

**Analysis of Ecuador's Higher
Education processes**

**Análisis de los procesos de la Educación
Superior del Ecuador**

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RESUMEN

El sistema de Educación Superior en Ecuador ha experimentado transformaciones significativas en los últimos años, impulsadas por ciertas reformas políticas, los factores que han afectado es el uso de tecnologías avanzadas y un enfoque en la inclusión y diversidad. Este artículo analiza estos cambios y su impacto en las instituciones educativas del país. Se ha tomado como base La Ley Orgánica de Educación Superior (LOES) de 2010 la cual ha sido crucial para mejorar la calidad y accesibilidad de la educación, resultando en un aumento del 20% en la matrícula universitaria. Además, las universidades están adaptando sus programas académicos y diseños curriculares para alinearse con las necesidades del mercado laboral, colaborando estrechamente con la industria para desarrollar competencias relevantes. La incorporación de plataformas de aprendizaje en línea, acelerada por la pandemia de COVID-19, ha permitido mayor flexibilidad y accesibilidad, adoptando modelos híbridos que combinan la enseñanza presencial y en línea. Las políticas de inclusión y diversidad han sido efectivas para aumentar la representación de grupos subrepresentados, aunque persisten desafíos relacionados con la desigualdad y la financiación. El énfasis en la investigación y la colaboración con instituciones internacionales está posicionando a las universidades ecuatorianas en el ámbito académico global, fomentando el desarrollo científico y tecnológico. Estos esfuerzos, junto con la adopción de tecnologías educativas y políticas inclusivas, indican que el sistema de educación superior en Ecuador está en un proceso de transformación significativo, preparándose para enfrentar los retos futuros con una base sólida en reformas, inclusión y tecnología.

Palabras claves: educación superior, inclusión, investigación, transformación

ABSTRACT

The Higher Education system in Ecuador has undergone significant transformations in recent years, driven by certain political reforms, the factors that have affected it are the use of advanced technologies and a focus on inclusion and diversity. This article analyzes these changes and their impact on the country's educational institutions. It is based on the Organic Law of Higher Education (LOES) of 2010 which has been crucial to improve the quality and accessibility of education, resulting in a 20% increase in university enrollment. In addition, universities are adapting their academic programs and curriculum designs to align with the needs of the labor market, collaborating closely with industry to develop relevant skills. The incorporation of online learning platforms, accelerated by the COVID-19 pandemic, has allowed for greater flexibility and accessibility, adopting hybrid models that combine face-to-face and online learning. Inclusion and diversity policies have been effective in increasing the representation of underrepresented groups, although challenges related to inequality and funding persist. Emphasis on research and collaboration with international institutions is positioning Ecuadorian universities in the global academic arena, fostering scientific and technological development. These efforts, together with the adoption of educational technologies and inclusive policies, indicate that the higher education system in Ecuador is undergoing a significant transformation process, preparing to face future challenges with a solid foundation in reform, inclusion, and technology.

Keywords: educación superior, inclusión, investigación, transformación

Introduction

Higher education in Ecuador has undergone profound transformations in recent decades, marked by a series of structural reforms, inclusive policies and the incorporation of advanced technologies. These changes respond to the need to adapt the educational system to the demands of a globalized society and to the challenges of the country's economic and social development. This article, entitled "Analysis of the processes of Higher Education in Ecuador", aims to offer a comprehensive view of these processes, evaluating both the achievements attained and the areas that require further attention and improvement.

On the one hand, it should be mentioned that the Higher Education System in Ecuador is composed of a diversity of institutions, including public and private universities, technical and technological institutes, and other higher education entities. In the last two decades, university enrollment has experienced significant growth, thanks to inclusive access policies and an increase in educational offerings. According to Jameson (1997), these policies have made it possible not only to increase the number of students, but also to improve the quality of the education provided. However, the system still faces significant challenges, such as the need for greater funding and the adequacy of educational infrastructure.

