A Study on the Digital Transformation of Higher Education in Egypt

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Abstract: With the advancement of information technology, the digital transformation of higher education has become a global trend in educational reform. Egypt has propelled the modernization of its higher education system through digital means, focusing on enhancing teachers' digital teaching capabilities, improving course quality, and establishing a policy environment that supports digital instruction. The driving forces behind Egypt's transformation include meeting the demand for skilled talent due to economic reforms, participating in internationalization processes, and the impetus provided by public diplomacy. By introducing high-quality international resources, deepening scientific research collaboration, and applying digital technologies, Egypt has effectively alleviated issues of resource insufficiency and uneven development, thereby enhancing its capacity for higher education quality assurance. Egypt's practice demonstrates that digitalization is a key pathway for developing countries to improve the quality of higher education, providing valuable insights for constructing sustainable models of higher education development.

Keywords: Higher education; Public diplomacy; Digital transformation

1. Introduction

With the rapid development and iteration of information technology, digital technology has permeated all fields, including higher education. The digital transformation of higher education has become an inevitable trend to meet contemporary demands. Today, the world is experiencing profound changes unseen in a century. As the driving force behind a new round of technological and industrial revolution, digital technology is increasingly integrated into all areas and processes of economic and social development, including education. It is profoundly changing modes of production, life, learning, and social governance, providing significant opportunities to rethink and promote educational reform while also presenting new challenges.

Based on the localized needs for digital transformation in Egyptian universities, the Egyptian pilot project has two main objectives: "to enhance teachers' digital teaching capabilities, course quality, and teaching practice" and "to create a favorable policy and institutional environment for digital teaching." According to Dalia Yusuf, director of

the Online Learning Center at Ain Shams University, the Egyptian National Center, under the university's leadership, has established a network covering 23 universities nationwide. Among them, 63 key teachers from 14 Egyptian universities participated in a training program aimed at improving their digital teaching abilities. At the policy and institutional level, national policy dialogues and digital leadership forums were designed and implemented. Through the pilot project, Egypt has facilitated communication and dialogue among the Ministry of Higher Education and Scientific Research, the Supreme Council of Universities, the Higher Education Quality Assurance and Accreditation Agency, and multiple Egyptian universities, promoting national-level exploration of the digital transformation of higher education.

2. Drivers of digital transformation in Egyptian higher education

2.1. Meeting the demand for talent and technology in economic reform

When President Sisi took office, Egypt faced critical economic challenges amid political and social transition, including rapid population growth, a fragile economy, and high unemployment. The economy had fallen into a severe recession after the political upheavals of 2011 and 2013, with GDP growth plummeting and debts escalating. By 2015, nearly 28% of the population lived below the poverty line, and unemployment had risen to 13%, intensifying social unrest.

To address these issues, the Sisi administration prioritized economic reform, proposing a "knowledge-based economy" strategy to enhance social cohesion and competitiveness [1]. Emphasizing knowledge, research, and innovation, the government aimed to align these elements with national goals by developing innovation clusters and business incubators.

The government launched major infrastructure projects such as the Suez Canal Expansion and the New Administrative Capital, creating jobs and stimulating growth. It issued the "2020 Industrial Development Strategy" to boost industrial technology and supported small and medium-sized enterprises (SMEs) through initiatives like "Your Factory Has a License." These efforts heightened the demand for talent, technology, and innovation.

To meet this demand, the Sisi government introduced the "Egypt: A Learning, Thinking, and Innovative Society" initiative in 2014, pledging to increase investment in education and research and to ensure equitable access to quality education. By promoting educational modernization and digital transformation, the government aims to support a knowledge economy and accelerate Egypt's transition to a knowledge-based society.

2.2. Drivers behind Egypt's participation in the internationalization of higher education amid globalization

Since the early 21st century, economic globalization has accelerated the internationalization of higher education. Egypt, one of the most globally integrated countries in the Middle East, has maintained multifaceted exchanges with developed nations such as the United States and European countries. To internationalize its higher education, Egypt participates in international collaborative projects, has established open universities, and attracts international funding.

Beginning in the 1980s, Egypt and the United States signed a series of agreements to enhance inter-university exchanges, build academic trust, and promote joint research. In the early 21st century, Egypt joined the European Union's Mediterranean University Network Program (MEDA-TEMPUS I) to modernize its higher education through reforms [2]. Over the past decade, Egypt has deepened educational cooperation with China under the "Belt and Road" initiative, collaborating on academic programs, talent cultivation, and research. These collaborations encompass language teaching, faculty exchanges, attracting international students, and sharing research outcomes.

Egypt aims to align its higher education system with international standards, achieve mutual recognition of degrees globally, and prepare graduates to meet international market demands. Participation in international projects and cooperation with foreign universities enhance educational quality and set benchmarks aligned with global standards. Since 2008, Egypt's involvement in the European Union's Bologna Policy Forum has promoted the development of its higher education quality assurance system, aligning it with European standards and driving digital transformation.

Digital transformation is a crucial tool for internationalizing higher education, enhancing quality, optimizing resource allocation, and supporting transnational cooperation and global knowledge networks. Facing the challenges of globalization, Egypt's adoption of digital methods for international cooperation is both a proactive response to global higher education trends and a necessary pathway to enhance the competitiveness of its higher education system.

