

DIGITAL TRANSFORMATION IN EDUCATION IN THE ERA OF COVID-19: TOWARDS A SYSTEMIC APPROACH

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Abstract-

The containment period, following the pandemic that the whole world is now experiencing, has strongly contributed to the creation of new ways of conducting business and the adoption of innovative managerial practices. The health crisis of Covid-19 has highlighted the essential role of digital technologies in the continuity of services provided by various organizations, both public and private.

In Morocco, the rise of digital in several sectors is not only the result of the last health crisis, the digital transformation is a long process initiated by Morocco for several years to establish a new digital culture in the management of organizations. Through this article, we will study the impact of the health crisis on the digital transformation in the education sector while trying to answer the following central question: *To what extent has the current crisis laid the groundwork for the institutionalization of digital in the education sector?*

We postulate in our article that the crisis of covid-19 has only had an accelerating effect on digital transformation, while arguing that the development of digital in Morocco and particularly in education, our sector of study, should be accompanied by integrated digital strategies based on the principles of digital governance.

Keywords —

Covid-19, Digital transformation, Digital institutionalization, Integrated digital strategies, Digital governance, Systemic approach.

I. INTRODUCTION

Like many sectors where digital adoption is irreversible, the use of digitalization in education is currently undergoing a remarkable evolution.

When Covid-19 emerged abruptly, it did not give time for decision makers in all fields, including education, to gather information that they could refer to in order to deal with an unprecedented crisis.

In order to ensure pedagogical continuity, a decision was taken so quickly and without any transition or prior warning, to resort to virtual and distance online teaching, when neither the learners had the necessary skills such as autonomy and self-learning to adapt to it, nor the teachers had enough time to prepare for it, nor the infrastructure of the educational system is likely to support a change of such size both strategic and structural.

The main objective of this article is to propose a conceptual model for the institutionalization of digital in the education sector based on the accelerating effect of Covid-19 on the digital transformation in education, while trying to evaluate the measures that have been taken as a result of this crisis, to accompany this strategic shift in the field of education, insofar as it is the sector most affected and impacted by this pandemic.

II. DIGITAL TRANSFORMATION AND EDUCATION

Digital transformation refers to, according to Vial (2019), "*a process that aims to improve an entity by triggering significant changes in its properties through combinations of information technology, computing, communication and connectivity*" [1]

Faced with the current unprecedented situation, the digital transformation initiated by Morocco for several years has been an inescapable source to the challenges of the pandemic and mainly the digital challenge.

In Morocco, this transformation being a process that has materialized through the insertion, in its strategic vision of education and training 2015-2030, the development and consolidation of technologies as essential tools to ensure quality education.

The State's awareness of the importance and the stakes of digital technology for an open, smart and agile school of tomorrow must be accompanied by a preliminary work of deep reflection on the design of integrated digital strategies allowing the involvement and the participation of all stakeholders in this institutionalization of digital technology in this priority sector.

III. DIGITAL TRANSFORMATION AND THE IMPACT OF COVID-19

The education information system has undergone a significant evolution since 2013 with the implementation of platforms such as Massar and many others integrated into the ministry's information system to facilitate the management of schools. Nevertheless, the main concern of the Ministry of Education, via these platforms, was the collection of data from different parts of the system.

Covid-19 puts all organizations in Morocco, including those in the education sector, to the test of digital technology and the integration of new videoconferencing technologies to ensure the continuity of activities and services, particularly pedagogical continuity.

Covid-19 has had an accelerating effect on digital transformation through the development and exploitation of various virtual meeting options for leaders as well as several modalities of distance learning:

- Upgrading platforms to take and download courses remotely;

- Conclude partnerships with other sectors - with considerable experience in digital technologies- in order to involve them more in the management of this crisis.

- Mobilizing additional human and logistical resources to produce educational resources that may be required to meet:

 - *The requirements for structural change in teaching, learning and assessment methods.

 - *To the needs of learners during a critical period of transition and digital deployment.

In the face of this unavoidable crisis, Morocco has been able to demonstrate its agility and adaptability through a wide range of measures.

The experience of managing the pandemic clearly shows that the education system needs a new paradigm that includes innovation and agility while relying on the virtues of digital governance. *"We are facing a new need for complex transformation (...) was built on the recognition of the change of the teaching-learning paradigm"* [2]

IV. DIGITAL GOVERNANCE FOR DIGITAL TRANSFORMATION

The added value of this research is its contribution, with the help of a conceptual model based on a systemic approach, to lay the foundations for the institutionalization of digital in the education sector.

Our model advocates driving the transformation towards the institutionalization of digital through a approach :

- *Systemic*: Analyze the interactions between the flows of inputs and outputs of the educational system in order to maintain in a dynamic way, the self-regulation and the agility of the information system by adapting the decisions with the multiple changes of the environment. *"The system is not fixed; it is first of all a system of transformations (...), The key to these transformations lies in the notion of self-regulation."* [3]

- *Transversal*: Insofar as the success of each transformation requires collaboration at several levels, and a multidimensional dialogue on the digital policies to be implemented.

