



The Significance of Digitization Projects in the Algerian Higher Education Sector for Enhancing Educational Quality

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Abstract

This scholarly paper explores the pivotal role of digitization projects in enhancing the quality and effectiveness of higher education in Algeria. Utilizing a comprehensive approach that integrates descriptive and analytical methods, the research provides valuable insights into the impact of digitization projects on the educational and research environment within Algerian universities. Beyond mere technological enhancements, digitization projects represent a crucial paradigm shift toward elevating the standard of higher education in Algeria. Through a meticulous descriptive analysis of outcomes, it becomes evident that Algeria's efforts in digitization projects have significantly contributed to the advancement of the higher education sector in recent years.

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1. **Introduction**

The advent of the information and communication technology revolution has brought about a significant transformation in the higher education sector, particularly in two key dimensions: the integration of new digitization methods and the evolution of educational content. The contemporary university environment necessitates an adaptation of educational approaches to align with modern technologies, such as e-learning and digital platforms. (brada et al., 2022, p. 301)

Simultaneously, digital platforms in distance education play a pivotal role in enhancing the quality and effectiveness of the educational process. Their prominence is underscored as determinants of the duration, effectiveness, and quality of teaching methods and content. Digital platforms facilitate knowledge exchange and constructive interaction among learners, fostering the development of personal and practical skills. They serve as essential tools for both professors and students to engage with technology and undergo digital transformation. The advantages of digital platforms include universal access to educational materials, promoting flexibility and sustainability in learning, and fostering realistic interaction and group engagement, thereby enhancing the overall learning experience. (Telukdarie & Munsamy, 2019, p. 719)

Recognizing the global educational sector's aspiration for comprehensive quality improvement, this research emphasizes the pivotal role of students as key contributors. Educational structures are designed to align with higher education goals, providing a stimulating learning environment. Faculty members, supervisors, and administrative staff play essential roles in enhancing the performance and quality of educational institutions. The study underscores the role of technology in communication and knowledge transfer, advocating for the strategic use of modern mechanisms to improve the educational sector. Digital educational platforms, leveraging technology and the Internet, are crucial for advancing the learning and teaching process in the university sector. (Felgueiras et al., 2017, p. 415)

In the context of Algeria's commitment to advancing higher education and improving its international standing through the adoption of modern technologies, efforts are evident in exploring ways to propel the sector forward. Digital management systems emerge as vital tools in achieving the goals of higher educational institutions, facilitating effective access for faculty members, students, and administrators. For students, digital systems offer advantages such as easy access to lectures and results, simplified registration processes, and tracking academic progress. The digital

management system for academics is instrumental in managing scientific content and providing a comprehensive evaluation of students' performance, thereby contributing to the enhancement of the educational process.(Aldiab et al., 2019, p. 732)

Consequently, the research underscores the crucial role of digital platforms in developing and improving the higher education system, thereby enhancing the overall quality of Algerian education. This transformation is reflected not only in changing educational philosophies and policies but also in the adoption of modern and effective learning management systems, such as Moodle and Progress. These platforms promote communication and knowledge exchange within academic institutions, with Moodle aspiring to standardize and disseminate knowledge globally, (brada et al., 2022, p. 315)fostering scientific interaction and exchange. Progress, as an essential platform, improves university services and enhances management efficiency by streamlining administrative processes, improving user experience, and increasing transparency.(ur Rehman & Khan, 2016, p. 450) The commitment to supporting digitization projects in Algerian universities reflects the authorities' dedication to achieving comprehensive quality improvement in the higher education sector.(Király & Géring, 2019, p. 125)

Asking pertinent questions about the role of digitization projects in Algerian higher education sets the stage for academic discussion and analysis. The transformative impact of digital technologies on the efficiency and quality of the educational process prompts the primary research question: What is the current status of digitization projects in higher education in Algeria, and what role do these projects play in enhancing the quality of education in the Algerian higher education sector?

To address these inquiries, the following plan has been formulated:

- Digitization as a Concept in Higher Education
- Distance Learning in Education
- Progress Platform Project in Higher Education
- Digital Portal Project in Algerian Higher Education
- A Project to Digitize University Infrastructure and Administrative Functions
- The Significance of Digitization in Enhancing the Quality of Algerian Higher Education

2. Digitization as a concept in higher education:

Higher education currently faces numerous challenges, both on a local and international level, as it seeks highly efficient means to achieve its educational objectives and enhance the vitality of academic researchers within university institutions. In this context, technology serves as a crucial tool capable of guiding and regulating individual behavior.