2.3. The driving role of public diplomacy in the context of globalization

Public diplomacy has played a significant driving role in the modernization and transformation of Egyptian higher education, particularly in the context of educational internationalization and digital transformation. As a soft power approach that enhances understanding and cooperation among nations through culture, education, and science and technology, public diplomacy has enabled Egypt to establish extensive educational partnerships with countries such as the United States, European nations, and China. Specifically, in participating in international education projects and attracting international funding support, public diplomacy has secured more external resources for Egypt [3]. For example, Egypt's participation in the European Union's Mediterranean University Network Program (MEDA-TEMPUS I) allowed it to obtain funding and technical support from the EU for curriculum reform, improvements in teaching methods, and optimization of management models. Additionally, cooperation with China under the framework of the "Belt and Road" Initiative has not only advanced the digital development of Egyptian education but also provided technological support and platforms for talent cultivation. The successful realization of these collaborations is inseparable from Egypt's demonstration, through public diplomacy, of its significant status and potential in regional education.

3. Strategies for advancing digital transformation in Egyptian higher education
3.1. Enhancing internationalization: Promoting exchange and cooperation in higher education globally

An important bottleneck constraining the development of higher education in Egypt is the contradiction between the rapidly growing demand for higher education and the limited domestic resources available. To address this issue, introducing high-quality overseas educational resources has become a key initiative in Egypt's digital transformation and internationalization of higher education. This strategy not only increases the number of higher education institutions in the country, alleviating pressure on the public education system, but also enables Egyptian students to access world-class educational resources domestically.

The Egyptian government actively promotes the establishment of branch campuses by foreign universities within the country. To this end, it established the "Committee for Branch Campuses of Foreign Universities" under the Ministry of Higher Education and Scientific Research, and in August 2018 enacted the Law on Branch Campuses of Foreign Universities and University Institutions in Egypt [4]. This legislation fills the legal void concerning the establishment of branch campuses and educational institutions by foreign universities in Egypt, detailing the establishment processes, approval procedures, quality supervision, organizational structures, and specific rights and obligations.

According to this law, foreign universities can either independently establish branch campuses in Egypt or collaborate with Egyptian universities to set up joint campuses that confer joint degrees. This policy innovation not only promotes the diversification of educational resources but also provides Egyptian students with more diverse study options, thereby enhancing the international competitiveness of domestic higher education.

3.2. Encouraging international scientific research cooperation

Egypt's international cooperation in scientific research is also a crucial reform measure for enhancing the quality of higher education. The "Egyptian National Strategy for Scientific Research and Innovation 2015–2030" outlines a future development path centered on international collaboration. The implementation of this strategy is based on two main reasons:

First, there is a practical need to strengthen research capabilities. Although the Egyptian scientific community possesses a certain level of knowledge production, there remains a significant gap in transforming this knowledge into technology, which limits the actual contribution of research to economic development. By partnering with international counterparts, Egypt aims to learn from the advanced experiences of developed countries to promote the localization and application of technology.

Second, addressing global challenges. Issues such as climate change, food security, pandemics, and environmental protection are global problems that Egypt faces alongside other nations. These challenges are difficult to solve relying solely on Egypt's technological capabilities and require collaboration and joint efforts from the international community.

To support international scientific research cooperation, the Sisi government promulgated the "Law for the Encouragement of Science, Technology, and Innovation" on April 21, 2018 [5]. This legislation provides policy support and incentives for cross-border collaboration among universities and research institutions, including:

(1) Flexible policies: Article 5 stipulates that higher education and research institutions may engage in any activities aligned with their objectives and may sign agreements with domestic and foreign individuals, enterprises, banks, and other entities, without being constrained by existing laws or government decisions.

(2) Tax incentives: Article 7 exempts import duties and value-added taxes on tools, instruments, and materials necessary for scientific research projects.

(3) Reward support: Article 9 states that bonuses for research project teams funded by external grants are exempt from all taxes and fees.

These measures have reduced costs and increased flexibility and attractiveness for Egyptian universities and research institutions in international collaborations, promoting deep cooperation between Egypt and the global academic and scientific communities.

By introducing high-quality overseas educational resources and encouraging international scientific research cooperation, Egypt has injected new momentum into its domestic education system while enhancing the internationalization of higher education. This approach not only helps alleviate the pressure on educational resources but also facilitates the integration of Egyptian universities with the global community, laying a solid foundation for the modernization and digital transformation of its higher education sector.

4. Conclusion

In the era of the knowledge economy, ensuring the quality of higher education is crucial for narrowing the economic and social gaps between developing and developed countries. While developed nations have globally recognized universities excelling in knowledge innovation and human capital development, developing countries like Egypt face

significant challenges in this area.

Egypt's efforts to build a higher education quality assurance system reveal universal issues faced by developing countries, including scarce resources, faculty shortages, uneven development, late initiation of quality assurance systems, imperfect frameworks, and a weak quality assurance culture. Unique cultural traditions and economic conditions add complexity, especially with the integration of religious and secular education. This complexity has prompted international support for quality assurance projects in developing countries.

Digital transformation has become a key strategy for modernizing higher education in Egypt, enhancing quality assurance through online platforms, big data analytics, and smart campuses. Initiatives such as introducing international online courses and building digital research platforms have energized improvements, addressing faculty shortages and uneven resource distribution. The success of Egypt's higher education quality assurance and accreditation programs results from collaboration among universities, the government, society, and international organizations. Digitalization offers new tools for aligning with international education systems and enhancing global competitiveness.

Egypt's practices demonstrate that building quality assurance systems and pursuing digital transformation must be tailored to each country's specific conditions. Cultivating a strong quality assurance culture and utilizing digital technologies are essential for sustainable higher education development, offering valuable insights for other developing nations.

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The authors declare no conflict of interest.

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