L'impact de la digitalisation des universités sur la performance des universités marocaines : Revue de littérature

The impact of the digitalization of universities on performance of Moroccan universities: Literature review

Mejdoubi Mouna
Doctorante en Sciences de gestion à la FEG Kenitra
Laboratoire de recherche LSEPP
Université Ibn tofail, kenitra Maroc.

Mejdoubi Myriam
Doctorante en Sciences de gestion à la FEG Centre
Laboratoire de recherche LSEPP
Université Ibn tofail, kenitra Maroc.

El Aissaoui hassan
Professeur Habilitée à la FEG Kenitra
Laboratoire de recherche LSEPP
Université Ibn tofail, kenitra Maroc.

Lachhab Houda
Professeur Habilitée à la FEG Kenitra
Laboratoire de recherche LSEPP
Université Ibn tofail, kenitra Maroc.

Abstract : Digitalization has considerably influenced the performance of Moroccan universities by improving accessibility to information, facilitating distance learning and strengthening collaboration between students and teachers. However, challenges remain such as the digital divide and the need to adapt traditional teaching methods to the digital context to fully optimize the benefits of digital transformation.

Keywords: Digitalisation ; performance ; impact ; universités ; marocaines.

1. Introduction

Digitalization has emerged as a major transformative force, reshaping the educational landscape globally. Digitalization has profoundly transformed universities, influencing various aspects of their operation. Educationally, she introduced innovative teaching methods such as online learning, thereby expanding access to education. From a management perspective, digital systems have optimized administrative processes, improving institutional efficiency. However, this shift to digital also raises questions about equity, data security and the need to adapt universities to emerging technological challenges. The impact of digitalization on universities is therefore vast, complex and constantly evolving.

Digitalization has brought about a significant transformation in the field of higher education, substantially shaping the performance of universities globally. This technological revolution has led to fundamental changes in teaching methods, administrative management, research, and has redefined the student experience. This rapid evolution offers new opportunities while presenting challenges, highlighting the critical importance of exploring the overall impact of digitalization on university performance.

Digitalization has permeated every aspect of our modern society, and Moroccan universities are no exception to this transformation. The advent of digital technologies has radically reshaped the educational landscape, influencing the way educational institutions operate, teach, and interact with their communities. This introduction explores the impact of digitalization on Moroccan universities, highlighting significant changes in learning methods, administrative management and campus dynamics, while highlighting the opportunities and challenges that emerge from this digital revolution .

In Morocco, this digital revolution has profoundly influenced universities, redefining the way they operate and provide education. This introduction explores the impact of digitalization on the performance of Moroccan universities, examining notable changes in teaching methods, institutional management and the overall experience of students and teachers.

2. What is digitalization:

Digitalization, also called digital transformation, is a complex process that goes beyond the simple adoption of technologies. It represents a global overhaul of our systems, institutions and ways of life as digital technology permeates every aspect of our existence (Westerman et al., 2014).

• Foundations of Digitalization:

The work of Brynjolfsson and McAfee (2014) highlights that digitalization is based on technological advances such as artificial intelligence, Cloud computing and the Internet of Things. These interconnected technologies create a digital ecosystem that redefines how we collect, store and use information.

• Impact on Businesses:

Digitalization is having a profound impact on the business world. Companies must adapt to agile business models, leveraging data collection and analysis to improve operational efficiency (McAfee and Brynjolfsson, 2017). The references highlight concrete cases of success and the challenges encountered by organizations in this context.

• Transformation of Services:

The service sectors have been disrupted by digitalization. The work of Lee and Lee (2019) shows how the digitalization of services, from healthcare to banking, improves accessibility, efficiency and personalization, while highlighting the ethical issues linked to this transformation.

• Social and Cultural Implications:

The implications of digitalization go beyond economic spheres. Castells' (2010) work explores how society itself is being reshaped, affecting our interactions, our identities and our perceptions of the world.

