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The Impact of Covid-19 in Education System in Morocco

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Abstract:- In the history of Moroccan education, the date of March 16th, 2020, is a crucial milestone that reminds us of the closure of all schools and universities following the enforced home confinement by local authorities. That day marks a new shift to educational habits and practices for all generations, since everyone did completely move to online education using different platforms. The pandemic Covid-19 introduced nontraditional ways of learning based on IT technology, telco and internet. It is a true ice breaker that opened doors to new ways of learning and teaching. Although online teaching at university and higher education schools was not easily welcomed at first due to IT constraints, equipment, training, etc, the authors consider it as a true revolution in the educational system in Morocco as these online methods were never put in place before. Through this research, first, the authors shed light over the impact of the pandemic on the education system in Morocco and how it did shift education to the next level using online learning, internet, video conferencing… Then, they draw recommendations on how to build upon this experience and include it in the future of education via online and hybrid methods.

Keywords:- *Covid-19, Digitalization, Education, IT, ITC, Learning, Morocco, Online, Pandemic, Teleworking.*

I. INTRODUCTION

COVID-19 can be considered as a good catalyst to online education revolution in Morocco and worldwide, as schools were not used to it prior to the pandemic. It did also mark the lockdown and the full shift of Moroccan education system to online using different platforms and resources. Lectures were presented on different online and offline platforms such as audiovisual conferences, internet, radio, television channels. Exams were conducted online with different degrees of scaling, grading and trust in order to adapt these evaluations to the digital context.

March 16th, 2020 is indeed an unforgettable date in the history of Moroccan education, that reminds us of the sudden closure of all schools and universities following the enforced lockdown by local authorities. All stakeholders found themselves in an unprecedented new situation where they were dealing with various challenges related to ensuring education continuity, resources, training and lack of readiness with no previous experience.

Although online teaching at university and higher education schools and universities was not easily welcomed at first due to IT constraints, equipment, training, etc, the authors consider it as a true revolution in the educational system in Morocco as these online methods were never put in place before.

The deployment of these new methods, especially in a context of digitalization did represent a challenge to the education systems, an opportunity to improve online or hybrid teaching for the future. One must not forget that that such an experience did also reveal the different failures of the infrastructure and organizational systems that could be huge learnings for the future.

- *Aim of the Study*

Through this research, first, the authors shed light over the impact of the pandemic on the education system in Morocco and how it did shift education to the next level using new ways of communication due to social distancing. Then, they draw recommendations on how to build upon this experience and how include it in the future of education via online and hybrid methods.

The term Pedagogical Distancing was inspired by its antonym in the present context: Pedagogical Continuity. The pedagogical distancing supposes the abolition of the classroom space with its physical space, direct contact and the physical presence of professors, students and the whole ecosystem that contributes to teaching experience face to face.

Online teaching uses a different notion of time and space since students and teachers lose the ritual of physical presence (transport, class preparation, face to face activities,

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workshops, face to face presentations…). Instead, they work hard now on building a virtual identity of their own.

- *This study is guided by 2 main question which are:*

✓ What are the impacts of COVID 19 on higher education in Morocco?
✓ How can the country benefit from this experience in the future?

➢ *Significance of the Study*

This study contributes to better understand online education during COVID-19 crisis. It also explains how different educational stakeholders shifted suddenly to the online mode and maintained education continuity although the lockdown imposed in them by the local government. This research can be a good added value to future studies that will cover Online education, ICT usage and new modern ways of teaching. Lessons learned from distance learning during COVID-19 are a good base line to improve the traditional face to face teaching and to involve more ICT means to deliver knowledge in better conditions then before. Thanks to this experience, future programs can be based on hybrid learning and full time online depending on the availability of resources and on different constraints. ICT definitely removes boundaries nowadays and the world is considered like a small village than ever.

Furthermore, this study provides meaningful insights to HE[1] stakeholders regarding ICT integration in order to create interesting teaching and learning experience to all stakeholders including professors and students. Users can engage and interact to learn different skills and topics.

II. METHODOLOGY

The authors follow an exploratory design study for this research as they deem it to be the most appropriate to tackle the impacts of covid-19 on higher education and to draw the learnings and best practices for this experience in the future of Moroccan high education where online was a true novelty in 2020 (as opposed to many Anglo-Saxon countries). In fact, in countries like US, Europe, etc, students and professors are used to online programs via different platforms such Mooc, google meet… They can use different platforms such as Google Meet, which is a more preferred and accurate alternative to the traditional classroom (Stadler-Altmann, 2015). Exploratory studies are a good baseline for future studies as they allow to ask questions and to establish a good source of information.

