
| RESEARCH ARTICLE

Navigating the Virtual Shift: Moroccan Educators' Perspectives on Distance Teaching Challenges, Opportunities, and Pathways Across Pre, During and Post-COVID-19 Period

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| ABSTRACT

This article examines the impact of Covid-19 pandemic on distance teaching in the Moroccan context. It tries to determine how the sudden shift from the actual to the virtual has reshaped education landscape in Morocco. Middle and High school teachers are used as illustrative examples in an attempt to understand the interplay dynamics between online teaching experience and student learning. Several studies documented that due to the outbreak of Covid-19, the use of ICT was further accelerated and that the transition to online learning was an eminent decision to deal with the new imposed situation. As Covid-19 created an unanticipated experience for teachers, many reactions came out to reconceptualize, redefine and adapt the teaching practices during the school closures. Middle and high school Moroccan teachers found themselves transitioning to remote teaching courses using various digital platforms. This led to the creation of a new and complex teacher-learner interaction. This paper engages with three phases of online teaching pandemic: the pre, the while/during and the post. We argue, amidst Covid-19 pandemic that caught teachers and students off guard, the online teaching experience that teachers went through during the lockdown has triggered a new hybrid approach mixing the traditional in-class face-to-face education with online education. Under such circumstances, the key to success lies in the development of appropriate and innovative instructional practices. A case study-approach was used to obtain further in-depth information on how Moroccan educators conduct their teaching in times of crisis. The purpose of this paper is twofold: a) to show how the impact of Covid-19 crisis has brought to the forefront the issue of teaching outside classrooms walls; and (b) to provide insights that could potentially improve and make e-learning effective.

| KEYWORDS

Covid-19; distance teaching; pre-while-post phases; Moroccan context

| ARTICLE INFORMATION

ACCEPTED: 15 April 2025

PUBLISHED: 26 May 2025

DOI: 10.32996/jeltal.2025.7.2.18

1. Introduction

From the brick and mortar setting, both teachers and students shifted to the online platforms as a response to the Covid-19 pandemic. In Morocco, the state, with its various apparatuses mobilized and coordinated at higher levels, quickly and effectively. The outcome was a bunch of measures issued and implemented with the primordial goals of protecting the lives of the people and, at the same time, ensuring that the supplies of goods and food are unobstructed to the inhabitants. The precaution measures subsume social distancing, a general lockdown, the wearing of masks and a ban on some social practices. Being the case, teachers and educators found themselves in a situation where a shift from on campus to the digital classroom was inevitable. As a result, teachers carried on their lessons through the Internet that "creates multiple spaces and time of learning: within school, outside school and in nontraditional learning settings" (Nachmias et al., 2008).

In fact, the COVID-19 pandemic triggered an unprecedented global shift in education, compelling institutions worldwide to abandon traditional brick-and-mortar classrooms for online platforms almost overnight. In Morocco, as elsewhere, this transition was not merely pedagogical but a necessary response to a public health emergency. The Moroccan government acted swiftly, implementing stringent measures (social distancing protocols and mask mandates) to curb the virus's spread while ensuring continuity in essential services, including education (Ministry of Education, 2020). These measures, though critical for public safety, thrust teachers and students into a radically altered educational landscape, where the digital classroom became the sole arena for teaching and learning.

That said, the abrupt shift underscored the transformative potential of technology in education, which "creates multiple spaces and times for learning: within school, outside school, and in non-traditional learning settings" (Nachmias et al.'s 2008). However, it also exposed systemic vulnerabilities in Morocco's educational infrastructure, particularly in terms of digital readiness, equitable access, and pedagogical adaptability. While some educators and students navigated this transition with relative ease, many others faced significant hurdles, from inadequate technological resources to gaps in digital literacy (El Firdoussi et al., 2023).