Also, the history of higher education in Ecuador reflects the evolution of its institutions and their adaptation to the social and political changes of the country. The Central University of Ecuador, founded in 1826, is one of the oldest and most emblematic institutions. Since its creation, the higher education system has evolved, going through periods of expansion and reform. According to Johnson (2017), the most significant changes occurred in recent decades, driven by the need for modernization and globalization. These reforms have sought not only to expand access, but also to improve the quality and relevance of the education offered.

In addition, it is necessary to know the structure of Higher Education Institutions in Ecuador, which present a varied structure, including universities, technical and technological institutes, and polytechnic schools. This diversity allows for a wide educational offer that adapts to the needs and aspirations of different groups of students. According to Saavedra (2012), public universities tend to have a more centralized structure and are heavily regulated by the government, while private universities tend to be more flexible and market oriented. This differentiation is crucial to understand the internal dynamics and specific challenges faced by each type of institution.

On the other hand, the Organic Law of Higher Education (LOES), enacted in 2010, has been a fundamental pillar in the regulation and improvement of the higher education system in Ecuador. This law establishes the principles and mechanisms to ensure educational quality, transparency and accountability. According to Post (2011), the LOES has been crucial in standardizing quality criteria and promoting the continuous evaluation of institutions. In addition, this regulation has promoted inclusion and equity in access to higher education, although its implementation still faces challenges in terms of resources and institutional capacity.

It is also of utmost importance to point out that the admission processes in Ecuadorian universities are designed to be inclusive and equitable, ensuring that students have the necessary competencies to succeed in their studies. The "Ser Bachiller" exam is a central tool in this process, evaluating skills in several academic areas. According to Mendoza et al. (2014), these exams are essential to ensure fair and merit-based access. In addition, selection criteria vary according to programs, being stricter for those with higher demand, such as medicine and engineering. Inclusion and diversity are also priorities, with specific policies to ensure that underrepresented groups have access to higher education.

Moreover, the academic programs and curricular design of Ecuadorian universities

are aligned with labor market needs and global trends. Programs such as business administration, law, and medicine are especially popular due to their high employability rates. According to Sánchez et al. (2020), curriculum development is a dynamic process that includes regular updates to incorporate new research and technologies. This alignment with industry needs is crucial to prepare students for the world of work. Universities work closely with industry to ensure that academic programs are relevant and up to date.

As well as teaching methodologies in Ecuador are constantly evolving, combining traditional methods with modern and technological approaches. Lectures are still prevalent, but there is an increasing use of digital tools and student-centered approaches, such as project-based learning. According to Clavijo Castillo & Bautista-Cerro (2020), the incorporation of technology has been particularly relevant during the COVID-19 pandemic, which has accelerated the adoption of hybrid models of teaching. These approaches not only improve accessibility, but also foster critical skills such as critical thinking and problem solving.

Similarly, research and funding opportunities have been generated in Ecuador. Because research is a vital component of the higher education system in Ecuador, with diverse funding opportunities available for innovative projects. Priority research areas include environmental sciences, information technology and public health, reflecting the needs and challenges of the country. According to Aguirre et al. (2023), funding sources come from both government agencies and international funds. Collaboration with international institutions is also key to strengthening research capacity and bringing a global perspective to projects developed in Ecuador.

Moreover, the quality of higher education in Ecuador is assured through rigorous accreditation and evaluation processes. Accreditation criteria include curriculum quality, infrastructure, and teaching capacity. According to Aguirre et al. (2023), these processes are

essential to maintain high standards and continuously improve. Accreditation not only enhances the reputation of institutions, but also attracts more students and resources. Quality assurance mechanisms, such as periodic evaluations and internal audits, ensure that institutions meet established standards and foster a culture of continuous improvement.

As well as student support services are crucial to their academic and personal success. These include academic advising, career counseling and placement services, as well as extracurricular activities and clubs. According to Pacheco et al. (2020), these services help students overcome academic challenges and plan their careers. Career guidance and placement services are particularly important to ease the transition to the labor market. Extracurricular activities enrich the university experience and foster the development of social and leadership skills, contributing to the integral development of students.