• Challenges and Ethical Considerations:

Digitalization raises crucial ethical concerns. Authors such as Floridi (2016) discuss challenges related to data privacy, security and digital disparity, highlighting the need for careful ethical reflection in this context.

2. What is performance:

Performance, as a metric omnipresent in the fabric of our contemporary societies, transcends domains, from businesses to educational institutions, from arts sectors to governments. It is a scalable and multidimensional measure that demonstrates effectiveness, impact and success, reflecting an entity's ability to achieve its objectives in a constantly changing environment.

When we approach the concept of performance, we venture into a complex territory where the quality of results is closely linked to a multitude of factors. These include organizational strategy, resource management, innovation, resilience to challenges and, increasingly, the ability to adapt and capitalize on technological advances.

The importance of performance is growing as the world evolves, and in this era of globalization and increased competition, companies, institutions and even individuals find themselves constantly looking for ways to optimize their performance. Expectations are evolving rapidly, highlighting the need for organizational agility and the ability to thoughtfully integrate innovations, including digitalization, to remain competitive and relevant.

It is in this dynamic context that we explore the notion of performance, analyzing its various dimensions, the influences that shape it and the challenges inherent to its optimization. From the boardroom to the research laboratory, from the art scene to the financial market, performance resonates like a compass that guides our actions and, therefore, deserves in-depth attention and continued exploration.

• Individual Performance:

The work of Locke and Latham (2002) established a solid foundation for understanding individual performance. They highlight the importance of objectives, feedback and personal motivation in achieving individual performance.

• Organizational Performance:

With respect to organizational performance, Kaplan and Norton's (1992) research on balanced scorecards highlights the importance of a balanced view, integrating financial and non-financial measures, in assessing an organization's success.

• Economic Outlook:

Economists, such as Porter and Kramer (2011), have explored the societal performance of businesses by introducing the concept of "shared value creation". Their work highlights the need to align economic interests with those of society for sustainable performance.

• Performance in the Sports Field:

The field of sport offers a unique perspective on performance. The work of Farrow and Robertson (2016) highlights the importance of mental preparation, coordination and resilience to achieve exceptional performance in elite sport.

• Social Performance:

Researchers such as Sen (1999) introduced the concept of "capability" as a key indicator of social performance. Their work highlights the need to understand performance beyond economic indicators, focusing on improving human well-being.

• Performance Evaluation:

Performance must be measured and evaluated appropriately. Deming's (1986) work on continuous improvement highlights the importance of reliable measurement systems and a systemic approach to optimizing organizational performance.

3. The digitalization of universities

The digitalization of universities constitutes a profound revolution, radically redefining the contours of higher education in an increasingly connected and technologically advanced world. This transformation transcends traditional classrooms to every aspect of academic life, influencing how knowledge is transmitted, research is conducted, and the institutions themselves operate.
At the heart of this evolution is the fusion between education and technological advances, catalyzed by the emergence of online learning platforms, electronic management systems, and innovative

digital tools. These elements have reshaped the student experience, providing increased flexibility in teaching methods, while unlocking new possibilities for collaboration and research.

The digitalization of universities goes beyond the simple automation of administrative processes; it generates an educational culture in perpetual evolution. Access to global educational resources, personalization of learning through data analytics, and the growing integration of virtual reality are all redefining the way students acquire knowledge and interact with the knowledge.

• Virtual Teaching and Online Learning Platforms:

The rise of online learning platforms, such as Coursera and edX, illustrates the shift toward a virtual education model. Researchers like Allen and Seaman (2017) highlight how these platforms provide increased flexibility for students while diversifying teaching approaches.

• Personalization of Learning:

Digitalization allows for increased personalization of learning. References such as that of Siemens (2012) on connectivist learning highlight the importance of creating learning environments that adapt to the individual needs of students.

• Big Data and Analytics in Higher Education:

The use of Big Data and predictive analytics in higher education is becoming more and more widespread. The work of Campbell and Oblinger (2007) shows how these tools can help institutions anticipate student needs and improve their educational experience.

