

Analysis of the Competitive Level and Development of the Angolan Scientific System

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ABSTRACT

Objective: The present reach addresses issues related to the competitive level of the Angolan scientific system.

Materials and Methods: The current research has been done by the library method. The necessary data were gathered through the study of printed and electronic information resources available in libraries, on the Internet, and in national and international databases.

Results: It analyzes the main reasons for the low scientific productivity of Angolan researchers. The views of different authors were considered, as well as the particular opinions of the authors of his work. It uses the deductive approach, a mixed analysis paradigm (qualitative and quantitative), and a comparative, monographic, and historical procedure method. This work is expected to contribute to a more open discussion around the competitive level and development of the Angolan scientific system.

Conclusion: Angola has a weak scientific system, which significantly influences its level of scientific productivity and, consequently, competitiveness. Today the country has about 88 Higher Education Institutions, the first to be institutionalized was the University of Angola, which later came to be called Universidade Agostinho Neto.

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Introduction

Currently, the issue of scientific productivity in developing countries is critical, and Angola is no exception. Fundamental transformations are taking place in all scientific systems. Today, the requirements required for quality results or scientific productions have increased categorically. The Technologies for disseminating these results are constantly being updated, and the prestige of Higher Education Institutions (HEIs) is connected to what they produce.

In his article, the application of the Matrix Clustering Methodology in the Analysis of the Problems of the Competitive Level of HEI in Angola, Casimiro (2021) analyzed the competitive level of HEIs in African countries, with the help of the online platform by Spaniards and found a rather uncomfortable position of the Angolan HEIs. It should be noted that the Best positions on this platform are occupied by English-speaking countries.

In a research study carried out in 2019, the same author analyzed the classification of scientific journals from African countries registered with Scopus indexing. A total of 141 high-quality journals were found, based on the open online platform (Scimago, 2022), as well as the clear superiority of English-language journals, with emphasis on South Africans. The challenge of responding satisfactorily to scientific and social difficulties is one of the main factors in the considerable development of the scientific system in South Africa, as well as in other countries that have scientific structures, human, technical, and technological potential.

One of the great problems of the Angolan scientific system is precisely the “negligence” of its researchers because they accommodate themselves in a certain luxury, in some cases, provided by the category/function, instead of seriously occupying themselves with scientific productivity, to solve issues that afflict Angolan society and science.

This article aims to analyze the competitive and development level of the Angolan scientific system. An analysis is understood as the detailed examination of a given matter or subject, observing all the details that form each part of a whole. In the context of this article research, the analysis will consist of an evaluative and critical commentary on the competitiveness of the elements that make up the Angolan scientific system.

The analytical perspective that we bring aims to reflect the Angolan scientific system to identify its weaknesses, understand them, and structure strategic measures that enhance the development and affirmation of the system of production of scientific knowledge in Angola. That is why we referenced the expression development of the scientific system in the theme. For a substantive analysis after this conceptual presentation, it is important to make a brief historical description to contextualize the Angolan scientific system.

Brief Historical Approach: Angolan Institutions of Higher Education

The scientific system of a country integrates Higher Education Institutions, Research and Investigation Centers, infrastructures, and equipment that promote scientific production.

The history of the antiquity of higher education institutions in the world is divided between those that arise within the religious community and the secular ones.

In the first class, the University of Al-Karaouine in 859 (Morocco) stands out, and in the second class, the University of Bologna, whose uninterrupted beginning of activities dates back to 1088 (Italy), followed by the University of Oxford (1096-1167), Salamanca (1134, Spain) and University of Paris (1160-1250, France) (Ghansial, SD).

António Agostinho Neto University was founded in 1976, it is the first independent university in Angola. Although, already in the colonial era, Governor-General Venâncio Deslandes “announced the creation of University Study Centers, together with the Medical Research Institute of Luanda and the Engineering Laboratory of Angola, offering higher education courses. Projects that were discontinued, due to unconstitutionality and errors in terms of formality, as only the Portuguese University was responsible for expanding into the colonies” (Julião, 2022).

This situation was circumvented according to Julião (2022) with Decree-Law No. 44530, of August 21, 1962, which created the General University Studies of Angola, which was inaugurated in Luanda on October 6, 1963, and the University Hospital of Luanda opened in 1969. It should be noted that although General University Studies existed in Angola, the attribution of the academic degree and the terms of training took place in Portugal. In fact, it was only in 1965 that the Rector settled in Luanda.