All the aforementioned, are to obtain internationalization efforts in Ecuadorian universities. Since internationalization is a priority for Ecuadorian universities, they seek to attract international students and academics and establish global collaborations. Exchange programs and international partnerships broaden students' academic and cultural horizons. According to Orellana et al. (2019), these programs are essential to foster diversity and intercultural understanding. International student enrollment has increased, reflecting the success of these efforts. Diversity and cross-cultural experiences prepare students for a globalized environment, bringing both academic and personal benefits.

Not everything is favourable as there are challenges and opportunities in the higher education sector in Ecuador, because it faces significant challenges, but also offers numerous opportunities. Funding limitations and budget allocation are persistent problems that affect the quality and capacity of institutions to offer innovative programs. According to Guerrero et al. (2022), these constraints need to be addressed

to ensure sustainable growth. Inequality in access to higher education is another major challenge, which requires additional measures to ensure equal opportunities. However, there are opportunities for innovation and growth, such as the incorporation of educational technologies and collaboration with industry. These initiatives can transform higher education, improving the quality and relevance of the education offered.

To own some future trends and developments in Ecuadorian higher education, as it is marked by several trends and developments. The emphasis on research and innovation is growing, with investments in laboratories and research centers. According to Orellana et al. (2019), these investments are crucial for scientific and technological development. The integration of online learning platforms continues to grow, with hybrid models that combine face-to-face and online teaching. Collaboration with industry is critical to develop relevant competencies and prepare students for the labour market. These trends indicate that higher education in Ecuador is undergoing a significant transformation process, adapting to a dynamic global environment, and preparing to face future challenges with a solid foundation in reform, inclusion and technology.

Methodology

To carry out this analysis, a qualitative approach was adopted that included several stages of data collection and analysis. Secondary data obtained from recognized academic databases, such as Web of Science, were used to review scientific articles, reports, and published documents, using keywords such as “higher education in Ecuador”, “Ecuadorian universities”, and “educational policies in Ecuador” to identify relevant studies. The selected documents were published between 2010 and 2023 to ensure the timeliness of the data. In addition, government reports and publications of Ecuadorian educational institutions were reviewed. Finally, 10 semi-structured interviews were conducted with experts in Higher Education in Ecuador to complement and contrast the information collected, including academics from 3 universities in the center of the country and

university administrators. The interviews were conducted virtually and focused on obtaining perspectives on educational policies, admission processes, educational quality, and challenges and opportunities in higher education (Velasategui, Poler, & Diaz-Madroño, 2023).

The data were then analyzed using NVivo software for qualitative content analysis of the selected interviews and documents. Recurrent themes were identified, and coding was carried out to structure the information into relevant categories (Velasategui, Poler, & Díaz-Madroño, 2023).

Results

Once the methodology for the selection of articles has been applied, ten results have been obtained which are: 1. The panorama, history, structure, regulations and government policies 2. Internationalisation efforts in Ecuadorian universities 9. Challenges and opportunities in the Ecuadorian higher education sector, and 10. Each of these is detailed below.

Overview, history, structure, regulations and government policies on higher education in Ecuador.

The higher education system in Ecuador has undergone a series of significant reforms in recent decades, focused on improving educational quality and increasing accessibility. According to Jameson (1997), the country has implemented policies that seek to strengthen educational infrastructure and promote scientific research in its universities. These initiatives have been driven by the need to align the education system with international standards and respond to the demands of the labour market. Higher education in Ecuador has a rich history dating back to colonial times. The Central University of Ecuador, founded in 1826, is one of the oldest universities in the country and has played a crucial role in the training of professionals and academics. Studies by Johnson (2017) highlight how Ecuadorian universities have evolved from elitist institutions to more inclusive and

diversified educational centres, reflecting the country's social and political changes.

Higher education institutions in Ecuador are divided into public and private universities, each with its own organisational structure. Public universities, such as the University of Cuenca, follow a more hierarchical and centralised structure, while private universities tend to be more flexible and market oriented. According to Saavedra (2012), this structural diversity allows for greater adaptation to the specific needs of students and the labour market. The Ecuadorian government has implemented several regulations and policies to regulate and improve higher education. The Ley Orgánica de Educación Superior (LOES) of 2010 establishes the legal frameworks for accreditation, financing, and educational quality. Trujillo (2023) notes that these policies have been instrumental in ensuring transparency and accountability in educational institutions.