• Virtual Collaboration and Research:

Digitalization facilitates virtual collaboration between students and researchers on a global scale. References such as Weller (2011) explore how digital tools enable collaborative research, transcending the physical boundaries of universities.

• Challenges of Digitalization:

Issues such as the digital divide, data security, and concerns related to the quality of online education require special attention (Bates, 2019). Digitalization raises complex challenges that require proactive management.

• Cultural Transformation and Leadership:

The digitalization of universities requires cultural change and appropriate leadership. Work such as that of Fullan (2016) highlights the importance of a strategic vision to effectively integrate technology into the educational fabric.

3.1 the importance of the digitalization of universities on performance

The importance of university digitalization on performance is undeniable, as it represents a fundamental transition that optimizes educational processes, institutional management and the overall stakeholder experience. By adopting digital technologies, universities can improve their performance in several ways.

First, digitalization promotes operational efficiency by automating administrative tasks, allowing institutions to devote more resources to quality academic and research initiatives. This results in more wise use of time and effort, contributing to increased overall performance.

Second, digitalization expands access to education by enabling online learning, eliminating geographic and temporal barriers. Universities can thus reach a wider audience, promoting diversity and inclusion, while providing students with flexible learning opportunities tailored to their individual needs.

Third, collecting and analyzing digital data allows universities to make more informed decisions. By understanding learning trends, student preferences and academic performance, institutions can tailor their programs and services to maximize educational impact.

However, it is essential to note that the digitalization of universities also poses challenges such as data protection, staff training and the need for continued investment in technological infrastructure. However, by overcoming these challenges, universities can strengthen their overall performance, remain relevant in a rapidly changing world, and better prepare students for the demands of the digital society.

• Optimization of University Administration:

Digital management systems contribute to more efficient administration. References such as that of Bates and Sangrà (2011) highlight how the digitalization of administrative processes can free up resources, allowing universities to focus more on improving teaching and research.

• Improved Student Experience:

Digitalization improves the student experience. Online learning platforms, virtual collaboration tools and diverse digital resources offer increased flexibility. The work of Allen and Seaman (2013) highlights how this flexibility can stimulate student engagement.

• Personalization of Teaching:

Digital technologies enable the personalization of teaching. References such as Siemens (2005) discuss how data collection and analysis can create learning pathways tailored to the individual needs of students, thereby optimizing their academic performance.

• Strengthening Collaborative Research:

Digitalization facilitates collaborative research on a global scale. Virtual collaboration tools, such as those described by Veletsianos and Kimmons (2012), accelerate the dissemination of knowledge and strengthen the performance of institutions in terms of research production.

• Continuous Evaluation and Analysis of Results:

Data analysis systems enable continuous assessment of academic performance. The work of Campbell and Oblinger (2007) shows how these analyzes can identify trends, thereby facilitating informed decisions to improve the quality of teaching.

• Preparing Students for the Digital World:

Digitalization prepares students for an increasingly digital professional world. References from Bates (2019) highlight the importance of integrating digital skills into academic programs to optimize students' preparation to meet the challenges of the job market.

3.2 ICT integration and university branding

The successful integration of Information and Communication Technologies (ICT) in the university context can profoundly influence the brand image of an institution. Here's a detailed look at how this manifests, supported by key references.

• Easy Access and Improved Communication:

The establishment of online platforms, interactive websites and effective communication systems, as highlighted by Bates, A. W. (2019), enhances the visibility and accessibility of the university. Transparent communication across various digital channels can contribute to a positive brand image by demonstrating commitment to transparency and ease of access.

• Enhanced Student Experience:

Sophisticated digital systems for online learning, course management, and interactive educational resources can improve the student experience. This improvement, as discussed by various researchers (e.g., Tondeur et al., 2016), strengthens the university's brand image by creating a favorable perception among current and prospective students.

• Innovation and Modernity:

The use of cutting-edge technologies in education portrays the university as innovative and at the forefront of educational trends. This image of a modern institution attracts students seeking a contemporary educational experience, as highlighted by research by Junco et al. (2011).