(Levitt, 2018) defines the role of Meta-analysts in qualitative studies as being able to identify a set of primary research studies and to transform main findings into categories or themes in an organized manner through an interpretative ethical process.

III. FINDINGS AND DISCUSSION

➢ *Morocco Context*

March 16, 2020 is an unforgettable date in the history of education in Morocco that marked the closure of all educational schools and platforms and the full switch to online education due to Covid-19 lockdown. As a result, all the parties involved in the Moroccan education system, including parents, found themselves faced with an unprecedented, even revolutionary circumstances. The classical model of education was shifted by the Covid 19. From pre-school to higher education, learners, teachers, directors, administrative staff and all other partners found themselves forced overnight to switch to online education without previous training or prerequisite in order to ensure the magical world repeated by thousands and thousands of people: “pedagogical continuity”.

In a recent study by (Hantem, 2020) related to the conditions of distance education during COVID19, the author classifies the conditions to have an efficient online education as follows: accessibility, contextualization, flexibility and interaction and team work. Luckily for higher education in Morocco, which is our focus in this article, the majority of Moroccan universities are equipped with their own digital space and other platforms that allow them to ensure a duality of teaching (face-to-face and distance). However, the case was different for preschool to high school who did lack in majority both hardware and software for online classes despite all the efforts made by the institutional bodies for the promotion of ICTE[2] within schools.

In Morocco, many issues have been raised by higher education students regarding distance learning: study environment, techniques used, availability and professors ‘commitment. This situation varies from one educational institution to another and from one region to another. Generally, in Moroccan higher education, each university and institute have its own platform, a hub for information exchange and document sharing. Students are relatively familiar with these platforms such as Moodle or Google Classroom. According to (Hantem, 2020), the majority of teachers have their own space on this type of platform and post their online courses.

Based on a recent report by ANRT[3] (ANRT, 2019):

- Almost all urban and rural households have at least one cell phone
- The rate of household computer ownership (computers include desktop PCs, laptops and tablets) is on the rise and stands at 60.6%*
- Eight out of ten households in urban areas have access to the Internet. More than one in two rural households has access
- Fixed internet is slightly up among households in 2018

[1] High Education
[2] Information Communication Technology Education
[3] Agence nationale de réglementation des télécommunications

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- Three out of four households have mobile Internet access, almost all of which is via a cell phone
- The motivations for equipping households with Internet access are mainly social networks and news

In a recent study conducted by (Benkaraache & Dafir, 2020), two months after shifting to online education, that involved a group of public Moroccan universities. This research focused on evaluating adaptation, perception and satisfaction of educational actors based on COVID-19 experience in order to draw the necessary lessons. Because professors and administration are also key stakeholders in the successful implementation of ICT integrated learning, they also need to be addressed with huge esteem and interest in order to enable them to achieve their mission successfully in times of quick changes and development. Two thirds of professors repotted that they were somehow satisfied with the online situation, 43% followed a training regrading online education and 70% communicated with their students offline using documents sharing files (pdf, word, ppt) versus interactive methods such as (Zoom, Meet, Classroom, ..). Two thirds of professors said they were confident that online teaching will be very beneficial in the future (Benkaraache & Dafir, 2020).

Based on the study of (Benkaraache & Dafir, 2020), 79% of the students in the survey reported they were not very satisfied. They have a preference for courses recorded in video format with shared files, followed by courses on open platforms (Zoom, Teams, Classroom, ..). Students who have used university platforms have mixed opinions on their satisfaction. Shared courses (as PDF documents, PPT, ...) were not appreciated by the students surveyed. Two thirds of students reported they had connectivity issues. About 46% took the courses remotely from a smartphone (either personal or belonging family member) (Benkaraache & Dafir, 2020).

The overall impression from this study (Benkaraache & Dafir, 2020) is that at two months post lockdown, professors' appreciation of online education was higher than the students. New studies conducted later showed that with time, students became more at ease with distance education and that most of time do prefer to have a hybrid doe instead of the classical 100% face to face system. According to Buabeng-Andoh and Yidana (2014), students enjoy ICT integrated learning because it allows them to use internet from home and it save their time instead of commuting or traveling to school.

