enriching educational experiences.
- ✓ Response to Labor Market Needs: The LMD system also aims to align education with labor market requirements by incorporating internships and practical modules into curricula. This helps to reduce graduate unemployment by equipping students with the skills sought by employers.

The LMD reform represents a strategic response to the challenges faced by global education systems, aiming to transform higher education into a more dynamic and responsive model in the face of contemporary economic realities.

1.2. Specific Context of the Maghreb Countries

1.2.1. Educational Situation Before the Reform

Before the implementation of the LMD reform, higher education systems in the Maghreb countries, particularly in Algeria, Morocco, and Tunisia, were characterized by a rigid structure and a traditional pedagogical approach. In Algeria, the educational system was criticized for its focus on memorization and the reproduction of knowledge, with little connection to the practical skills required in the labor market (Ghouati, 2014). Students often faced teaching methods that were not interactive, primarily relying on lectures, which led to a low success rate and significant school dropout (Jeune Afrique, 2012).

In Morocco, although the educational system had undergone previous reforms, it still faced shortcomings in the quality and relevance of training. The mismatch between the degrees awarded and the labor market requirements was a major issue. Additionally, university infrastructure was often insufficient to accommodate the growing number of students (Sencampus, n.d.).

In Tunisia, the situation was similar. Although the country had implemented initiatives to modernize its educational system, the need for structural reform had become evident due to a growing student population and increasing professional expectations (Guerid, 2014).

1.2.2. Needs and Expectations of Educational Systems in Algeria, Morocco, and Tunisia

The needs of the educational systems in these three countries were varied but converged towards a common goal: to improve the quality of higher education and better prepare students to enter the labor market. In Algeria, the necessity for radical reform was emphasized by a strong demand for professionalization of training programs. Educational stakeholders wanted to see a system that valued

not only theoretical knowledge but also practical skills (Semri, n.d.). This aimed to reduce the graduate unemployment rate, which had become a concern.

In Morocco, the expectations focused on creating a flexible framework that would allow students to navigate more easily between different academic paths. The implementation of the LMD was seen as an opportunity to strengthen student mobility and enhance employability through training more aligned with economic needs (Jeune Afrique, 2012).

In Tunisia, the emphasis was on harmonizing degrees to facilitate international recognition and encourage academic exchanges (Guerid, 2014). Reforms also aimed to establish partnerships with the private sector to ensure that study programs met market demands.

In sum, the LMD reform was designed as a strategic response to the challenges faced by the educational systems in these Maghreb countries. It aimed to transform higher education, which was considered outdated, into a more dynamic model that could better respond to contemporary economic realities.

2. Comparative Analysis of Implementation

2.1 The Case of Algeria

2.1.1 Description of Measures Taken to Implement the Reform

The implementation of the LMD reform in Algeria was initiated by the Ministry of Higher Education and Scientific Research (MESRS) in 2004, with the primary objective of modernizing the educational system and aligning Algerian degrees with international standards. The measures undertaken included the establishment of a new degree structure, which comprises three levels: Bachelor's (Licence), Master's, and Doctorate degrees. This reorganization aimed to facilitate student mobility and enhance the international recognition of degrees (Berrouche & Berkane, 2007).

To support this reform, training programs were introduced for educators to familiarize them with the new teaching methods and the requirements of the LMD system. However, this training was often deemed insufficient to address the actual needs of both teachers and students (Miliani, 2017). Furthermore, the MESRS established committees to assess and accredit new programs proposed by universities. Nonetheless, these processes were occasionally criticized for lacking transparency and efficiency (Ghouati, 2014).

2.1.2 Evaluation of Results Achieved Thus Far

The evaluation of the outcomes of the LMD reform in Algeria presents a mixed picture. On the one hand, certain aspects of the LMD system, such as the introduction of practical work and group projects, have been positively received by students, who appreciated the opportunity to develop practical skills (Miliani, 2017). On the other hand, many educators have highlighted significant variations in students' overall performance, with a widening gap between high-achieving students and those who struggle (Ghouati, 2014).

Despite these advancements, several criticisms persist regarding the quality of education. A study indicated that approximately 34% of teachers believe that the overall academic performance of students has declined since the introduction of the LMD system (Miliani, 2017). Moreover, there is a general consensus that the LMD system has failed to establish a strong connection between universities and labor market demands, leading to growing frustration among graduates seeking employment (Berrouche & Berkane, 2007).