• Visibility on Social Networks:

The integration of social media into institutional communication increases the visibility of the university. Positive interactions on social media help to strengthen brand image and create a sense of virtual community, as demonstrated by various studies (e.g., Junco et al., 2011).

• Valorization of Research:

Online visibility of research projects, publications and collaborations strengthens the university's reputation in the academic field. This contributes to the perception of the university as a leading research institution, as mentioned in previous work (Bates, A. W., 2019).

• Alumni commitment:

Digital platforms for alumni engagement strengthen the alumni network and contribute to the university's reputation over time. Digitally shared alumni successes strengthen the university's image, as highlighted by previous research (e.g., Tondeur et al., 2016).

• Social Responsibility and Sustainability:

Communicating social and environmental responsibility initiatives through digital channels strengthens the university's image as a socially conscious and sustainable institution. This dimension is crucial for the perception of the university in a global context (Bates, A. W., 2019).

the integration of ICT is not limited to technological development, but constitutes a determining factor in the construction of a strong and contemporary university brand image. These positive impacts are supported by a solid foundation of research and analysis in the field of education.

4. The digitalization of universities and performance

The digital transformation of universities has led to a significant improvement in the overall performance of the education system. The integration of technologies such as e-learning platforms, video conferencing tools and digital resources has not only facilitated access to information, but also promoted interactivity and introduced increased flexibility in methods of teaching.

Online learning platforms, cited by several researchers (e.g., Bates, A. W., 2019), allow students to access courses remotely, thereby promoting self-directed learning. This approach significantly expands access to education, allowing learners to participate in degree programs without traditional geographic constraints.

Digitalization has also revolutionized the evaluation of academic performance, as noted by Tondeur et al. (2016). Online exams, digital quizzes and automated assessment tools simplify the assessment process, providing rapid feedback to students and making assessments easier to manage at scale.

In terms of university administration, information management systems, according to Junco et al. (2011), streamlined administrative processes, improving the efficiency of tasks such as registration, grade management and internal communication.

However, it is crucial to emphasize that this transition to digitalization is not without challenges. Some students may experience difficulty accessing technology, creating a digital disparity. Additionally, as discussed by various researchers (e.g., Bates, A. W., 2019), preserving social interaction and engagement in a virtual environment remains a challenge to overcome.

In summary, the digitalization of universities has considerably improved overall performance by facilitating access to education, optimizing administrative processes and reinventing evaluation methods. Nonetheless, it is imperative to address issues of inequity in access and maintain a balance between virtualizing courses and preserving the holistic educational experience.

4.1 Usefulness of the integration of information and communication technologies.

The integration of Information and Communication Technologies (ICT) within universities offers a range of benefits affecting various aspects of education, institutional management and the student experience. Here is a detailed exploration of some of the key utilities, supported by relevant references:

- Improved Teaching and Learning:

- E-learning and Online Courses: Online learning platforms provide access to varied educational resources, promoting flexibility and personalization of learning (Bates, A. W., 2019).

- Interactivity and Engagement: The use of interactive technologies, such as online forums and simulations, stimulates student engagement and improves understanding of concepts (Tondeur et al., 2016).

- Increased Accessibility:

- Distance Education: Universities can reach a global audience by offering distance education programs, eliminating geographic barriers (Bates, A. W., 2019).

- Online Resources: Digital libraries and online databases increase access to educational resources (Junco et al., 2011).

- Optimized Administrative Management:

  - Information Management Systems: ICT facilitates the management of student data, course planning and financial management (Tondeur et al., 2016).

  - Process Automation: Administrative tasks can be automated, thereby improving operational efficiency (Bates, A. W., 2019).

- Easy Search:

  - Virtual Collaboration: Researchers can collaborate more easily across borders using virtual collaboration tools (Junco et al., 2011).

  - Access to Global Resources: Universities can access online scientific databases and journals, thereby speeding up the research process (Bates, A. W., 2019).

- Enhanced Student Experience:

  - Transparent Communication: Digital platforms facilitate communication between students, teachers and administration (Tondeur et al., 2016).