➢ *ICT Role*

ICT was a huge catalyst during COVID 19 pandemic that did facilite working and teaching from distance. Today, ICT literacy is a survival in this digital world. Students are more flexible managing their time and space and learning at their pace while removing boundaries. A class can be composed of different nationalities sitting in different countries but sharing same curriculum at same time in a globalized world.

PERAYA, D. (2003) explains that "the field of educational technologies today integrates within the educational sciences the heritage of learning and educational psychology, pedagogy and audiovisual, media education, instructional technology, school computing and educational software. More recently, it has expanded to include integrated environments for the management of learning". But first, what is ICT?

The acronym ICTE is recent, appearing in the literature at the beginning of the third millennium. During the 90's it was called NTIC[4]. These acronyms do not correspond to scientific criteria but to the evolution of technologies in our society and their diffusion. The recent appearance of the "E" for education shows that these technologies are increasingly being used in education and training sector. For several years now, information and communication technologies (ICT) have been part of the pedagogical and didactic act. This reality continues to grow and shape the educational landscape worldwide.

The use of ICT in learning can change the way knowledge is transmitted and appropriated. Will the learner, placed in front of a computer or a tablet, be a passive consumer or will he/she be allowed to integrate the technology in a more critical and participative framework?

Like many countries, Morocco has shown a strong commitment to the integration of information and communication technology in education (ICTE) via programs such as Genie[5] and others. Considerable offers have been made to schools throughout the kingdom in terms of products, hardware, software and training programs. All this deployment had little impact on the objectives set, as the expected results were not forthcoming.

Literature review on information and communication technologies for education (ICTE) raises a number of important issues and challenges related to the use of ICT by teachers and students in the context of the teaching-learning situation.

In recent years, higher education in Morocco has undergone a new strategy that aims to improve quality, productivity, to harmonize it with international standards and to modernizing its infrastructure via the implementation of an emergency program. The objective is to put the student at the center and to integrate ICT in education within the framework of the national strategy called "Morocco Digital 2013"[6] (Hantem, 2020). Morocco Digital 2013 is a national strategy aimed at positioning Morocco as a regional technology hub and inserting it, through its companies and universities, in the global knowledge economy. At the level of universities, it

[4] New Information and Communication Technologies

5 **Gén**éralisation des Technologies d'**I**nformation et de Communication dans l'**E**nseignement au Maroc. In English : The acronym Génie stands for Generalization of Technologies of Information & Communication in Education in Morocco

6 In French : Maroc Numeric 2013

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consists in supporting them with needed equipment and training of teachers.

The teaching mission is transforming professor's role from an educator to a facilitator (Geng, Law, & Niu, 2019). For (Buabeng-Andoh, 2015), teaching staff members in form of professors, lecturers and teaching assistants are the key players. They should have high confidence in ICT and be ready to integrate it successfully while delivering their classes. At the same time, students' readiness (hardware, software, broadband and preparation) does also impact the new learning space and style (Mirzajani, Mahmud, Fauzi Mohd Ayub, & Wong, 2016).

During the pandemic, professors and students were using different means of communication to provide remote courses such as are platforms and video conferencing (Microsoft Teams, Blackbord, Zoom, Classroom, Facebook, Whatsapp). Many Moroccan universities and educational institutions started using more ICT tools such as laptop, projectors, tablets, smart phones, iPads and interactive white boards in addition to different educational software and learning applications (Hantem, 2020).

For the World Bank (World Bank, 2020b), there are various challenges to online education:

- Online learning transition is not an easy mission even for the readiest countries
- Online learning may not provide egalitarian learning as poor families cannot afford to have the necessary resources: internet, connected hardware, software, adequate space at home to have a videoconference...
- Students who have had previous online experience are the ones who benefit from online classes the most (first mover advantage)
- Online education might lead to medium results at first. It is a learning curve where student, professors and administration learn in process and develop their knowledge in a continuous way.
- Adapting current curriculum to online teaching is key as the method, results and evaluations are different
- As many students use their mobile to connect to their classes, it will be interesting to adapt the content to use friendly platforms and screens
- Facilitating internet access to students at times where major operators for example in Morocco kept same prices and offers instead of contributing to facing the pandemic by making specific offers to students
- Considering offline solutions. In Morocco, a TV channel focused on educational programs for primary and secondary student but not HE unfortunately
- Training and coaching educational staff
- Offering Educational programs to explain online learning usage
- Considering that some topics are easier to be thought online then others, so each subject should be treated differently.