The "Algeria e-Strategy 2013" document underscores the importance of developing and implementing robust policies to promote the growth of the digital economy in countries. Achieving this necessitates a committed and forward-thinking audience, coupled with strong support for the ICT industry. It also emphasizes the significance of creating a clear and coherent plan that embodies the principles of the information society. Notably, this strategy was formulated in 2008 and was slated for implementation over a five-year period, with a two-year reference point (Ahmedato, 2020, p. 228).

In terms of the concept of digitization, is a broad concept, as per Taylor's definition (2007): "Digitization means the difference between bits (BTT), where the bit represents everything that has a size and color and can travel at the speed of light. Therefore, digitization is a scientific system that allows certain devices to capture images of printed

materials, convert them into an encrypted language, store, transfer, retrieve, copy, and even modify them" (Najlaa, 2014, p. 16).

Furthermore, the quality of education and higher academic training has witnessed the integration of technology at the global level. This integration is particularly pronounced in the scientific field, which forms the foundation for the development of human resources and institutions. According to Sanaa Ibrahim Abu Duqa (2013), the quality of higher education involves describing all systems, resources, and information employed by universities and institutes of higher education to maintain and enhance standards and quality (Ibrahim Abu Duqa, 2013).

In today's globalized world, the Algerian state must recognize the responsibilities of its educational institutions, including universities, at both the local and international levels. This recognition involves organizing and experimenting to ensure the development and control of knowledge and science. To establish a global presence, the state must build relationships with advanced scientific institutions and laboratories, encourage student exchanges, and promote scientific publications. This contributes to the enhancement and refinement of higher education programs.

According to Mohamed Yado's (2018) study, digitization plays a critical role in ensuring quality education by:

- Controlling and enhancing the administrative system in educational institutions.
- Elevating the performance of students at all levels.
- Enhancing educational efficiency and the performance of individuals at the university (Yado, 2018, p. 267).

As a productive institution focused on enriching knowledge, developing technologies, and fostering competencies, universities play a key role in addressing social issues across various fields through research and theoretical analysis. Globalization has led to rapid changes in the impact of universities, and as a result, universities must adapt to social development trends. This adaptation allows them to interpret and address current issues and ensure the quality of education, as per Aisha Salama Kihli et al.'s (2017) study, which identifies five dimensions for achieving this quality:

- "Competence" or "merit," which involves students selecting educational institutions that provide suitable services and features.

- Reliability, where educational institutions offer services with a high degree of reliability.
- Dealing, and fostering an atmosphere of mutual respect and interaction in educational institutions.
- Response, focusing on swiftly and effectively responding to changes in the environment of educational institutions.
- Student understanding requires a focus on comprehending the needs of university students (Kihli, 2017, p. 33).

To ensure the quality of higher education in the era of digitization, governing bodies (such as the Ministry of Higher Education and Scientific Research, government entities, etc.) must provide support and financial assistance to educational institutions. They should define a strategy and framework for describing all systems, resources, and information used by universities and institutes of higher education. This strategy should align with global quality and opportunity standards. Additionally, efforts should be made to diversify digital education methods, promote electronic information interaction, and design a digital environment that facilitates communication between students and universities. This commitment to

digitization ultimately enhances the quality of academic life.

3. Distance Learning in Education:

E-learning, an innovative educational approach, harnesses digital tools and technology to create a dynamic learning environment. It enables flexibility and expedites communication between students and educators by utilizing the Internet and various electronic media such as computers and electronic networks. Through these platforms, educational content can be presented in multiple formats, including images, videos, and documents.

Various definitions of e-learning have been proposed, but as Dr. Khadija Bentaleb (2022) elucidates, e-learning is "an educational method delivered through modern communication mediums like computers, mobile devices, and other multimedia tools that leverage the internet in all its forms to impart information to learners through lectures, lessons, discussions, exercises, and tests. The objective is to facilitate and support learning at any time and from any location" (Bentaleb, 2022, p. 3).

In contrast, Tursunalievich and Rahmat (2021) assert that the concept of e-learning is relatively new, emerging alongside advancements in information and communication technology. This evolution has profoundly impacted the academic community, including students,

faculty, and universities as institutions. It has also given rise to novel concepts such as the "academic digital society" and "digital culture" (Tursunalievich & Rahmat, 2021, p. 248).