“The General University Studies of Angola acquired the status of University in 1968 with Decree-Law No. 48790, of December 1968, adopting the designation of University of Luanda. You are, yes, already conferred Bachelor's, Doctorate, and Aggregate degrees” (Julião, 2022). The current Agostinho Neto University was named the University of Angola in 1976, through Ordinance No. 76-A/76 of 28 September by the Minister of Education and Culture. It arises from the need to implement an educational system of an Angolan nature.

This University, which from the 1980s began to have the Higher Institute of Education Sciences, Faculty of Law, Department of Architecture of the Faculty of Engineering, and the National Center for Scientific Research, was seen and intentionally configured “as an 'ideological agency of the regime' and as a 'factory of revolutionary intellectuals capable of putting their knowledge at the service of the people according to the 1976 Project for the Restructuring of the University of Luanda and reiterated in the balance of activity of Rector João Filipe Martins when he considers it the forge of socialist intellectuals” in 1984 (Julião, 2022).

HEIs and Research Centers

We recognize that what gives identity, individualizes, and materializes university research activity is the creation of Institutes (or research centers).

In Angola, most of the Research Centers are attached to Higher Education Institutions. The research institutes “are a formalized set of laboratories and spaces destined exclusively to scientific activity at the university (...) which, in Caraça (2001) view, in the world, the first ones appeared in 1970 in Cambridge, the Cavendish Laboratory, with two notable professors John Clerk Maxwell and Lord Kelvin and in Berlin the Institute directed with Von Helmholtz” (Caraça, 2001).

Filho and Aleaga (2021) quoting Julião (2022) divide the historical path of Higher Education in Angola into two periods: the colonial period (from 1962 to 1974) and the post-independence period (from 1975 to the present day).

The second period, the post-independence period, was marked by several ups and downs for the Angolan academy, a fact that led the authors to divide it into four phases: i) The phase of revolutionary affirmation (1976-1980) whose challenge was the restructuring of all higher education, affected by the transformations imposed by the new moment; ii) Adjustment and expansion phase (1981-1991); iii) Crisis and confrontation phase (1992-2000); iv) Stability and resizing phase (2001-2019).

The period from 1991 to 2002 was significant for academia in Angola. At that time, the first discussions began on the removal of partisan influences from the university and the autonomy of the academy. Multipartyism and the option for a market economy caused profound changes in political and socioeconomic life, and Higher Education did not go unpunished. The First Private University of Angola emerged in 1999 - the Catholic University of Angola (Rede Angola, 2015).

Angola currently has 88 (eighty-eight) higher education institutions, of which 24 are public and 64 are private (Filho & Aleaga, 2021). In terms of laboratories and research centers, there are few published data on the subject. However, some institutions regularly publish their research. As is the case of the Center for Studies and Scientific Research at the Catholic University of Angola. Numerology also fails when it comes to quantifying the scientific production carried out in the country. However, the data that will be presented in the topic on the Angolan competitive system will help to materialize this question.

It is understandable, even for historical reasons and vices of origin, that the Angolan scientific system has difficulties to rise. The University of Angola, which later came to be called Universidade Agostinho Neto, played a strategic role in the creation of a socialist society, Agostinho Neto, as Rector of this HEI, referring to it, considered, according to Julião (2022), “as a strategic instrument of the political-ideological orientation of the MPLA”.

Today, after more than forty years, our Universities, or rather, the Angolan scientific system, frequently enters into an identity crisis, which cascades into a management, infrastructure, achievement, and teaching crisis. Because it cannot get rid of its roots.

The competition for teachers between Higher Education Institutions still allows the same teacher to work in two or more Higher Education Institutions, a fact that also weakens the Education system in Angola. The education system is also weakened by administrative and managerial disorganization, the ineptitude of some teachers, the ineffectiveness of the organic units, and the degraded working conditions, among others that we will mention below, which condition the competitive level of HEIs in Angola.

Angolan Scientific System Level of Productivity and Competitiveness

Before carrying out an analysis and corresponding assessment of the facts around the competitiveness and development of the scientific system, we deem it appropriate to present the conceptual frameworks that will guide our qualitative and quantitative approach. "Competitiveness is understood as the characteristic or ability of any organization to achieve its mission more successfully than other competing organizations".