Against this backdrop, this paper seeks to critically examine the impact of the COVID-19 pandemic on online teaching in Morocco. Guided by three research objectives: *RO1*: To examine the impact of the COVID-19 pandemic on online teaching in Morocco. *RO2*: To investigate how prepared teachers were to respond to the sudden move from face-to-face instruction to virtual teaching. *RO3*: To assess the role of technology tools in helping teachers meet students' needs during the lockdown, the study aims to address the following research questions: *RQ1*: To what extent have Moroccan teachers adapted to the sudden shift to online teaching caused by the COVID-19 pandemic? *RQ2*: What challenges did teachers face in conducting classes during the lockdown period? *RQ3*: To what extent are teachers willing to adopt a blended model of instruction post-pandemic? In order to answer the above questions, the study presupposes the following hypotheses: *RH1*: Teachers could swiftly adapt to online teaching in times of crisis. *RH2*: The success of online courses during crises depends on (a) student engagement and (b) access to technical logistics. *RH3*: The pandemic accelerated the adoption of a hybrid teaching model, blending traditional and online methods.

Taken together, the paper is organized as follows. There are two main parts: a theoretical framework and a practical discussion. The latter is further organized into three subsections, reflecting the chronological phases of the pandemic's impact: the Pre-Pandemic phase investigates Morocco's digital readiness and the state of online education before COVID-19; while the While-Pandemic phase focuses on the immediate challenges and adaptations during the lockdown period. Last but not least, the Post-Pandemic phase sheds light on the lasting changes and the potential for hybrid learning models in Moroccan education.

By weaving together empirical data, teacher testimonies, and policy analysis, this study aims to contribute to a deeper understanding of how Morocco's education system responded to the pandemic's disruptions, while and how it might emerge stronger and more resilient in its aftermath.

2. Literature Review

More recent attention has focused on the efficiency of distance learning in Morocco under the Covid-19 lockdown. In a recent study, Bentata (2020) argues that under confinement measures, which started on March 16th, 2020, neither teachers and institutions, nor students were prepared for such an abrupt shift from face-to-face to online courses. However, University Mohammed First of Oujda set an e-learning platform five years ago. This provided students with courses accompanied by audio sequences, recorded videos. Other professors organized classes using Zoom, Google Meet, Google Classroom, or Facebook. Bentata contends that distance learning is a good alternative for theoretical instruction, with the objective of ensuring a solid knowledge of fundamentals, preclinical, and clinical sciences. On the other hand, when it comes to the practical teaching, distance learning is not enough as the former is usually undertaken during rotations at the patient's bedside in the university hospital. Therefore, Bentata suggests that more active methods, such as online organization of practice sessions, discussion of clinical uses, and medical simulation software. Despite these pitfalls, Bentata holds a positive view vis-à-vis distance learning and teaching as she thinks that weak points have been identified and will be made up for gradually.

Still, within the Moroccan context, Chraa et al demonstrate how the Centre Pédagogique des Métiers de l'Education et de la Formation-Souss Massa (CRMEF-SM) adopted Moodle, an open access virtual platform that promotes active and collaborative learning (Costello, 2013). During the time of Covid-19, 1700 teacher trainees were enrolled in this training centre. Trainers had limited experience with online coursework, while others were using online platforms such as Edmodo, WhatsApp, Facebook. However, when a shift from face-to-face to online training was compulsory, the centre was not fully ready for online instruction. Consequently, a crisis steering committee was mobilized, and action plan was developed by this centre's pedagogical committee

and Information and Communication Technology (ICT) trainers. The chief priority was the selection of a virtual platform that fulfills four criteria: a) centralization and formalization of courses; b) provision of a virtual instructional space adoptive to trainees' needs; c) progress reporting at course and individual levels; and d) Learning spaces where trainees participate in constructing their knowledge should be created. In this respect, Chraa et al (2020) argue that a Moodle space was created for each department. Modules, training materials, and video tutorials were shared; online meetings were organized using Google Meet and Zoom to offer Moodle demonstrations. Findings show that the movement to virtual learning was marked by high levels of engagement. Two weeks were enough for the 1700 teacher trainees to engage in courses using Moodle platform. (Chraa et al., 2020).

As for the strengths of video conferencing in pandemic crisis, Lisa Dawley (2007) argues that software features often subsume the ability to engage in conversations, which occur in multiple forms, namely text or PowerPoint slides, audio and video, file sharing between users; by the same token, it features nonverbal gestures, such as smiles, eyebrows movement, shoulder shrugging and hand gestures.

