

Sociology of Digital Transformation: From Print Outputs to the Digital icons

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Abstract

The field of organizational and work sociology has recently witnessed significant expansion at the national, Arab, and international levels, addressing many social issues directly related to the social lives of individuals and groups. Many sociological studies have received significant attention from researchers and specialists in this field. Among the most important topics addressed by this field is electronic digitization and its direct connection to the job performance of school principals. We used a case study approach, with the main hypothesis relating to digital transformation and the inevitability of the transition from traditional to technological methods. The results of the study confirmed that the experiment is nascent and that there is a will to enable the transition from print to digital.

Keywords: Digital transformation, Algerian schools, technology, internet, computer media

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1. Introduction:

Current educational institutions are in a race against time to maintain their position within the national and even global context. They are compelled to achieve the goals for which they were established. Primary schools vary in their philosophies, depending on the circumstances and environments of different organizations.

Today, institutions are working to develop their available resources, particularly human resources, considering the human element as the deciding factor between progress and underdevelopment. It is the measure of success or failure for any organization, as it is the primary focus of the educational process. These educational institutions now face a major challenge to develop, enhance, and rationalize the utilization of the potential and capabilities of their workforce, enabling them to perform their duties efficiently and effectively, achieving the greatest possible returns.

Algerian primary schools are working hard to find appropriate solutions to the problems arising from changing environmental factors, through which they can shine toward a bright future. One of the most important paths to success for any educational institution is the presence of individuals capable of exerting the necessary efforts to efficiently and effectively manage all work activities within the organization. Most successful educational institutions have focused on upgrading and streamlining administrative management and enhancing their image in the eyes of various national and international organizations competing in their field.

This is what we are currently observing in the halls of Algerian primary schools, particularly some primary schools in the municipality of M'Sila, which are constantly striving to improve their administrative system and achieve the greatest possible professional return by utilizing all modern technological means to meet the requirements of digitizing school administration electronically in a modern manner consistent with the contemporary labor market.

Primary school principals have come to rely on electronic digitization on a permanent basis, in line with the requirements of administrative globalization, for the sake of efficient digital management of school administration. These schools are obligated to keep pace with various modern technological developments, and it is essential to digitize their administration in a manner that enables them to comfortably maintain their position within the national educational environment. The same applies to some primary schools in the municipality of M'Sila, which are striving to keep pace with technological advances in communications, software, audio-visual media, particularly the Internet, and various social media platforms. These have played, and continue to play, a significant and prominent role in the process of rationalizing and educating educational institutions and utilizing their human resources on the ground through their competent principals.

This current study sought to investigate the role of primary school principals in the digitization of the education sector [a field study of primary schools in the municipality of M'Sila.]

To address this topic, our study was divided into two parts, each with three chapters: the theoretical part, which includes the conceptual framework of the study; the theoretical part, which covers the school principal's duties and roles; the third part, which is theoretical on the digitization of the education sector; the fourth part, which addresses the methodological approach of the field study; and the fifth, which presents, analyzes, and discusses the results. The general findings are presented, along with recommendations, and finally, the conclusion.

2- The Problem study:

The importance of employing information technology and integrating it into the educational process is growing to improve the quality of education. Computers and the Internet have become essential and primary sources for communicating and transferring information and knowledge, keeping up with scientific and technological developments, and learning about the experiences of advanced nations in education and teaching methods. This is because they attract students' attention and interest in the lesson, provide them with new ideas, engage them in discussing the lesson content, and encourage them to analyze and connect what they see or hear. Sells (1997) believes that employing educational technologies requires investing in all electronic devices and their associated operating programs to facilitate the exchange and transfer of information between individuals and communities. Based on the developments of the stage, the educational system in any society that aspires to progress and advancement and strives for them is required to develop its educational system, develop its tools, methods, and strategy, and employ information technology. Therefore, educational institutions have strived to organize and develop their work and adopt modern scientific methods. Technology has had the highest share in educational institutions, schools, and universities. The use of technology has become important in evaluating teachers' performance and evaluating schools and the educational system in countries. Based on this proposal and based on its ideas calling for change, and based on the educational leadership's orientation towards change. To keep pace with the demands of the twenty-first century, the Algerian Ministry of National Education adopted modern educational policies, including the development of curricula and some modifications to them, especially after the spread of the COVID-19 pandemic in 2020. It also adopted new educational policies and modern educational projects. Among these important projects, embodied by the Ministry of National Education in educational institutions, are the digital platform, which includes a parent and user service platform. Furthermore, the Ministry has employed modern technology within the educational system and implemented education digitization programs within four axes: training supervisors and teachers, connecting all schools to the internet, activating internet use in schools, and employing multimedia, computers, tablets, and display screens, as well as providing digital content as an interactive curriculum that meets the requirements of the current stage. Since primary school principals represent the most important elements of the educational and administrative process, they are obligated to participate and contribute their suggestions and opinions to the digitization of the education sector, implementing the ministerial policy, vision, and future mission to educate and guide generations toward a contemporary digital and electronic model that is compatible with the current stage. Primary school principals are the human element responsible for implementing

digitization in educational institutions and activating it in administrative transactions. Hence, the justification for this study, which aims to identify the role played by primary school principals in the digitization of the education sector, emerged.