The system embodies the set of elements and procedures that work with the same objective. At the level of the scientific system, we would say that these elements and procedures aim at the achievement of scientific ends. A study on the 30 years of evolution of the scientific system, coordinated by the biologist Nuno Ferrand, from the Center for Research in Biodiversity and Genetic Resources, at the University of Porto, and promoted by the Francisco Manuel dos Santos Foundation, included in the concept of scientific system in the number researchers and research centers, universities, polytechnic institutes and laboratories associated with them, in infrastructure and equipment and, above all, in scientific production itself (Global Media Group, 2022).

One of the biggest problems in Angola is publication dynamics, considered, according to the results, well below expectations. The low level of scientific production performance strongly influences its competitive level.

Materials and Methods

The current research has been done by the library method. The necessary data were gathered through the study of printed and electronic information resources available in libraries, on the Internet, and in national and international databases.

Results

In 2019, a study was carried out that shows the poor performance of our HEIs in the African panel. The reason that discourages many national and foreign researchers, as it is not justified by the

economic power that Angola has (Casimiro, 2019). HEIs in economically less developed African countries have higher positions compared to HEIs in Angola. Angola from 1996 to 2019, according to Scimago (2022), produced only 1313 scientific documents with more than 15 thousand citations, as shown in Figure 1.

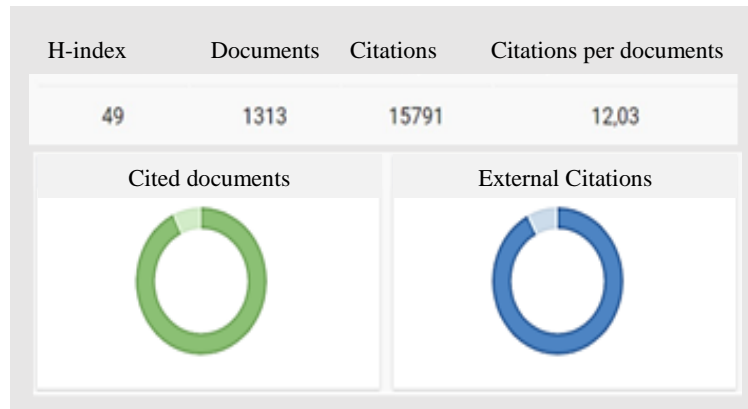


Figure 1. Scientific documents from HEIs in Angola (1975-2020)

The data presented in the figure above provided the position 35 of the top 50 in Africa. South Africa ranks first, followed by Egypt and Nigeria. As we know, in these countries, the education system is very competitive and the scientific system (SC) has very solid structures, which provide sustainability in the rankings.

For Angola to reach the level of these leaders, it is necessary to develop open access policies and increase the number of journals with high status, both in the African panel and worldwide. These countries have Scopus journals, the number of which is quite satisfactory (Moskovkin & Casimiro, 2022). South Africa's leadership is quite visible, as shown in Figure 2.

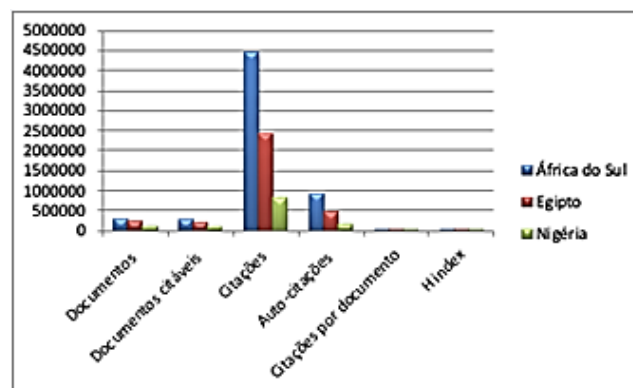


Figure 2. Leading countries in Africa in publishing activity (1996-2019)

South Africa in the period under analysis has more than 4 million citations, showing a total dominance in relation to the other countries of the continent. A major influencing factor in this domain of South Africa is related to language. The English language has a significant power in the

dissemination of scientific works and beyond. A large number of researchers are forced to translate their work to achieve greater visibility.

The work of Angolan researchers, produced in the national territory, has not a very considerable scientific relevance, due to the weakness of its scientific system and its competitive level.

There are no policies aimed at the substantial development of structures that promote the creation of new knowledge, as an extremely important factor for the development of national scientific productivity. Most of the countries shown in the figure showed growth in biological sciences, with South Africa being the country that showed the best growth.

Angola, practically, has most of the sciences presented that did not register growth. These factors and others negatively influence the development of the scientific system, therefore, the competitive level. Universities play an extremely important role in the development of any country. Most countries with high levels of competitiveness in their universities are due to the positive alignment with the implementation of policies, which leverage development at all levels.