Last but not least, it is worth noting that despite the sudden change in the educational system which was imposed by Covid-19, these studies support the claim that online courses can raise learners' curiosity and motivation, and therefore, increase their learning and assimilation of knowledge. More time and efforts are required for the enhancement of online learning process in the post-Covid-19 crisis. In relation with this review of the literature, the research method to be adopted in this study is outlined hereinafter.

3. Methodology

3.1 Study Design

In order to analyze the impact of covid-19 pandemic on online teaching in Morocco, the study adopted a qualitative and quantitative study of data (mixed-method research). Qualitative and quantitative methods offer an effective way to examine and investigate teachers' attitudes about virtual teaching in times of crisis. This method falls within the scope of pragmatism. The pragmatic view is often linked with mixed methods research, because they both accept the idea that qualitative and quantitative methods are indeed compatible (Howe, 1988, as cited in Graff, 2012). In fact, from the pragmatic perspective, the problem is most important and researchers use all the approaches to understand the problem (Creswell, 2003). Based on this, quantitative data were extracted from a sample of one hundred respondents ($n = 100$). A questionnaire was used as a tool for data collection. At the level of analysis, quantitative data was merged with qualitative data. The latter subsumes teachers' experiences.

3.2 Research objectives

RO1. To examine the impact of covid-19 pandemic on online teaching in Morocco

RO2. To investigate how prepared teachers were to respond to the sudden move from face-to-face classroom instruction to virtual teaching.

RO3. To show how technology tools have helped teachers to meet their students' needs during the lockdown.

3.3 Research Questions

Given that the primary objective of this paper is to investigate the impact of covid-19 pandemic on online teaching in the Moroccan context, the following research questions are proposed:

RQ1. To what extent have Moroccan teachers been adapted to the sudden shift to online teaching caused by the Covid-19 pandemic?

RQ2. What type of problems have teachers faced in their conducting of classes in the lockdown period?

RQ3. To what extent are teachers willing to use a blend of face-to-face and online models of instruction in their courses?

3.4 Research Hypotheses

RH1. It is assumed that teachers can swiftly adapt to teaching online in times of crisis

RH2. The success of carrying out online courses effectively and efficiently in times of crisis lies on : a) students' engagement and b) having technical logistics.

RH3. It could be argued that the move from traditional teaching methods to online teaching will result in a new hybrid model of instruction.

3.5 Data Collection & Instrumentation

As it has already been mentioned, the aim of this study is to investigate the impact of Covid-19 pandemic on Moroccan teachers' online teaching practice, emphasizing the teacher's experiences during the pre-, while and post teaching crisis. Due to the lockdown, the questionnaire was electronically delivered using snowball technique. It was sent to middle and high school teachers via emails, WhatsApp and Facebook messenger. It was also posted on Facebook pages. Respondents were assured that

their identity would be kept anonymous. They were asked to share it with their fellow teachers. Therefore, the questionnaire was completed online (Google Forms) by 100 respondents: in-service middle and high schools teachers.

The questionnaire consisted of twelve questions; seven of them were of closed-ended type (including a total 45 items) in a Likert-type scale (strongly disagree, disagree, not sure/not applicable, agree, strongly agree). It was a methodological choice that the Likert-type scale questions came last so that the respondents would not be influenced by the specific items of the closed-ended and open-ended questions which proceeded. The responses were quantitatively processed on SPSS and qualitatively commented on.

According to Creswell (2009), demonstrating the validity of a survey questionnaire involves examining content validity, predictive or concurrent validity and construct validity. In this case, content validity was ensured by carefully translating the questionnaire into Standard Arabic to cover a large population. More, in order to enhance and strengthen the validity of the research (the quantitative part/questionnaire), a pilot study process was previously conducted, resulting in rewording and explaining some of the questions/items. Construct validity, on the other hand, involved establishing how items were used to measure the attribute values of the three phases of online teaching pandemic: the pre, the while and the post. During reliability statistical analysis, a Cronbach's Alpha was used to confirm reliability of the scale and validity of the analysis. From the SPSS output below (Table 1), we can see that Cronbach's Alpha is 0,767 which indicates a high level of internal scale consistency (all variables) for this survey questionnaire.