Through this approach, we pose the main question:

- What is the role of school administration in the digitization of the education sector?

This general (main) question includes three sub-questions:

- Do personal variables (gender, age, professional experience) play a role in the principal's use of digitization in the education sector?
- Is the digitization process linked solely to the role of the principal or to all stakeholders in the educational process (teachers, parents, supervisory staff)?

3- Study Hypotheses:

The social researcher always strives to find solutions to the various questions posed in his study. He relies on the nature of the subject being studied, the data, the bulk of theoretical information, and previous studies related to the subject of the study. He also relies on his in-depth and continuous observations of the study community to understand and describe the phenomenon. He can therefore propose hypotheses and pre-emptive solutions. Hypotheses are intelligent guesses that express the relationship between two or more variables.

A- General Hypothesis of the Study:

- Primary school principals have a role in the digitization of the education sector.

B- Sub-Hypotheses:

- Do variables (gender, age, professional experience) play a role in the principal's use of digitization in the education sector?

The principal's role in the digitization process is linked more to acquired skills than to training and development processes within the institution.

The effectiveness of the principal's role in the digitization process is linked to the generalization of the process among all parties (teachers, parents, supervisory staff).

- Definition of the Ministry of National Education's digital platform:

It is defined as: "In a deeply symbolic process, coinciding with the celebrations marking Science Day, the Ministry of National Education launched its information system on Monday, April 17, 2017, in the presence of the Minister Delegate for the Digital Economy and Modernization of Financial Systems, the Chairman of the Committee on Education, Higher Education, Scientific

Research and Religious Affairs at the National People's Assembly, and the Vice-President of the Ministry of National Education. The launch of the information system was attended by members of the same committee at the National Assembly... and educational officials at the central and local levels, as well as the sector's social partners.

The challenge of introducing information and communication technologies into the education sector is to move towards quality governance and facilitate teacher training to improve pedagogical practices, enhance school support for learners, and bring schools closer to parents so they can better monitor their children's schooling." (Jubeir Baba Omar, Nouredine Bahoun Ali, 2019-2020, p. 71)

Digitizing the National Education sector means assigning an identification number to each employee, teacher, and student, enabling parents to view their children's results and behavior remotely without having to travel to the educational institutions. (Jamal Matatih, Khalifa Boumahani, 2019, p. 69)

It is worth noting that the Ministry of Education has created pages on social media sites through which parents and stakeholders can stay up-to-date on the platform's latest developments or any new information from the provincial directorates. This is to handle the platform's media aspect. Through these pages, parents and stakeholders can stay up-to-date on the platform's latest developments and any new information that may arise, as well as raise their concerns and questions, including the Directorate of Education for the Province of Ghardaia, on the social networking site Facebook. (Jubair Baba Omar, Nouredine Bahoun Ali, 2019-2020, p. 72)

4- The Importance of Digitization:

The education sector in the country is very important, as it officially relies on matters that work to better improve students' capabilities and also contribute to building society and making it advanced in all different fields. This enables it to innovate, excel, give, and develop using the best educational technologies and methods, creating a distinguished society with many opportunities to advance knowledge in the cognitive field. (What is Digitization in the Education Sector?, 2021, <https://fieda.net/>)

The importance of digitization lies in the fact that it is an initiative that has become valuable to institutions of various types, including the national education sector. It is also of great importance among specialists in information technology and technical systems, as establishing a digital platform requires that its contents be electronically formatted from information sources. This has encouraged and provided a strong impetus to transform information sources from their traditional paper form into data available on modern electronic digital media. (Jubair Baba Omar, Nouredine Bahoun Ali, 2019-2020, p. 10) 73)

5- Objectives of the Ministry of National Education's Digital Platform:

5-1- For administration:

The digitization process falls within the framework of implementing the e-government project to integrate information and communication technologies with the goal of "improving administrative performance."

Organizing and managing the 5,000 DZD grant, and checking whether a student has previously benefited from it, without having to visit educational institutions.

Facilitating the treatment of students with special needs and students with chronic diseases.

Improving the ease of using information technology to follow up on students, conduct continuous monitoring, and provide certification assessment.

Institutions communicating with website users, email, and social media with the least effort and cost.