2.1.3 Challenges Encountered

The implementation of the LMD system in Algeria has faced several major challenges. First, there was resistance to change among some educators and administrators who were committed to traditional teaching methods. This resistance was further exacerbated by inadequate training on the pedagogical approaches required by the LMD system (Berrouche & Berkane, 2007).

Second, insufficient resources posed a significant barrier. Algerian universities often lack adequate infrastructure and teaching materials to support modern and interactive learning. Additionally, limited funding for developing innovative programs restricted institutions' ability to effectively adapt to the requirements of the LMD system (Ghouati, 2014).

Finally, the coexistence of the old educational system alongside the new LMD model created confusion within universities. Students were required to navigate between two parallel systems for an extended period, resulting in inconsistencies in curricula and academic assessments (Miliani, 2017). This situation contributed to a generally negative perception of the LMD system among both students and educators.

In conclusion, while the LMD reform introduced necessary changes to Algeria's educational landscape, its implementation continues to face numerous challenges that require urgent attention to ensure its long-term success.

2.2 The Case of Morocco

2.2.1 Strategies Adopted to Integrate the LMD System into the Educational Framework

The integration of the LMD system (Licence-Master-Doctorate) into Moroccan higher education began in 2003, supported by a series of strategic measures aimed at modernizing and aligning the educational framework with international standards. The Moroccan government initiated a consultative process involving the Ministry of National Education and teachers' unions, which facilitated the establishment of a consensus on the reform (Jeune Afrique, 2012).

The strategies implemented included restructuring university curricula into three distinct cycles, thereby promoting student mobility and enhancing the recognition of degrees. Efforts were also made to professionalize training programs, leading to a significant increase in career-oriented educational offerings (Ghouati, 2014). In 2009, an "emergency plan" was introduced to revise the orientation of the LMD

system, addressing criticisms regarding its effectiveness and alignment with labor market demands (Meyer, 2020).

2.2.2 Impact on Students and Institutions

The impact of the LMD system on Moroccan students has been twofold. On the one hand, it improved the international recognition of degrees and facilitated academic mobility. Students gained access to more diverse programs and benefited from training that emphasized practical skills development (Ghouati, 2014).

On the other hand, the system also exposed notable shortcomings. Studies indicate that approximately 25% of graduates faced unemployment after completing their degrees, primarily due to a lack of professional experience and a mismatch between acquired skills and labor market requirements (Meyer, 2020).

Institutions themselves had to adapt to these changes. While some universities succeeded in modernizing their teaching approaches, many continue to face structural challenges that hinder their ability to deliver quality education. Overcrowding in certain disciplines has further limited access to essential learning resources, thereby affecting the overall effectiveness of the educational process (Jeune Afrique, 2012).

2.2.3 Specific Challenges in Implementation

Despite the progress brought about by the LMD system, several specific challenges have hindered its successful implementation in Morocco. A major issue lies in the inadequate infrastructure of universities, which often lack the necessary equipment and educational resources to deliver high-quality training (Ghouati, 2014).

Teacher training has also emerged as a significant challenge. Although efforts have been made to train faculty members in the new pedagogical approaches associated with the LMD system, many educators continue to rely on traditional methods that do not promote student interaction and engagement (Meyer, 2020). This resistance to change is often attributed to insufficient institutional support and an academic culture deeply rooted in outdated teaching practices.

Moreover, the LMD reform has generated tensions among various stakeholders in the educational system. Teachers and students frequently voice concerns about the quality of education and the relevance of the programs offered. These tensions may undermine the effective implementation of the LMD system and highlight the need for targeted interventions to ensure that the reform's initial objectives are met (Jeune Afrique, 2012).

In conclusion, while the LMD system has introduced significant reforms in Moroccan higher education, its long-term success will largely depend on the country's ability to address these structural and cultural challenges.

2.3 Case of Tunisia

2.3.1 Tunisia's Approach to the LMD Reform

Tunisia adopted the LMD (Licence-Master-Doctorat) system in 2005 with the aim of modernizing its higher education and aligning it with European standards. This reform was seen as essential to address the challenges posed by the rapid expansion of higher education, characterized by a growing student population and increasing demands for quality training. The Tunisian approach was marked by a commitment to deeply reform the educational system by incorporating innovative teaching methods and promoting the professionalization of curricula (Guerid, 2014).