Case Processing Summary				Reliability Statistics	
		N	%		
Cases	Valid	87	94,3	Cronbach's Alpha	N of Items
	Excluded ^a	13	5,7		
	Total	100	100,0	.767	45

a. Listwise deletion based on all variables in the procedure.

Table 1. SPSS Survey Questionnaire Reliability Test Output

4. Findings and Discussion

4.1 The Pre

The Covid-19 pandemic marked a pivotal moment for education systems worldwide, forcing a rapid shift to digital platforms. In Morocco, this transition revealed the extent to which online teaching had been overlooked before the crisis. Data collected from 100 Moroccan educators; covering middle and high schools indicates that 66% had never engaged in distance teaching before the pandemic. An additional 17% rarely did so, while only 2% always, 9% usually, and 6% sometimes used digital tools for teaching. These findings are presented in Table 1 below:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	2	2,0	2,0	2,0
	Usually	9	9,0	9,0	11,0
	Sometimes	6	6,0	6,0	17,0
	Rarely	17	17,0	17,0	34,0
	Never	66	66,0	66,0	100,0
	Total	100	100,0	100,0	

Table 2. Screening Teachers' Engagement in DT before Covid-19 Crisis
Source : Fieldwork Results

This data reflects a heavy dependence on traditional face-to-face instruction and a general lack of preparedness for digital transition. These findings thus disconfirm RH1, which suggests that teachers were already engaged in DT before Covid-19. Indeed, the overwhelming lack of experience in online education can be linked to multiple structural and pedagogical challenges. According to Benali et al. (2018), the Moroccan education system has long struggled with limited ICT infrastructure,

particularly in rural areas, and minimal investment in teacher training for digital tools. Furthermore, Belghazi (2020) highlights a cultural preference for in-person learning and a general skepticism toward the effectiveness of remote instruction.

On a side note, while the pandemic caught teachers and institutions off guard, it also served as a wake-up call. In other words, teachers were forced to experiment with platforms like Zoom, Google Classroom, and WhatsApp, often with little to no prior training, stressing that success in online learning and “emergency remote teaching” does not equate to long-term readiness (Hodges et al., 2020). Indeed, the data revealed a significant lack of prior engagement in online teaching among educators. With approximately 66.5% of teachers indicating that they had “never” been engaged in distance teaching before the COVID-19 crisis, this data suggests a substantial gap in experience and preparedness for the sudden shift to online education.

The table data above on Moroccan educators’ perspectives on ICT and e-learning, especially from the question regarding teachers’ perceptions of distance teaching (DT), thus clearly illustrates the low level of digital teaching engagement before Covid-19 and underscores the need for strategic investment in educational technology and professional development. Actually, before Covid-19, fewer than 30% of Moroccan teachers had used digital tools in teaching, citing lack of training, infrastructure gaps, and resistance to change (Bouziane & Ait Kbir, 2020); while only 12% of rural schools had reliable internet, exacerbating inequities (Muñoz-Najar et al., 2021). The crisis has in fact set the stage for hybrid learning models, as now being seen a viable future for Moroccan education (Zouhir, 2021).

At any rate, data from Table 3 below revealed a nuanced perspective among teachers regarding distance teaching as an effective solution for education. A significant portion of respondents (30%) agreed that distance teaching is an effective solution, while 25% remained neutral, indicating a level of uncertainty about its efficacy. However, 30% of teachers expressed disagreement with the statement, suggesting that a considerable number of educators may not fully endorse distance teaching as a viable alternative to traditional classroom instruction. In fact, many educators faced challenges in adapting to online teaching, which may contribute to their skepticism about its effectiveness (Hodges et al., 2020).