Promoting the use of information and communication technology in education for the benefit of learning at all levels. (Jamal Matatih, Khalifa Boumahani, 2019, p. 71)

5-2- For students and their parents:

Creating an electronic correspondence notebook for each student.

Parents can view their children's results and behaviors, as well as their teachers' comments, through the website without having to visit the institutions where their children study. Extract lessons, exercises, and model exams for students preparing for the certificate exam from the National Education website.

Parents can access the list of school supplies and schedules from the Tamdur Ibnna Foundation website. (Jubeir Baba Omar, Nouredine Bahoun Ali, 2019-2020, p. 74)

5-3- For employees and teachers:

Control employee career paths through promotions, qualifications, employment, and professional exams.

Define the actual human resource needs of the sector by limiting the number of vacant positions.

Speed up the submission of documents relevant to the employee, such as a work certificate.

Digitization allows guardianship to deal with identification numbers rather than with individuals. This will also ensure transparency and speed in work (postal account number), thus eliminating paper files.

Ensure that errors that may occur with employees during their promotion processes are minimized. (Jubeir Baba Omar, Nouredine Bahoun Ali, 2019-2020, p. 75)

6- Characteristics of the Ministry of National Education's Digital Platform:

6-1- Integration and Comprehensiveness of the Information System:

The information system for the National Education Sector is a unified, integrated system with a comprehensive national reach encompassing all components of the National Education Sector. Its databases are interconnected and consistent.

6-2- Accuracy and Updating of Information and Data:

The National Education Sector's information system derives its function and effectiveness from the periodic and regular updating of the information it contains, which keeps the database constantly vital. (Mohamed Samir Ahmed, 2009, p. 72)

6-3- Scope of Application of Information Systems

The information system is applied at the level of the central administrative structures of the Ministry of National Education, national institutions under its supervision, decentralized departments (education directorates), and educational institutions, including private educational institutions accredited by the Ministry of National Education. This information system will be expanded later to include other areas and services.

7- Components of the Ministry of National Education's Digital Platform:

The digitization of the National Education sector is part of the government's program to gradually integrate information and communication technologies into its sectors and departments, with the goal of improving administrative performance within the sector. At the beginning of its establishment, the Ministry of National Education's digital platform consists of four basic, interconnected and integrated programs. Accordingly, the user responsible for updating must update data and information continuously, regularly, and with utmost accuracy, after receiving the required documents for updating and within the specified deadlines:

7-1- Student School Management (Students - Attendance - School Guidance):

Student monitoring is a priority for the daily management of educational institutions. Therefore, the Ministry of National Education attaches great importance to this by putting the Ministry of National Education's digital platform into service. Therefore, it is necessary to update information on a timely basis and to update data and ensure its accuracy in order to provide quality services to all members of the educational community, especially students and their parents, and to bring school administration closer to them, allowing for the highlighting of various activities related to school life, especially the educational aspect represented by monitoring. The attendance and discipline of students, as well as the pedagogical aspect related

to school results and their impact on the students' academic progress; as for student photographs, directors of educational institutions are required to take these photographs according to biometric specifications at the middle and high school level for the students enrolled therein. As for students enrolled in primary schools, this process is entrusted to middle school directors who are assigned by the Director of Education, with the necessity of renewing these photographs at the beginning of each school year. This is in anticipation of issuing school cards for students. In the same context, students can and are allowed to submit photographs in digital form to facilitate the process of uploading them directly to the digitization platform. If it is not possible for students to obtain digital photographs, they are still obligated to submit paper photographs that the institution's administration copies into a digital file using a scanner. If this is not possible for institutions that do not have this device, the education directorates must carry out this process. (Jubeir Baba Omar, Nouredine Bahoun Ali, 2019-2020, pp. 79-80)

7-2- Personnel Management Program (Promotions, Qualification, and Employment):

Processes related to human resources management are also important, sensitive, and technical. They have a profound impact on the professional lives of employees and are directly related to all aspects of management in the national education sector, particularly pedagogical and administrative management. Regarding digital images of employees, directors of educational institutions are required to collect these images according to biometric specifications, to be incorporated into the information system. This is in anticipation of issuing professional cards, electronic files, and employee CVs. (Jubeir Baba Omar, Nouredine Bahoun Ali, 2019-2020, p. 80)

7-3 - Structure Management Program (Structure Monitoring - Functional Housing - Comprehensive Survey)

Structure management is also a process of great importance due to its connection to various management aspects, particularly those related to pedagogical and administrative management. In this regard, all changing information in this area must be updated, particularly that produced by the Ministerial Committee for the Establishment of Institutions and the subsequent processes that update structure information. Functional housing is also considered a facility of the educational institution, granted for service needs and for the benefit of the service, depending on the situation, with the aim of ensuring stability. Therefore, the status of the housing and its occupants must be continuously updated to rationalize its use and accurately implement the circulars regulating the practical use of functional housing and the status of housing according to the institution and the governorate. (Jubeir Baba Omar, Nouredine Bahoun Ali, 2019-2020, p. 82)