According to Picciano (2017), e-learning represents a novel educational model grounded in the internet. It is designed to create and disseminate knowledge while fostering collaborative learning. This approach exhibits several key characteristics, including:

- Diverse perspectives in the realm of science and knowledge.
- Enhanced learning processes, as it offers learners access to a wealth of information compared to traditional methods.
- A reliance on technology, obviates the need for human intervention and physical presence (Picciano, 2017, p. 175).

In summary, the digital technological revolution that has swept through the academic community has given rise to the "academic digital society." This society is distinguished by its adaptability and swiftness in the flow and exchange of information through global networks, as well as its automated use in executing scholarly activities. These characteristics are creative and harmoniously directed toward achieving educational objectives.

4. Progress Platform Project in Higher Education:

To enhance the efficiency and performance of university administration and ensure the optimal utilization and distribution of resources, especially within the context of the MD (Master's and Doctoral) system, characterized by a growing number of disciplines and scientific degrees year by year, the Ministry of Higher Education and Scientific Research has implemented electronic information systems. The primary objective of these systems is to streamline access to public resources, digitize administrative processes, track student progress under the MD system, and effectively manage all university-related data. This initiative carries a strategic dimension geared toward informed decision-making (Tawahir et al., 2021, p. 40).

Moreover, the system is distinguished by its fairness and transparency, allowing university students to enroll in master's and doctoral programs of their choice while providing clear and transparent access to their academic results. The platform functions as an information system for the comprehensive management of university affairs. Its capabilities include, but are not limited to:

- Registering, guiding, and transferring new students.

- Providing students with an account to monitor their academic journey and stay informed about all academic matters.
- Maintaining a comprehensive record of each student's academic progress.
- Creating programs for scheduling classes and determining faculty workloads.
- Facilitating the evaluation and decision-making processes.
- Managing the registration and employment of higher education professors.

The Algerian University relies on this platform as a comprehensive information system that hosts an integrated database containing detailed information about both students and professors.

5. Digital Portal Project in Algerian Higher Education:

Digital portals represent a significant development within the Algerian higher education system. These portals serve as a means through which both internal and external visitors can access and benefit from the services offered by the university. They leverage cutting-edge technologies and software to enhance collaboration and communication between different faculties within the university and

between universities themselves (Sudus and Ben Sabti, 2020, p. 250).

The Ministry of Higher Education is committed to optimizing performance and believes that digital portals play a crucial role in promoting the dissemination of scientific research and the scientific outputs of academic institutions. Some notable digital platforms in this context include:

- Algerian platform for scientific journals (ASJP).
- National System for Online Documentation (SNDL).
- The National Portal for Theses and Dissertations (Theses. pnst).
- Formative Research Projects (PRFU).
- National Research Programs Flight and PNR.

One of the most widely used digital portals in Algerian universities is linked to the Ministry of Higher Education and Scientific Research. The Algerian government has made significant efforts in the process of digital transformation within the education sector. These efforts encompass a range of projects aimed at transitioning from traditional education to open education, promoting distance learning, and enhancing the efficiency of university administration through the utilization of digital platforms and portals.

6. A project to digitize University infrastructure and administrative functions:

6.1 Digital Management:

Electronic management refers to the process of automating all administrative tasks and activities within an organization by employing relevant information technologies and tools. The goal is to achieve the objectives of contemporary management through a set of organizational processes that use electronic communication methods to link stakeholders and sources of information. This connection aims to facilitate an institution's objectives in terms of planning, production, operation, monitoring, and development (Rizki & Hussein, 2023, p. 109).

In essence, digital management represents a departure from traditional management practices, relying on modern technology, integration with the internet, computers, and specialized software to oversee the responsibilities assigned to administrative staff. It is a system that leverages electronic models to enhance communication between students, administrators, and working teams within the university. Moreover, it streamlines communication between university institutions at both the national and global levels.

6.2 Digital Library:

A digital library is a collection of digital information sources accessible through the internet, as opposed to managing physical resources like books and paper references. According to Rehab Fayez Ahmed Sayed and Omar Houtieh (2020), a digital library is defined as a repository of information that includes digitally produced content or content converted into a digital format. It is organized and managed using automated systems and is accessible via a network of computers, whether at a local, expanded, or online scale (Farhab, A. Houtia, 2020).