The Ministry of Higher Education implemented measures to facilitate this transition, including the introduction of new academic programs and the adoption of competency-based learning frameworks. Efforts were also made to involve teachers and students in the reform process, although these efforts were sometimes perceived as insufficient (Miliani, 2017). Additionally, Tunisia sought to strengthen international cooperation, particularly with European institutions, to benefit from expertise and academic exchanges.

2.3.2 Analysis of Successes and Failures

The implementation of the LMD system in Tunisia yielded several notable successes. On the one hand, the system allowed for better structuring of academic pathways, making degrees more transparent and enhancing student mobility within the European framework (Guerid, 2014). Furthermore, the introduction of practical projects and group work was positively received by students, who appreciated this more active approach to learning (Miliani, 2017).

However, several shortcomings were also identified. Despite the ambitious goals of the reform, a study revealed that approximately 34% of teachers believe that the overall academic level of students has declined since the introduction of the LMD system (Miliani, 2017). Moreover, graduate unemployment rates remain high, underscoring a persistent mismatch between the skills acquired during studies and the demands of the labor market (Guerid, 2014).

Critics have also pointed to the rapid implementation of the LMD reform, which led to a hasty training process for teachers and inadequate support mechanisms for students. These issues have contributed to concerns about the effectiveness and sustainability of the reform.

2.3.3 Reactions of Stakeholders (Students, Teachers, and Administration)

The reactions of various stakeholders to the LMD reform in Tunisia have been diverse. On the part of students, the majority expressed support for the reform, emphasizing the importance of a more practical and employment-oriented education. However, some voiced concerns about the increased workload and the lack of academic guidance throughout their studies (Miliani, 2017).

Teachers, on the other hand, demonstrated more mixed reactions. While some welcomed the introduction of new teaching methods and the opportunity to innovate in their instruction, many highlighted a lack of adequate training to

meet the requirements of the LMD system. Approximately 32% of teachers perceived the reform as ineffective, criticizing its "unclear pedagogy," which underscores an urgent need for better preparation and institutional support (Miliani, 2017).

From the administration's perspective, there is a shared acknowledgment of the need to improve communication among stakeholders. University officials recognized that the insufficient involvement of teachers and students in the decision-making process has limited the effectiveness of the LMD's implementation (Guerid, 2014). As a result, initiatives to strengthen collaboration are deemed essential to ensure the future success of the system.

In conclusion, although Tunisia has made significant progress through the LMD reform, several challenges remain to be addressed in order to maximize its impact on higher education and meet the expectations of both students and the labor market.

3. Factors Influencing Implementation

3.1 Government Policies

3.1.1 The Role of Governments in Implementing the Reform

The governments of the Maghreb countries—Algeria, Morocco, and Tunisia—have played a pivotal role in implementing the LMD reform. Each country adopted a distinct approach shaped by its socio-economic and historical contexts. In Algeria, the Ministry of Higher Education and Scientific Research (MESRS) served as the primary driver of the reform's implementation. However, the reform has frequently faced criticism for its lack of clarity and insufficient support mechanisms (Miliani, 2017). In Morocco, the government introduced an emergency plan in 2009 to realign the objectives of the LMD system. This initiative highlighted the ongoing need to adapt educational policies to meet the demands of the labor market (Meyer, 2020). In Tunisia, the ministry adopted a more proactive approach by involving various stakeholders in the reform process. Despite this effort, critiques persist regarding the effectiveness of the measures implemented (Guerid, 2014).

3.1.2 Comparison of Educational Policies Among the Three Countries

Educational policies vary significantly across these countries. In Algeria, the LMD reform was regarded as a necessary response to a persistent educational crisis. However, its implementation often suffered from insufficient logistical and financial support (Ghouati, 2014). In Morocco, efforts were primarily directed at professionalizing academic programs and enhancing graduate employability. Particular attention was given to aligning the skills taught with labor market demands (Jeune Afrique, 2012). In Tunisia, despite progress in structuring academic programs, the lack of adequate infrastructure and teacher training remains a major challenge to the effectiveness of the LMD system (Miliani, 2017). This diversity in approaches underscores the importance of adapting educational policies to local contexts while working toward greater harmonization of higher education systems across the region.