7-4- Parent Space Program (Parents of Students - Remote Registration, Remote Training):

The Parent Space is a pivotal element in the digital platform of the education sector, as "monitoring student attendance is a priority for the daily management of educational institutions. Accordingly, the Ministry of National Education attaches great importance to this

by implementing the information system. Therefore, it is necessary to update information in a timely manner, update data, and ensure its accuracy in order to provide quality services for all members of the educational community, especially students and their parents, and bring school administration closer to them. This allows for the highlighting of various activities related to school life, especially the educational aspect represented by monitoring student attendance and discipline, as well as the pedagogical aspect related to school results and their impact on the student's academic progress" (Reference Framework, related to the information system for the National Education Sector, 01/31/2018, p. 5). However, due to its modernity The digital platform website: The use of the parents' space is not complete, as it is currently limited to parents logging in to view their children's schooling progress, as well as records related to various national certificates.

(Jubeir Baba Omar, Nouredine Bahoun Ali, 2019-2020, p. 83)

8- Pros and Cons of Implementing Digitization in the Education Sector:

8-1- Pros of Implementing Digitization in the Education Sector:

Optimal control over the employee's career path in terms of: promotions, qualifications, employment, and professional exams.

Identifying the actual needs of the sector by limiting the number of vacant positions.

Speeding up the submission of documents relevant to the employee: all services, work certificates, etc.

Working to prevent and reduce errors that may occur with employees in their promotion processes.

The digitization process allows guardianship to deal with identification numbers rather than with individuals. This will also ensure transparency and speed in work, noting that each user's document will bear this number, similar to the

8-2- Negatives

Many educational institutions do not have the necessary IT equipment to use for digitization.

The lack of internet access in remote schools has hindered the smooth progress of the digitization process and its compatibility with the media and communications unit at the directorate level.

The lack of experience and training among employees tasked with digitization at educational institutions.

Repeated internet outages have caused significant delays and a severe shortage in updating information on the digitization websites of many educational institutions.

9/ Conclusion:

The field of organizational and work sociology has recently witnessed significant expansion at the national, Arab, and international levels, addressing many social issues directly related to the social lives of individuals and groups. Many sociological studies have received significant attention from researchers and specialists in this field. Among the most important topics addressed by this field is electronic digitization and its direct connection to the job performance of primary school principals in national and international organizations, particularly Algerian schools.

However, given the deteriorating and unstable circumstances and developments that educational institutions have recently experienced as a result of the global COVID-19 pandemic, production and service levels have declined for most global institutions and companies in all fields, especially in the first and second quarters of 2020. This, of course, has had a direct impact on the culture and administrative behavior of the organization.

Achievements:

Updates to procedures to meet digital transformation requirements: Administrative procedures were updated to align with digital trends, contributing to the acceleration of administrative transactions and the reduction of operational costs. Digital systems were also adopted to support administrative and educational processes.

Digitized processes and objectives achieved: Many core processes in the sector were digitized, including tracking students' academic progress and employees' career paths using school ID numbers and job ID numbers. This contributed to accelerating evaluation and follow-up processes.

Achieving independence in designing and developing digital solutions: The sector was able to develop innovative digital solutions, ensuring independence in technical designs and meeting the sector's needs without relying on external solutions.

Transition from traditional to digital management: A transition to top-down management using information and communications technology was made, enhancing the effectiveness of educational administration and helping to improve the quality of education.

Enhancing performance monitoring and tracking mechanisms: Digital solutions helped improve transparency through accurate monitoring and tracking tools for administrative and educational performance.

Challenges:

Difficulty in clarifying the circulars regulating the digitization process: It was determined that some administrative circulars regulating digitization are not clear or comprehensive in all

aspects. Proposed solutions: Work to update and redraft the circulars to make them clearer and more detailed for all stakeholders.

Information of approved administrative procedures: Some parties face difficulty keeping up with the new procedures adopted through the information system. Proposed solutions: Improve communication mechanisms by organizing information and guidance campaigns for beneficiaries.

User guide and assistance for users: Users face difficulty navigating within the information system due to the lack of clear guidelines. Proposed solutions: Develop detailed and clear user guides that facilitate navigation and provide ongoing technical support.

Integration of various functions of the information system: There are some discrepancies in the integration of various functions between systems, such as user management and schooling, which leads to some coordination problems between departments. Proposed solutions: Completely improve system integration to ensure smooth and conflict-free operations.

Comprehensiveness of information system functions: The information system has not yet included some important administrative processes. Proposed solutions: Digitize all necessary administrative processes that have not yet been digitized, according to specific priorities.

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