➢ *Infrastructure*

Infrastructure in key in maintaining the HE through online platforms and systems. ICT relies on internet, on hardware and on software. Local institutions were never prepared to this unprecedented event and at a large scale where ethe whole country was on lockdown. Even the World Bank was expecting that only few institutions will be considered ready at 100% as resources were not refreshed on a timely manner. In fact, keeping up with technological advances and updates for the infrastructure does come with a price tag that managers are not ready to pay (except when they see the real urge to do it) (World Bank, 2020b).

In order to enhance the quality of teaching and learning, many institutions focused on the development and use of multimedia-enhanced content through the use of ICT (CoSN, 2020; Smith & Judd, 2020; UNESCO, 2020; World Bank, 2020b). This included digital instructional materials involving text, graphics, audio, and animations. According to (Thomas & Israel, 2013), teachers do enjoy such content because it allows them to give their student a more open view of subject interpretation and explanation.

The appropriate use of multimedia-enhanced content is also appreciated by students who find it more entertaining and easier to understand as it involves more elements than simple writing: pictures, videos, colors, sounds, testimonials... Lee, Hsiao and Ho (2014) do confirm that the use of ICT tools can help improve students understanding. For (Hennessy, Deaney, & Ruthven, 2006), such content does also simulate real processes and allow learners to execute virtual experiments at a lower cost than in normal life or at school.

The notion of interconnection is crucial. For SMATI, R. (2011), "the interconnection of humans that the Internet allows inaugurates a new model of civilization, in which everyone contributes, shares, and disseminates information, thus participating in the event of a collective intelligence". Internet users can have free access to the data. Some websites can be "fed" by both teachers and students (example: the use of google suite). For example, WIKI is a collaborative tool that we cannot only consult but also modify.

➢ *Politics of Resistance*

Change always drives resistance and covid-19 did bring enormous sudden forced changes to the way teaching was conducted. It was a true revolution that had to be put in place in no time. HE systems did move to online teaching and the rest of the society was either applauding this full swing move or criticizing the outcome of such a method that they deemed inefficient. This pole of education was politically matched to existing agendas and many theories were raising regarding its outcome (Czerniewicz, 2020). People with limited ICT knowledge started driving some conspiracy theories regarding distance and hybrid education (Zhang et al., 2020). Multiple international organizations such as UNESCO agree that the shift to online learning is a complicated one which did bring as expected resistance to change and political demotivators. However, they state that this shift is mandatory nowadays and given the circumstances (UNESCO, 2020). World Bank did share in its report (World

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Bank, 2020b) that there are not enough studies that did document this shift in order to draw meanings for the future of the educational systems with or without Covid 19.

To facilite acceptance and compliance of this change, many common programs and curriculums were put in place in education with the objective to serve most of the population the same way. For (Murgatrotd, 2020), it is important to adjust strategies to specific contexts by keeping in mind existing differences, alliances and perspectives in certain institutions. At the same time, different HE institution used different methods to ensure the educational continuity: YouTube classes, projects, Google Meet, replacing face to face examinations with projects and online presentations.

- *Stakeholders Readiness*

One of the recommendations of the American Psychological Association is to encourage lecturers‟ to implementing ICT integrated learning environment for students (Li, Yamaguchi, & Takada, 2018). Willingness for change and engagement are major factors that enhance successful integration of ICT within education in order to enable students and professors to achieve efficient learning that is updated and modern (Ertmer & Otternbreit-Leftwich, 2019; Lilllejord, Børte, & Ruud, 2018). Before ICT can be effectively integrated lecturers‟ should be provided adequate training and support in ICT and pedagogy Yunus (2007). Thus, staff readiness and motivation are key factors for the successful usage of ICT.

Technology is a major catalyst that facilitates class delivery and preparation (Sadegül Akbaba, Kalayci, & Avci, 2011). However, for Vrasidas (2015), even when ICT infrastructure is available teachers and students might face other challenges such as lack of time for lesson preparation and unsupportive curriculum design. So having ICT infrastructure is not sufficient to put in place successful online program as it needs other key elements such as staff readiness (Vrasidas, 2015).