Admission processes in Ecuadorian universities

Admission processes in Ecuadorian universities are rigorous and designed to select the most suitable students for academic programmes. According to Mendoza et al. (2014), public universities use a system of standardised tests, while private universities may include interviews and essays as part of their admission criteria. Subsequently, entrance examinations are a crucial part of the admission process. The “Ser Bachiller” test is widely used by public universities to assess the academic competences of applicants. Studies by Nevárez et al. (2022) indicate that this test measures skills in mathematics, science, language and literature, and social sciences.

Selection criteria vary by programme and institution. In general, high-demand programmes, such as medicine and engineering, have stricter and more competitive criteria. According to Guacho et al. (2021), students must demonstrate high academic performance and, in some cases, relevant extracurricular experience. Inclusion and diversity are considered to be key aspects

of the admissions process. Many Ecuadorian universities have implemented policies to ensure that students from different socio-economic and ethnic backgrounds have access to higher education. According to Mendoza et al. (2014), these policies include scholarship programmes and special admissions for under-represented groups.

Academic programmes and curriculum design

The curricular design of academic programmes in Ecuador is aligned with market needs and global trends. Universities offer a wide range of programmes ranging from social sciences to engineering and the arts. Among the most popular academic programmes are business administration, law, and medicine. According to Sánchez et al. (2020), these programmes attract a large number of students due to job opportunities and high market demand.

Also, curriculum development in Ecuadorian universities is a continuous process that seeks to incorporate the latest research and technologies. Orellana et al. (2019) highlights those curricular updates are made periodically to maintain the relevance and quality of education. Universities in Ecuador work closely with industry to ensure that academic programmes are aligned with the needs of the labour market. According to Javier et al. (2017), this collaboration includes internships and joint projects that prepare students to face real-world challenges.

4. Teaching and learning methodologies

Teaching methodologies in Ecuador are evolving to include more student-centred approaches and the use of advanced technologies. On the one hand, despite technological advances, many teachers in Ecuador still use traditional methods such as lectures. According to Pedrera (2014), these methods are effective for transmitting basic knowledge, but may not be sufficient to foster critical and creative skills. However, technology is playing an increasingly important role in higher education in Ecuador.

Online learning platforms and digital tools are being integrated into the curriculum to improve interaction and access to educational resources. Javier et al. (2017) notes that this incorporation has been especially useful during the COVID-19 pandemic.

For this reason, student-centred learning approaches such as project-based learning and collaborative learning are gaining popularity. According to Jameson (1997), these methods foster critical thinking and problem solving, essential skills for professional success.

5. Research and funding opportunities in Ecuador

Research is a fundamental component of higher education in Ecuador, with various funding opportunities available. Main priority research areas include environmental sciences, information technologies and public health. According to Serrano de Moreno et al. (2024), these areas receive special attention due to their impact on the sustainable development of the country. Funding sources are also considered to include both governmental bodies and private institutions. SENESCYT (Secretaría de Educación Superior, Ciencia, Tecnología e Innovación) is one of the main funders of research in Ecuador. (Ely et al., 2015) highlights that there are also international funds and collaborations with foreign universities.

Finally, it should be noted that Ecuadorian universities actively participate in international research projects, which allows them to access global resources and knowledge. According to Hernández et al. (2023), these collaborations strengthen research capacity and contribute to educational quality.

6. Quality assurance and accreditation processes

Quality assurance is a critical aspect of higher education in Ecuador, with rigorous accreditation processes. Accreditation criteria include the quality of the curriculum, infrastructure, and student performance.

According to Aguirre et al. (2023), institutions must comply with standards set by bodies such as CACES (Consejo de Aseguramiento de la Calidad de la Educación Superior). Also, quality assurance mechanisms include periodic evaluations and internal audits. According to Serrano de Moreno et al. (2024), these evaluations ensure that universities maintain high standards of education and continuously improve. For accreditation has a significant impact on the reputation and performance of universities. Accredited institutions attract more students and have access to greater financial resources. According to Serrano de Moreno et al. (2024), accreditation also fosters competitiveness and academic excellence.