- *Integrated*: An approach that should integrate both the accelerating effect of Covid-19 on the transformation process and the principles of digital governance, in order to manage the rapid evolution of this digital change taking into account an existing system that shows resistance to both the new organizational modes and the changes imposed by this digital era.

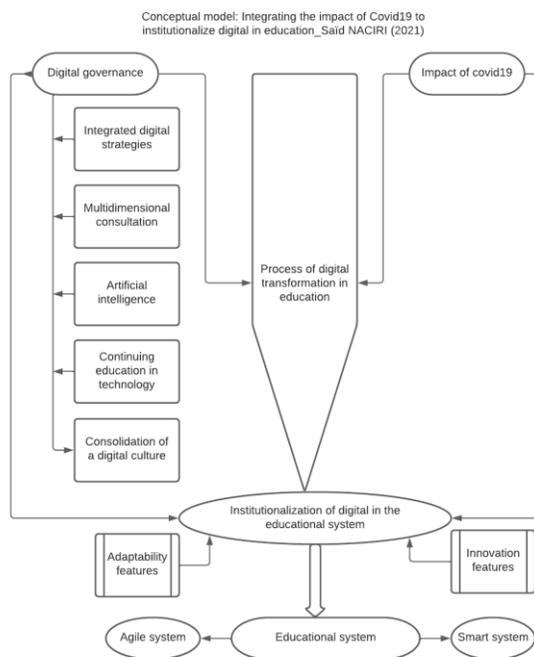


Fig.1: Model to integrate the impact of Covid-19 to institutionalize digital in education.

V. INSTITUTIONALIZATION OF DIGITAL AND THE SYSTEMIC APPROACH

The health crisis has highlighted the need to adopt a strategy where the education system must import the tools of management to move away from any logic based on the administration of education to that of the management of the educational act.

To introduce the systemic approach, GERMAIN, S (2018), based on the contributions of great authors and founders of management to explain the systemic approach as follows *"the organization is a system in interaction with its environment and it must adapt to changes in it. The approach consists of analyzing the interactions in all their dimensions: organizational, human, legal and technical in order to adapt the information system and the decision-making system of the organization. The analysis focuses more on the flows than on the elements and its main object is the regulation"*. [4]

1. Integrated digital strategies and multidimensional consultation

The regulation of the powers of the different actors in the field is both an issue and a key factor in this approach.

The new digital era requires a culture of collaboration and multidimensional consultation involving all stakeholders in the development, implementation and evaluation/monitoring of digital policies with the aim of moving beyond the lowest degree of coordination to a degree of consultation based on integrated digital strategies accompanied by institutional arrangements in order to provide the education system with the potential in this area:

- *Innovation and creativity* (new ways of developing policies, financing needs, designing infrastructures, managing and developing digital resources...)
- *Agility and adaptability to change* (a system capable of positioning itself in a way that allows it to better adapt to technological changes in the system's environment...)

2. Consolidation of a digital culture

Digital culture encompasses the cultural aspects of the relationship between people and technology, the way digital is internalized in our perception patterns, our behaviors, our habits and our interactions within the organization with everything digital.

The success or failure of any transformation depends first and foremost on the human element of each organization. The goal of establishing and consolidating a digital culture is to *"anticipate the likely resistance to change (...) change is more often experienced as a risk, a downgrade, a fuzzy and anxiety-provoking future"*. [5]

This digital culture must provide answers to the reasons why stakeholders in the education system have shown resistance to change, namely, according to Torben Rick: Fear of anything new, fear of the unknown that might require new skills, entrenched habits and old ways of doing things could be barriers to change, as well as a lack of internal communication in terms of explaining the needs and reasons for change. [6]

3. Continuing education in technology and the challenges of Artificial Intelligence

The digital transforms our habits and ways of learning and teaching, with the logic of management of the educational act, made explicit by our approach, the role of the teacher manager must replace the one traditionally adopted by teachers where the latter are mainly concerned with teaching tasks while denying the development of managerial skills insofar as the school and the university constitute complex units with dynamic interactions and multiple actors.

Through continuous training for the different actors, and mainly teachers, decision-makers and teachers must accept that their roles may be challenged taking into account the digital change and its requirements in terms of new digital skills, organizational skills, agility and Design Thinking. [7]

The State is also supposed to consider a progressive integration of artificial intelligence in the teaching process in order to automate the repetitive tasks performed by teachers, which would allow them to focus on perfecting their educational methods and techniques.

This technology can only play a role of assistance, it cannot, in any case, replace the teacher, who is the ideal companion of the learner with his or her qualities of critical judgment and human interaction, which represent irreplaceable qualities.

VI. CONCLUSION

Digital transformation is a long and complex process that requires constant questioning and continuous enrichment. It is not a trendy phenomenon. The adoption of a transversal and integrated systemic approach based on the principles of digital governance in order to accompany and succeed in this transformation within the education sector, is justified, on the one hand, by the complexity of the organizational and structural changes that were triggered during the containment that had an accelerating effect on this transformation process, and on the other hand, by the diversity of the actors involved as well as the increased need for digital in education that has been highlighted by the Covid-19 pandemic.

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