6.3 Digital Repository:

Commonly referred to as an open archive, a digital repository is an online database of scientific works managed by researchers. They make their work searchable and accessible to the public. According to Amal Mohamed Ahmed Hassan Al-Maghribi (2022), "repositories are affiliated with institutions, universities, institutes, research facilities, and educational systems. These repositories aim to gather a substantial portion or the entirety of intellectual productions of researchers affiliated with them, spanning various fields or specific fields, based on the repository's intended coverage. They also aim to provide access to this body of work for both internal and external beneficiaries, following the policies established by those overseeing the

repository" (Mohamed Ahmed Hassan Al-Maghribi, 2022, p. 300).

7. The Significance of Digitization in Enhancing the Quality of Algerian Higher Education:

Digitization represents a transformative process wherein data is converted into a digital format suitable for computer processing. In the context of information systems, digitization is commonly associated with the conversion of printed text or images. More precisely, digitization involves the conversion of continuous analog signals into discrete digital signals. In library and information science, digitization pertains to the process of creating digital versions of analog documents (Hamdid, 2023, p. 737).

The Algerian Ministry of Higher Education is actively engaged in a comprehensive digitization initiative, aiming to enhance the quality of higher education through an ongoing management strategy grounded in a set of guiding principles. The primary goal of this strategy is to achieve the highest level of quality in developing the mental, psychological, social, and moral facets of students. This, in turn, aims to ensure the satisfaction of students and their readiness for the job market upon graduation, ultimately meeting the expectations of all segments of society benefiting from these graduates. Drawing from a body of scientific literature, including studies by

Shalghoum (2020) and Hamdid (2023), the following salient points underscore the significance of digitization:

7.1 Quality Enhancement:

Digitization plays a pivotal role in achieving and elevating the quality of education, as it is one of the seven dimensions outlined in the national reference for quality assurance within the Algerian higher education system. Digitalization of the educational process significantly contributes to achieving and advancing the quality of education and training.

7.2 Enhanced Teaching and Learning Outcomes:

In the digital era, education is underpinned by cognitive theories and actively employs the principles of active learning. In contrast, traditional education predominantly relies on behavioral theories that emphasize the passive presentation of information by the teacher. Digitization fosters active engagement, which enhances teaching and learning outcomes.

7.3 Promotion of Equality and Equal Educational Opportunities:

The digital age democratizes education by allowing all learners to participate in the learning process, thereby ensuring equal educational opportunities. Learning environments are accessible from anywhere and at any time, promoting

equality and providing diverse learning opportunities.

7.4 Accelerated Learning:

Digitization eases the burdens facing educators in traditional educational settings. Electronic programs and curricula are readily available online, and tests can be corrected and results published automatically. Furthermore, it simplifies academic communication between teachers and learners, expediting the learning process.

In conclusion, the role of digitization is exemplified by the creation of a rich, multifaceted learning environment that enhances every aspect of the educational process. It saves time and offers flexibility in accessing content, while also facilitating communication between educators and learners.

Moreover, it contributes to guiding the younger generation towards technology and the transformative developments taking place in our rapidly evolving world.

8. CONCLUSION

The empirical findings presented in this study affirm that digitization initiatives in Algeria have the potential to augment educational quality and guide students towards more advanced academic trajectories. The study underscores the opportunities inherent in digitization for enhancing learning experiences and

fostering scientific research within educational institutions.

Furthermore, the research emphasizes the imperative of contemplating cybersecurity and data protection as integral components for fully capitalizing on smart technology. Additionally, the study posits the necessity of incorporating a human dimension in the technological framework of universities to ensure the realization of higher education objectives.

Moreover, the study advocates for a nuanced approach to universities' engagement with technology, stressing the importance of a human dimension to attain higher education goals. The findings suggest that while digital transformation can be efficacious in promoting academic excellence, due consideration must be given to ethical considerations and potential challenges.

9. Recommendations

- Promote the cultural adoption of digital platforms and enhance the quality of infrastructure for utilization in higher education for both students and professors in Algeria. Implement information protection systems to ensure the widespread and secure use of these platforms.

- Invest in the development of human resources, focusing on students and

professors, in the technological domain to catalyze digital transformation in higher education.

- Enhance the level and quality of internet connectivity and the proliferation of digital technology.

- Formulate short-term plans for the continuous training of professors and students in the effective utilization of digital platforms, both in remote settings and within the university environment.

- Develop the supportive infrastructure for digital education, including the provision of modern electronic devices and high-speed internet connectivity.

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