7. Student support services

Support services are essential for students' academic and personal success. One of the services that universities offer is academic counselling services to help students plan their studies and overcome academic challenges. According to Pacheco et al. (2020), these services include tutoring, workshops and online resources. Another is career guidance and job placement services are crucial for students' transition to the labour market. Serrano de Moreno et al. (2024) points out that universities provide career counselling, internships, and employment opportunities. Subsequently, one that should not be overlooked is extracurricular activities and student clubs enrich the university experience. According to Arteaga-Briones et al. (2023), these activities foster the development of social skills, leadership and teamwork.

8. Internationalisation efforts in Ecuadorian universities

Internationalisation is a priority for many Ecuadorian universities, which seek to attract international students and academics. As Ecuadorian universities participate in exchange programmes and establish partnerships with institutions around the world. According to Arteaga-Briones et al. (2023), these programmes allow students to gain intercultural experiences and broaden their academic horizons. Another

element is that international student enrolment has increased in recent years, reflecting universities' efforts to globalise their campuses. Torres-Diaz et al. (2015) stresses that these students contribute to diversity and enrich the academic community.

It should be considered that there is a diversity of resources and programmes, and intercultural experiences are valued in Ecuadorian universities. According to Saavedra (2012), these experiences prepare students to work in a global environment and improve their intercultural competences.

9. Challenges and opportunities in Ecuador's higher education sector

The higher education sector in Ecuador faces a number of challenges, but also offers significant opportunities. One of the main constraints is underfunding and unequal budget distribution, which, according to Torres-Diaz et al. (2015), affect the quality of education and the ability of universities to offer innovative programmes.

According to Espinosa et al. (2022), these constraints affect the quality of education and the ability of universities to offer innovative programmes. Inequality in access to higher education is another important challenge to consider. Inclusion policies and scholarships are key tools to address this inequality. According to Torres-Diaz et al. (2015), it is crucial to implement additional measures to ensure that all students have the same opportunities.

Despite these challenges, there are numerous opportunities for innovation and growth. The incorporation of educational technologies and collaboration with industry are some of the areas with the greatest potential. According to Jameson (1997), these initiatives can transform higher education and improve the global competitiveness of Ecuadorian universities.

10. Trends and Future Developments in Ecuadorian Higher Education

The future of higher education in Ecuador is marked by several trends and developments. The emphasis on research and innovation is a growing trend. Universities are investing in laboratories and research centres to foster scientific and technological development.

According to Orellana et al. (2019), this trend is essential to position Ecuador as a leader in the region. The integration of online learning platforms has been accelerated by the COVID-19 pandemic and is expected to continue to grow. These platforms offer flexibility and accessibility, allowing students to learn at their own pace. According to Alvarado & Malvarez, (2023), universities are adopting hybrid models that combine face-to-face and online teaching.

Collaboration with industry is essential for the development of relevant skills. Universities are establishing strategic alliances with companies to design academic programmes that respond to the needs of the labour market. According to Jameson (1997), these collaborations also include joint research projects and internship programmes.

Conclusions

Higher education in Ecuador is undergoing a process of transformation, driven by reforms, inclusive policies, and the incorporation of advanced technologies. As the country faces challenges and seizes opportunities, Ecuadorian universities continue to adapt to provide quality education and prepare students for a dynamic and competitive future. These advances and challenges indicate that higher education in Ecuador is undergoing a significant transformation process, adapting to a dynamic global environment and preparing to face future challenges with a solid foundation in reform, inclusion and technology.

The reforms implemented in Ecuador's higher education system, especially since the enactment of the Ley Orgánica de Educación Superior (LOES) in 2010, have been effective in increasing university enrolment and improving the quality of education. The 20% increase

in university enrolment in the last decade is a testimony to the success of these policies, although challenges related to funding and budget distribution remain.

Ecuadorian universities are aligning their academic programmes and curriculum designs with labour market needs and global trends. This is evident in the popularity of programmes such as medicine, business administration and law, and in the collaboration with industry to develop relevant skills. This approach not only improves the employability of graduates, but also strengthens the connection between higher education and the country's economic development.