  - Online Services: Services such as online registration, virtual academic advising, and mobile applications enhance the student experience (Bates, A. W., 2019).

- Development of Digital Skills:

  - Preparation for Professional Life: Students acquire essential digital skills, thus preparing them for the demands of the job market (Junco et al., 2011).

  - Continuing Education: Online training programs offer professionals the opportunity to continue their education while working (Tondeur et al., 2016).

- Long Term Cost Savings:

- Reduced Documentation Costs: Transitioning to digital systems can reduce costs associated with physical documentation (Bates, A. W., 2019).

- Resource Optimization: Computerized resource management allows more efficient use of facilities and equipment (Tondeur et al., 2016).

Successful integration of ICT requires strategic planning and adequate training, but the potential benefits are vast, helping to transform university education to meet the needs of contemporary society.

4.2 ICT and user motivation

ICTs have evolved considerably, becoming agents of change in contemporary society. This study focuses on the specific impact of ICT on user motivation, examining the complex dynamics between technology and human psychology.

- Access to Information and Intrapersonal Motivation:

Researchers such as Deci and Ryan (1985) have emphasized the importance of intrinsic motivation in human behaviors. ICT, by facilitating access to a plethora of information, plays a crucial role in strengthening this intrinsic motivation (Smith, 2019).

- Communication and Collaboration:

The use of ICT for communication and collaboration has been studied extensively by researchers such as Kock (2004). Their work highlights the way in which these technologies can transform collective motivation, by promoting cooperation and stimulating user engagement.

- Education and Learning:

The impact of ICT on educational motivation has been examined by both educational psychologists such as Eccles and educational technology specialists such as Anderson (2008). Their research highlights the importance of the variety of teaching methods enabled by ICT to maintain a high level of motivation among learners.

• Gamification and Motivation:

Recent studies such as that conducted by Deterding et al. (2011) explore gamification as a motivating strategy made possible by ICT. By integrating game elements into non-game contexts, ICT can stimulate user engagement and persistence.

• Challenges and Critical Reflections:

Despite the benefits, challenges remain, including those related to information overload and technological dependence (Turkle, 2015). A critical analysis of these aspects is essential to fully understand the complex interaction between ICT and user motivation.

5. The impact of the digitalization of universities on the performance of Moroccan universities.

Digitalization has emerged as a major catalyst for transformation in the global educational landscape, and Morocco has not escaped this digital revolution. This article examines the impact of digitalization on the performance of Moroccan universities, exploring significant changes in the areas of teaching, research, administration and student experience.

• Improved Teaching and Learning:

Digitalization has opened new avenues for teaching and learning within Moroccan universities. The integration of online learning platforms and interactive tools has improved accessibility to educational resources, promoting flexibility in teaching methods. This transformation has been highlighted in studies such as that conducted by Bates (2019) on the benefits of e-learning.

• Modernization of Research:

Digitalization has considerably facilitated research within Moroccan universities. Virtual collaboration between researchers, access to global databases and online publishing have accelerated the research process. This development is in line with the findings of Junco et al. (2011) on the positive impact of technologies on academic collaboration.

• Optimization of University Administration:

Information management systems have brought optimization to administrative processes in Moroccan universities. Electronic management of student data, automated course planning and internal communication via digital platforms were highlighted as advantages by Tondeur et al. (2016).

• Enhanced Student Experience:

Digitalization has also transformed the student experience in Moroccan universities. Transparent communication through digital platforms, online services such as e-registration and virtual academic advising have helped improve the student journey, as mentioned in the research of Bates (2019) and Tondeur et al. (2016).

• Adaptation to Labor Market Requirements:

Digitalization has prepared Moroccan university students for the demands of the modern job market. Acquiring essential digital skills through online training programs has been recognized as a crucial benefit by Junco et al. (2011).

Conclusion

In conclusion, the impact of digitalization on the performance of Moroccan universities is undeniably significant, shaping a new era in higher education in the kingdom. The successful integration of information and communication technologies (ICT) has enabled profound transformation in various aspects of education, research, administration and the student experience.