According to (Ali, 2019), although stakeholders do integrate ICT in their classes, their majority (92%) still believes that they still lack confidence on technology. This confusion can be due to the usage of multiple tools and learning platforms. Thus, it is important to train staff and to get them ready during the pandemic as advised World Bank. Moreover, they insist on the importance of having the necessary physical and moral resources, training, broadband and a connected device at home, that will facilitate online education (World Bank, 2020b).

Research in this context therefore addresses several aspects, including the challenge of competencies, the quality of teaching and learning, the pedagogical environment, accepting change and many other factors.

CSEFRS[7] (Conseil National de l’éducation, 2015) recommends in its report to push for a change in the role of the teacher to become a "pedagogical actor". "Pedagogical actor" is a complex term around which several notions and concepts can revolve. We will limit ourselves to the concept of "training engineering" and its connection with the nominal phrase "pedagogical actor". If it is true that today the emphasis is mainly put on the learner as an actor of his learning journey. However, the teacher is also a key actor as he can use digital and educational technologies. Pedagogical engineering is also a key concept of any training or pedagogical project. Digital technology is increasingly changing the context, the system and the architecture of the educational experience. The breakdown of the classic conception of teaching and learning forces the teacher to be a pedagogical actor with digital and communicational skills in order to coach, guide and federate learners that were born digitalized.

But how to transform a teacher into a pedagogical actor as stipulated by the imperatives of the situation? How will this pedagogical actor be able to transform himself in times of crisis into a magic druid who holds the formulas of an efficient distance learning? It is in this perspective that Olivier Reboul (1991), and forty years before him, Mérieu proposed the following definition of learning: "I define learning as the acquisition of a know-how, it is being useful to spreading knowledge about a topic or to others, and that he can reproduce at will if the situation lends itself to it".

Independently of the teaching-learning method, it is the acquisition of a know-how that matters. Know-how allows one to eliminate unnecessary gestures, to be able to adapt one's behavior to the situation, to use one's own resources to make the most of them, and to act intelligently. It is an active method that allows knowledge’s transfer.

Learning puts the learner in various situations that will be sources of learning based on his active participation and continuous knowledge development. The difficulty of learning comes from the fact that the learner necessarily goes through challenging moments that can put him in failure. In order to learn, he must be aware of his mistakes because they are part of the learning process. It is a conception of learning in which the learner is supposed to hold the first place in the construction of his or her knowledge through action and interaction.

- *Student Accessibility*

Nowadays students are heavily influenced by technology and connectivity worldwide. As a matter of fact, they tend to bond easily with ICT (Wahab Ali, 2018). They are called digital natives (Prensky, 2001), millennial (Howe & Strauss, 2000), net generation (Tapscott, 1998) and digital generation (Wahab Ali, 2018). (Shava, Chinyamurindi, & Somdyala, 2016) state that children nowadays are exposed to many connected gadgets such as phones and tablets since being toddlers which facilitates their acceptance rate of online education.

[7] Conseil Supérieur de l’Éducation, de la Formation et de la Recherche Scientifique (CSEFRS)

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However, this information does not mean that they are ICT experts and that their online education will be successful World Bank (2020a). According to O‟Sullivan (2018), many so-called digital natives, do shown limitations in their technology skills. For (Sommer, 2014), there is a big disparity between new generation real IT skills and the false perception that they are experts. For (World Bank, 2020b). In fact, even if students are used to IT, they might have difficulty accessing online learning due to broadband limitations and hardware failure. For Morocco, most students have access to classes using their mobile phones which is not very user friendly and practical to follow online learning.

Most Moroccan households have on average 2.5 children. Families are also not very equipped with only a PC or a smartphone which makes it extremely difficult, even impossible to manage online learning in such conditions. The Internet connection is still slow, considerably costly as data prices remained same during COVID19 and network is weak. In fact, during lockdown, the three main Internet operators in the country were facing a serious challenge in providing an Internet connection that supports the whole educational software and applications on top of home working for the rest of population. Moreover, the users, for the most part, were not used to virtual communication.

- *Future of Online Education*

Based on the report of (Conseil Supérieur de l'Education, de la Formation et de la Recherche Scientifique et Instance nationale de l'évaluation du système d'éducation, 2021), in 2015, the Strategic Vision for Reform 2015-2030 called for the development of distance learning modes. The framework law n° 51-17 relating to the system of education, training and scientific research system stipulates "the development and improvement of distance learning as a complement to face-to-face learning". Finally, a draft decree defining the modalities of implementation of distance learning was recently adopted by the Government Council. The fact that this last text was drawn up in an emergency mode does not mean that distance learning is simply a reaction to crisis management. It is rather a public policy choice made more than a decade ago. However, its implementation was only activated under the effect of the Covid-19 pandemic.