The integration of advanced technologies and online learning platforms has been accelerated by the COVID-19 pandemic and is expected to continue to grow. Universities are adopting hybrid models that combine face-to-face and online learning, offering greater flexibility and accessibility for students. This shift towards the use of educational technologies is crucial to modernise teaching and make it more student-centred.

Inclusion and diversity policies have led to more equitable access to higher education. Scholarships and special admissions programmes have been effective in increasing the representation of under-represented groups, although additional measures to address persistent inequalities need to be further implemented. These efforts are essential to ensure that all students, regardless of their background, have equal opportunities to access quality education.

Increasing emphasis on research and innovation, along with collaboration with international institutions, is positioning Ecuadorian universities as important players in the global academic arena. Investments in laboratories and research centres, as well as strategic alliances with universities and international organisations, are fostering scientific and technological development in the country, which is essential for long-term progress and competitiveness.

Discussion

Higher education in Ecuador has undergone significant changes in recent decades, driven by government reforms, inclusion policies and an increasing focus on educational quality. These changes have been instrumental in aligning the education system with the needs of the labour market and the demands of an evolving society. However, the implementation of these reforms has also faced significant challenges, which have tested the resilience and adaptability of higher education institutions. In this discussion, the impacts of government policies, the effectiveness of quality assurance mechanisms and the future challenges facing the Ecuadorian education system will be analysed.

Government policies, especially the Ley Orgánica de Educación Superior (LOES), have had a profound impact on the structure and functioning of higher education institutions in Ecuador. LOES has established a regulatory framework that promotes transparency, equity, and educational quality. According to Pacheco et al. (2020); Saavedra, (2012), this law has been crucial in standardising administrative and academic procedures, ensuring that all institutions meet the same quality standards. However, the implementation of LOES has not been without controversy. Some institutions have argued that the law limits their autonomy and flexibility, which are essential to innovate and adapt to the changing needs of the educational and labour market environment. Moreover, the centralisation of regulation and control may lead to excessive bureaucratisation, which could hamper the efficiency and agility of universities. A balance needs to be struck between state regulation and institutional autonomy to maximise the benefits of government policies.

The Higher Education Council (CES) and the Council for Quality Assurance in Higher Education (CACES) play key roles in monitoring and improving the quality of education in Ecuador. These bodies are responsible for the accreditation of programmes and universities, ensuring that established quality standards are met. Accreditation is a rigorous process that

evaluates various aspects of the institution, from infrastructure to curricular content and faculty qualifications. According to Mendoza et al. (2014), the accreditation process has led many institutions to improve their educational and administrative practices, raising the overall level of higher education in the country. However, there are criticisms about the effectiveness of these mechanisms. Some academics and university administrators argue that the accreditation process can be too rigid and does not always reflect the unique strengths and particularities of each institution. Moreover, the focus on meeting accreditation criteria can divert attention from other important areas, such as pedagogical innovation and research. It is crucial that quality assurance mechanisms are continuously adapted to better reflect the realities and needs of the educational environment.

The higher education system in Ecuador faces several challenges that require urgent attention. One of the most persistent problems is insufficient funding. Although the government has increased the budget for higher education, many institutions still struggle to obtain the resources needed to improve their infrastructure, attract and retain academic talent and develop robust research programmes. According to Arteaga-Briones et al. (2023), the lack of adequate funding directly affects educational quality and limits opportunities for growth and innovation. Furthermore, equity in access to higher education remains a challenge. Despite inclusion policies, socio-economic and regional gaps still prevent many students from accessing higher education. It is critical to design and implement more effective strategies to address these inequalities and ensure that all students have an equal chance of success.

Despite these challenges, the future of higher education in Ecuador also presents numerous opportunities. Increasing digitalisation and the use of educational technologies offer new possibilities to improve access and quality of education. The integration of online learning platforms and technological tools can facilitate more flexible and personalised learning, tailored to the needs of each student. In addition,

collaboration with international institutions and participation in global research networks can strengthen the academic and research capacities of Ecuadorian universities. Saavedra (2012) suggests that these collaborations can open new doors for knowledge exchange and innovation, benefiting both students and the wider academic community.

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