From the point of view of teaching and learning, digitalization has opened up unprecedented horizons. Online learning platforms, interactive educational resources and digital teaching tools have created unprecedented flexibility, allowing students to access a variety of courses and educational materials, transcending traditional constraints of time and space. This development corresponds to a shift towards more inclusive learning methods, as evidenced by Bates' (2019) research into the benefits of e-learning.

On the research front, digitalization has played a determining role in the modernization of academic practices. Virtual collaboration between researchers, access to global databases and online publication have accelerated the pace of academic research, thus positioning Moroccan universities in a global

dynamic. This advance is consistent with the findings of Junco et al. (2011) on the positive impact of technologies on academic collaboration.

From an administrative perspective, Moroccan universities have optimized their operations through the adoption of information management systems. Electronic management of student data, automated course planning and internal communication via digital platforms have not only improved efficiency, but also laid the foundations for a more transparent and agile administration, in line with Tondeur's findings et al. (2016).

The student experience has also been profoundly impacted by digitalization. Seamless communication through digital platforms, online services such as e-registration and virtual academic advising have simplified the student journey, creating a more interactive and learner-centered educational atmosphere.

Finally, digitalization has helped prepare Moroccan university students for the realities of the contemporary job market. Acquiring essential digital skills through online training programs is a proactive response to the ever-changing demands of employers, as highlighted by research by Junco et al. (2011).

However, amidst this notable progress, it is essential to remain aware of the challenges ahead. Unequal access to technologies, the need to maintain a balance between the virtual world and the traditional educational experience, as well as ensuring the security of digital data are all crucial considerations for the continued success of digitalization in the context of Moroccan universities.

In short, digitalization has emerged as a powerful engine of progress for Moroccan universities, redefining the nature of higher education in the country. This transformation, while bringing enormous benefits, requires careful management to maximize its benefits while minimizing potential risks. Thus, Moroccan universities are called to continue to innovate and adapt to shape an educational future that is both technologically advanced and humanly enriching.

References

1 Bates, A. W. (2019). Teaching in a Digital Age: Guidelines for Designing Teaching and Learning. Tony Bates Associates Ltd.

2 Junco, R., Heiberger, G., & Loken, E. (2011). The effect of Twitter on college student engagement and grades. Journal of Computer Assisted Learning, 27(2), 119-132.

3 Tondeur, J., Van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2016). Understanding the relationship between teachers' pedagogical beliefs and technology use in education: A systematic review of qualitative evidence. Educational Technology Research and Development, 64(2), 337-359.

4 Smith, J., & Brown, A. (2017). Digital Technologies and Student Engagement: A Comprehensive Review. Education and Information Technologies, 22(5), 2435-2454.

5   Ahmed, E., & Ward, R. (2017). Investigating the Impact of Digital Transformation on University Students' Behavioral Intention to Use a Mobile Learning System. Computers in Human Behavior, 70, 223-233.

6   El Mhouti, A., & Abbad, M. (2013). E-learning acceptance: Empirical evidence from Moroccan higher education. International Journal of Information and Communication Technology Education, 9(2), 50-65.

7   Elouali, H., & Ouzri, M. (2017). The impact of ICTs on educational performance: An econometric analysis applied to students of Moroccan public universities. International Journal of Education and Development using Information and Communication Technology, 13(2), 100-116.

8   Bousalham, A., & Erradi, M. (2015). The Impact of E-learning on University Education: The Case of Moroccan Universities. Procedia - Social and Behavioral Sciences, 191, 1200-1204.

9   Karoui, J., & Ben Hmida, I. (2014). The impact of e-learning on university performance: An empirical study. International Journal of Innovation and Learning, 15(2), 207-222.

10   Benhlima, L., & Tahiri, A. (2018). Investigating the impact of e-learning on the quality of higher education in Morocco. International Journal of Emerging Technologies in Learning, 13(7), 124-142.