3.2 Academic and Social Culture

3.2.1 Influence of Academic Traditions on the Acceptance of the LMD System

Academic culture plays a crucial role in shaping the acceptance and implementation of the LMD system. In the three Maghreb countries, academic traditions are deeply rooted in teaching methods that emphasize memorization and passive knowledge transmission. This approach contrasts with the active and participatory principles advocated by the LMD system (Ghouati, 2014). In Algeria and Tunisia, resistance to change is particularly evident among teachers, many of whom were trained in traditional frameworks and may face challenges in adopting new pedagogical methods (Miliani, 2017).

3.2.2 Cultural Reactions to Proposed Changes

Cultural reactions to these changes have been mixed. Students generally show interest in the new learning methods introduced by the LMD system, particularly regarding practical work and group activities (Guerid, 2014). However, some students have voiced concerns about the increased workload and the lack of sufficient academic support throughout their studies. Teachers, on the other hand, display varying attitudes. While some are enthusiastic about the opportunities provided by the LMD system, others remain skeptical about its practical implementation. This ambivalence can lead to tensions within educational institutions, potentially hindering the smooth adoption of the new system.

3.3 Resources and Infrastructure

3.3.1 Availability of Material and Human Resources for Implementation

The availability of material and human resources is a key factor influencing the implementation of the LMD system. Across the Maghreb countries, inadequate resources represent a significant barrier. In Algeria, for instance, many universities face shortages of modern equipment and essential teaching materials needed to support interactive learning (Ghouati, 2014). In Morocco, although some institutions have successfully modernized their infrastructure, many still struggle with overcrowded classrooms, which limit access to educational resources (Jeune Afrique, 2012). Similarly, in Tunisia, the lack of adequate infrastructure often hinders universities from providing high-quality education that aligns with the standards of the LMD system (Miliani, 2017).

3.3.2 Condition of Educational Infrastructure

The state of educational infrastructure is, therefore, a critical issue for the success of the LMD system. Universities need not only modern equipment but also an environment conducive to collaborative learning. This includes properly equipped classrooms and well-furnished laboratories for practical training. Current conditions in these countries reveal that, without substantial investment in educational infrastructure and adequate teacher training, the ambitious goals of the LMD reform may remain unattainable. In summary, several factors influence the implementation of the LMD reform in the Maghreb countries. Government policies must be tailored to local contexts while promoting an academic culture that embraces change. Simultaneously, improving material and human resources is essential to ensure the reform achieves its intended objectives.

4. Future Perspectives

4.1 Recommendations for Better Implementation

To improve the implementation of the LMD reform in the Maghreb countries, several recommendations can be made, based on the previous analysis of the challenges faced.

- **Strengthening Teacher Training:** It is crucial to provide continuous and tailored training for teachers to enable them to effectively adopt the new teaching methods introduced by the LMD system. This could include workshops, seminars, and exchange programs with institutions that have successfully implemented the LMD system (Miliani, 2017).
- **Improvement of Infrastructure:** Governments must invest in educational infrastructure to ensure that universities have the necessary material resources for quality teaching. This includes modernizing classrooms, equipping laboratories, and providing access to digital resources (Ghouati, 2014).
- **Continuous Evaluation and Adjustments:** A continuous evaluation system for the LMD reform should be established to quickly identify issues and adjust policies accordingly. This could involve creating mixed committees, comprising teachers, students, and administrative officials, to gather feedback on experiences (Meyer, 2020).
- **Promotion of Employability:** Curricula should be regularly updated to reflect the needs of the labor market. This requires close collaboration with the private sector to develop training programs that address the skills sought by employers (Jeune Afrique, 2012).
- **Awareness and Communication:** It is important to conduct awareness campaigns for both students and faculty regarding the advantages of the LMD system. Clear communication about the goals and benefits of the reform can help reduce resistance to change (Guerid, 2014).

4.2 The Importance of Regional Cooperation

Regional cooperation is crucial for enhancing the impact of the LMD reform in the Maghreb. The countries in the region share similar challenges in higher education and can benefit from close collaboration.

- **Sharing Best Practices:** Maghreb countries could establish a regional network to share best practices in higher education. This could include academic exchanges, regional conferences, and joint projects between universities (Mahmah, 2022). For example, Morocco could share its experience in professionalizing training programs, while Tunisia could offer its expertise in European integration.
- **Creation of a Regional Platform:** A regional platform dedicated to higher education could be established, where various stakeholders (governments, universities, businesses) could meet to discuss common challenges and collaboratively develop innovative solutions (Guerid, 2014). This platform could also serve to coordinate efforts in research and development.
- **Harmonization of Degrees:** Working towards a more advanced harmonization of degrees between Maghreb countries would not only facilitate student mobility but also ensure mutual recognition of professional qualifications (Meyer, 2020). This would contribute to creating

an integrated educational space, thereby enhancing the region's attractiveness.