The big problem that Angola has is precisely concentrated in what was mentioned above. The fundamental principles of the mission of a university as such are misunderstood. Greater attention is paid to teaching activities, leaving scientific production behind. To reach a considerable level, there must be satisfactory policies that encourage Higher Education Institutions in Angola to focus on training highly qualified specialists capable of responding to the challenges imposed by society, as well as the development of their specific areas.

Studref (2022), considering competitiveness as a key factor in the development of an institution, defines the competitiveness of a university/higher education institution as a set of its present and potential skills (opportunities) to provide an adequate level of educational services that meet society's needs in the training of highly qualified staff, as well as the needs of development, creation, and implementation of scientific, methodological and technical products, now and in the future.

The problems that plague the competitive level of Higher Education Institutions in Angola were considered in the work (Gungula, et al., 2020). This work emphasizes the idea of developing and implementing Angolan indexed journals, as levers to improve Angola's science indicators, thereby achieving the positioning of its journals in the international scenario.

When studying the scientific and educational systems of the countries of Sub-Saharan Africa at the level of September 2013, it was shown that Angola had 23 universities in the Webometrics Ranking (Webometrics.info, 2022), while it did not have universities included in the QS, URAP, and SIR Rankings. It did not have OA - journals in the DOAJ and OA - Repositories in the ROAR, as well as Scopus - journals on the Scimago platform (Scimago, 2022).

In 2019, Angola ranked 131st in the world out of 168 countries in terms of integral indicators of countries' involvement in the international open access (OA) movement with two OA journals included in DOAJ and one Institutional OA-Policy presented in the SHERPA/RoMEO (Moskovkin, Saprykina, Sadovsky, & Serkina, 2021).

Measures to Improve the Productivity and Development of the Angolan Scientific System

One of the main defining objectives of scientific activity is to obtain comprehensive and accurate knowledge about the surrounding world and its constituent elements. Scientific knowledge is a special type of knowledge, which according to the modern views of scientists, is mainly characterized by the possibility of comparison with some objective reality.

Over time, scientific knowledge in Angola is improving considerably due to the emergence of new technologies in the world. Despite this improvement not having ties, guided by innovative political decisions, Angolan researchers and certain private scholars show flexibility in scientific reflections, which helps the development of purely Angolan scientific knowledge. Currently, the phrase is frequently used and there is constant use of the phrase “Science in the Angolan Perspective”, to signal the development and hegemony of Angolan science. Overall, several measures for improving scientific productivity in Angola can be recommended. In our understanding, we consider the following measures to be considerable:

1. Analyze in depth and rigor the true history of science in Angola. To have a broad view of how to solve the current scientific problems that block the development of science in Angola.
2. Create a favorable atmosphere, through public policies, that encourage development in Angola.
3. Accept the scientific findings of Angolan scientists as a mechanism for evolutionary change in the Angolan scientific system;
4. Implement laws that encourage the development of scientific activity and the development of the productivity of those involved in the process;
5. Reconcile teaching with investigative activity, creating bridges of interaction between the two activities for the firmament of experiences and development of the performance of scientific production in the country.

Scientific productivity in Angola can be improved and developed through the implementation of policies, which describe the real reason for the development of science from the Angolan Perspective. Most of the problems in formalizing purely Angolan scientific knowledge are related to the philosophical analysis of the structure of scientific consciousness that Angola has.

Conclusion

Angola has a weak scientific system, which significantly influences its level of scientific productivity and, consequently, competitiveness. Today the country has about 88 Higher Education Institutions, the first to be institutionalized was the University of Angola, which later came to be called Universidade Agostinho Neto.

The first private higher education institution was the Catholic University of Angola, established by decree in 1992, but it started in the late 1990s. It was followed in the 2000s by the first private universities, namely Jean Piaget University, UPRA, and Lusíadas. The country has a total of 64 Private Higher Education Institutions and 24 public ones. It is important to consider that all steps towards development must be carried out rigorously with the help of a collective scientific awareness of the HEI, developed within the scope of the experiences and results of the interaction of Angolan scientists.

For the Angolan scientific system to be competitive, it is essential to give more relevance to scientific knowledge and treat it as an indispensable ally for growth and social development. Make it an indispensable tool for solving scientific and social problems. In this way, the power of questioning and the contribution of Angolan researchers on the specific issues and challenges that the country still faces, in its greatest diversity, will be evident.

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