For (Journal & Education, 2022), the future of online teaching should rely on developing a plan for educational continuity in the context of a disaster, developing trainings for teachers and students in technology-based teaching, and setting up a hybrid teaching system that takes into account human resources technical and infrastructure needs, as well as the support and training of teachers and students in order to significantly improve the online course platform. Thus, online teaching should not only be used to crisis times but could be adopted also in normal times based on current experiences as it did show its positive outcomes and flexibility. Moving to a hybrid system for example depending on the subjects, the timing and the circumstances can be a new opening to the HE system in Morocco.

For (Wotto, 2020), Distance Learning faces several challenges such as the emergence and rapid growth of learning needs, appropriate training delivery, and adaptation to technological advances. As opposed to Ambient Insight Research's 2021 that projects a declining training market, technological change is creating new needs in different sectors including education and training.

According to (Conseil Supérieur de l'Education, de la Formation et de la Recherche Scientifique et Instance nationale de l'évaluation du système d'éducation, 2021) , the future of online education in Morocco depends on different factors such as : Teachers' readiness to repeat the distance education experience, Conditions for quality distance education according to teachers and Distance learning and personal data protection. As far as conditions to enable online education are concerned, the report cites: investing in teacher's education, providing teachers with digital resources, ensuring that all students have ICT resources, developing teaching platforms and implementing a student support system.

IV. LIMITATIONS

The limitation of this study is that it used only meta-analysis to collect data. These results can be viewed as picture on time T of COVID 19 that shows its impact on education. We recommend for future studies to use other means such as quantiative studies as in-depth research in Morocco in order based on exploratory findings above.

V. RECOMMENDATIONS AND CONCLUSION

Looking back in time, the lockdown imposed by Moroccan government in 2002 in order to limit the spread of COVID-19 did revolutionize HE system in the country and pushed all stakeholders to adopt ICT and integrate distance learning in new ways that could never been imagined before, especially in public schools.

- *The following difficulties of distance higher education during the lockdown period can be summarized as follows:*

- Students are not familiar with ICT in teaching
- Students do not always have the means to acquire a smartphone, tablet, computer, or internet connection
- Students found themselves bombarded by the load of assignments due and digital resources
- Some faculty were not sufficiently engaged or who do not regularly integrate ICT into their teaching and learning practices.

- *For (Hantem, 2020), to counteract all the challenges faced by schools and professors are handicaps, he advices to:*

- Improve and strengthen communication between faculty and students
- Use other platforms and not be limited to one or two

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- Prepare and pre-record videos and post them to platforms
- Avoid overloading students, review the pace of assignments to be turned in (number and deadline)
- Allow free access to digital libraries.

➢ *As Such it is Recommended to:*

- Follow World Bank recommendations and put in place in case of distance learning
- Provide HE Institutions with basic ICT Infrastructure
- Enable staff access to ICT tools, applications and learning platforms
- Train all stakeholders and enable them to make proper usage of ICT tools and to conduct decent online classes
- Prepare staff and student to be ready to shift to online education

COVID-19 enforced the move to online education which came with its challenges: technical, pedagogical and instructional. Technical challenges are due to the lack of resources: hardware, software, internet access. Pedagogical challenges are related to the fast shift to digital world instead of the physical classroom (CoSN, 2020). Instructional challenges are related to preparing and adapting new teaching materials, curriculum and online assessment. Since technology is the delivery platform, it requires a close cross-collaboration between instructional, content, and technology teams. These challenges need to be managed carefully and in integrated manner while using ICT transformation.

This research is a good baseline for further studies focusing on online learning transformation. In fact, many students and teachers expressed their satisfaction with the use of ICT in education. It was a life changing experience that opened doors to news ways of working and teaching beyond the physical space. The pandemic Covid-19 introduced nontraditional ways of learning based on IT technology, telco and internet. It is a true ice breaker that opened doors to new ways of learning and teaching. Now, they have more experience and lessons learned that can be used to revolutionize classical education and move to new online and hybrid modes.

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