- Collaboration with the European Union: Maghreb countries could leverage their relationships with the European Union to gain technical and financial support in their efforts for regional integration in education (Kasmi, 2006). Programs such as Erasmus+ could be expanded to include more Maghrebi students.
- Collaborative Conflict Resolution: Finally, it is essential for Maghreb countries to work together to resolve conflicts that hinder their regional integration. Dialogue on sensitive issues, such as the Western Sahara, should be encouraged to create an environment conducive to cooperation (Mahmah, 2022).

To ensure the successful implementation of the LMD system in the Maghreb, it is imperative that governments adopt a proactive and collaborative approach while strengthening their commitment to higher education as a lever for economic and social development.

5. Statistics and Data Analysis

5.1 Key Data

5.1.1 Graduate Unemployment Rate:

- In Morocco, approximately 25% of graduates are unemployed after completing their studies, raising concerns about the alignment of education with labor market demands (Meyer, 2020).
- In Algeria, studies indicate that unemployment among young graduates is also high, although exact figures vary across sources. Algerian academics have expressed concerns that the LMD system does not address the new realities of the job market (Agence Ecofin, 2024).

5.1.2 Access to Higher Education :

- In 2018, the number of students in the higher education system was approximately 1.6 million in Tunisia, 6 million in Algeria, and 5.8 million in Morocco. This large student population highlights the pressure on educational systems to meet growing demand (Omrane & Ahmed Serir, 2023).

5.1.3 Evaluation of the LMD Reform:

- Tunisia has been noted for integrating the Bologna Process (PB) criteria most effectively, with a national qualifications framework in place. In contrast, Morocco has not institutionalized the diploma supplement or established an effective ECTS system (HAL, 2021).
- In Algeria, the implementation of the LMD system revealed a juxtaposition between two educational systems: the LMD system and the traditional system. Traditional programs continue to attract students due to their perceived higher quality (HAL, 2021).

5.1.4 Student Satisfaction :

- In Tunisia, reports before and after the Jasmine Revolution show a negative shift in the perception of reforms by university administrators

after 2011. Prior to this, the reforms had been widely supported (HAL, 2021).

- In Morocco, approximately 47.2% of students leave university before completing their studies due to various factors related to the LMD system, which does not meet their expectations (Meyer, 2020).

5.1.5 Socio-economic Indicators :

- In terms of the Human Development Index (HDI), Algeria is ranked at 0.759, Tunisia at 0.739, and Morocco at 0.676, reflecting disparities in the resources available for higher education (Omrane & Ahmed Serir, 2023).

5.1.6 Recent Reforms :

- Morocco decided to abandon the LMD system in favor of a Bachelor's system starting in the 2020-2021 academic year, to better align with international standards (Meyer, 2020). Algeria is also considering a similar move to replace the LMD system with a more competitive system (Agence Ecofin, 2024).

5.2 Data Processing

These statistics and data provide a solid framework for a thorough comparative analysis of the implementation of the LMD system in the three Maghreb countries. They highlight not only the challenges faced by each country but also the successes and future perspectives for improving higher education in the region.

Table 01: Comparative Table of LMD Implementation in the Maghreb Countries

| Indicator | Morocco | Tunisia | Algeria |
|-----------------------------------|---|---|--|
| Graduate unemployment rate | Approximately 25% | Elevated (precise figures vary) | Elevated (precise figures vary) |
| Number of students (2018) | 5.8 million | 1.6 million | 6 million |
| LMD integration assessment | Has not institutionalized the diploma supplement nor implemented an effective ECTS system | Has better integrated Bologna Process criteria | Juxtaposition between LMD and traditional system |
| Student satisfaction | Approximately 47.2% withdraw before program completion | Negative evolution in reform perception post-2011 | - |
| HDI (2023) | 0.676 | 0.739 | 0.759 |
| Recent reforms | Abandonment of LMD in favor of Bachelor system | - | Contemplating similar suppression of LMD |

Source: Compiled by the researchers based on data collected from ONS, HCP, INS, 2023

Observations and Areas for Reflection Based on this Table:

- **Graduate Unemployment Rate:** The graduate unemployment rate appears to be high in all three countries, highlighting a mismatch between education and the needs of the labor market.
- **Evaluation of the LMD Reform:** Tunisia seems to have integrated the LMD system more effectively, whereas Morocco and Algeria face difficulties. Algeria presents a unique situation with the coexistence of two educational systems.
- **Student Satisfaction:** Overall, student satisfaction appears to be low, particularly in Morocco and Tunisia after 2011.
- **HDI:** Algeria has the highest HDI, which may influence the quality of higher education.

This comparative table provides an initial overview of the situation. A more in-depth analysis, cross-referencing this data with additional information and considering the specific context of each country, would offer a better understanding of the challenges and issues related to the implementation of the LMD system in the Maghreb.

Table 2: History and Implementation of the LMD System

| Country | Year of Implementation | Adoption Process | Current Status |
|---------|----------------------------|--|--|
| Morocco | 2003 | Negotiations between the Ministry and Trade Unions | Abandonment of LMD in favor of a Bachelor's system (2020-2021) |
| Tunisia | 2005 | Presidential decision to standardize programs | Integration of Bologna Process criteria |
| Algeria | 2002 (generalized in 2008) | University management reform, legislative adoption | Coexistence of LMD and traditional systems |

Source: Compiled by the researchers based on data collected from ONS, HCP, INS, 2023

Table 3: Evaluation of Bologna Process Criteria

| Criteria | Morocco | Tunisia | Algeria |
|-----------------------------------|-----------------------|------------------|-----------------------|
| National Qualifications Framework | Not institutionalized | In place | Under development |
| ECTS Credits | Not implemented | Effectively used | Partially integrated |
| Diploma Supplement | Not institutionalized | In place | Not institutionalized |
| Quality Assurance | Not implemented | Implemented | Implemented |

Source: Compiled by the researchers based on data collected from ONS, HCP, INS, 2023

Table 4: Reactions and Satisfaction of Stakeholders

| Aspect | Morocco | Tunisia | Algeria |
|-------------------------------|---|--|---|
| Student Satisfaction | 47.2% drop out before completion | Negative evaluation post-2011 | Data not specified |
| Reactions of Academics | Criticism of the education-employment match (Meyer, 2020) | Initial support, criticism post-Revolution (HAL, 2021) | Concerns about the value of LMD degrees (Agence Ecofin, 2024) |

Source: Compiled by the researchers based on data collected from ONS, HCP, INS, 2023

These tables provide an overview of the differences and similarities in the implementation of the LMD system among these three countries, highlighting the challenges and advancements made in each of them.

Conclusion

This article has thoroughly explored the LMD (Bachelor-Master-Doctorate) reform in the Maghreb countries, highlighting the distinct experiences of Algeria, Morocco, and Tunisia. We have seen that this reform, introduced to modernize and harmonize higher education, was adopted at different times by each country: Morocco in 2003, Tunisia in 2005, and Algeria in 2008. Each of these countries implemented specific strategies to integrate the LMD, but the outcomes have varied.

The analyses revealed several common challenges, such as resistance to change among teachers, lack of adequate infrastructure, and the need for continuous training for academic staff. Additionally, the high unemployment rates among graduates highlight a persistent mismatch between the skills acquired and the demands of the labor market. The reactions of stakeholders, including students and teachers, have shown ambivalence towards the reform, swinging between hope and skepticism.

In the future, higher education in the Maghreb countries will need to adapt to the changing realities of the labor market and the growing expectations of students. The LMD reform has paved the way for greater international recognition of degrees and has promoted academic mobility. However, for this reform to achieve its initial goals, it is crucial that governments implement educational policies that meet local needs while incorporating international standards.

It will also be essential to improve educational infrastructures and strengthen teacher training to ensure quality education. Regional cooperation among the Maghreb countries can play a key role in this process, allowing the sharing of best practices and the harmonization of degrees.

Finally, in response to increasing criticism of the LMD system, some countries are already considering additional reforms or even a return to previous systems, such as the Bachelor system in Morocco. This highlights the importance of continuous

evaluation and flexibility in the educational approach to meet the needs of a dynamic student population.

In summary, although the LMD reform has laid the foundations for a more modern and globally integrated education system, its success will depend on the ability of the Maghreb countries to overcome current challenges and engage in a process of continuous improvement. The decisions made today will not only shape the future of higher education in these countries but also their position on the international stage.

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