Moving on, when asked about their confidence in teaching effectively online, 25% of respondents agreed, while 20% remained neutral, and 40% expressed some level of disagreement. This shows a lack of confidence among a significant number of teachers who emphasized that effective online teaching requires not only technological skills but also pedagogical strategies tailored for virtual environments (Gonzalez et al., 2020). Furthermore, 30% of teachers indicated that they would like to receive more training in distance teaching methods, highlighting therefore a clear demand for teachers’ professional development to effectively integrate technology into their teaching practices (Darling-Hammond et al., 2017).

Overall, the data suggests that while there is some recognition of the potential of distance teaching, significant barriers related to confidence, resources, and training remain, necessitating targeted interventions to enhance educators’ preparedness for online instruction.

STATEMENT	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	TOTAL RESPONSES
1. I have prior experience with distance teaching before the COVID-19 pandemic.	66.5%	20%	10%	3%	0.5%	100%
2. I believe distance teaching is an effective solution for education.	30%	25%	20%	15%	10%	100%
3. I feel confident in my ability to teach effectively online.	35%	30%	20%	10%	5%	100%
4. I have access to the necessary resources for effective distance teaching.	40%	30%	20%	5%	5%	100%
5. I would like to receive more training in distance teaching methods.	5%	10%	15%	30%	40%	100%

Table 3. Teachers' Perceptions of Distance Teaching Effectiveness Prior to the COVID-19 Pandemic,

Source : Fieldwork Results

Within the horizon of discussion on pre-pandemic (un)readiness, it should be noted though, that Morocco's experience is a reminder that digital integration must be proactive, not reactive. With appropriate support, hybrid models combining traditional and digital methods could enhance learning accessibility and quality, especially in underserved areas, raising questions about how this sudden change affected their professional and personal lives. The section that follows interrogates how such a proactive approach to digital integration could help mitigate the challenges faced during the pandemic and better prepare educators for future disruptions.

4.2 The While

The Covid-19 pandemic forced an unprecedented global shift from traditional classroom teaching to online learning, catching many educators off guard. In Morocco, middle and high school teachers had to abruptly transition to digital platforms, raising questions about how this sudden change affected their professional and personal lives. Drawing on academic research to explore the emotional, professional, socioeconomic, and physical challenges teachers faced, a survey of 100 Moroccan teachers (see Figure 1 below) revealed that 77% believed the lockdown "certainly" impacted them, while only 4% reported no significant effect. The findings showed how this crisis has reshaped education, leading to a potential hybrid model of teaching in the post-pandemic era.

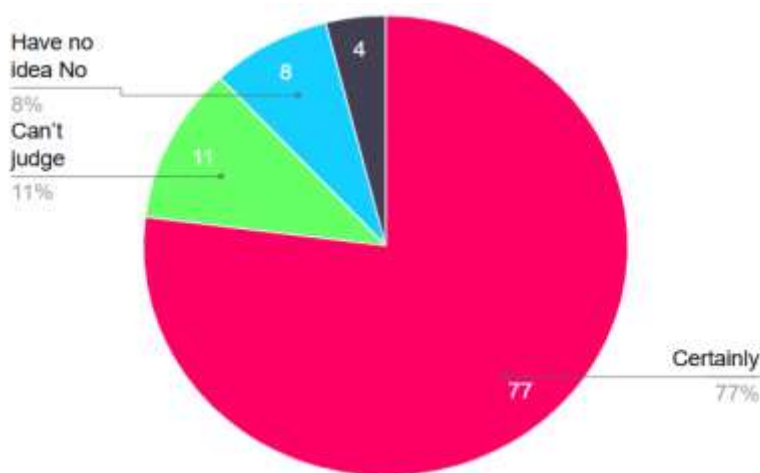


Figure1. Screening Pandemic Impact on Teachers' Professional and Private Life
Source : Fieldwork Results

The high percentage of teachers (77%) who acknowledged the lockdown's impact suggests that the transition was far from smooth. The sudden move to online teaching created stress, anxiety, and an overwhelming workload, as educators struggled to adapt lesson plans, learn new technologies, and maintain student engagement (Bozkurt & Sharma, 2020). Unlike structured online learning programs, Emergency Remote Teaching (ERT) was implemented without proper training, leaving many teachers feeling unprepared (Hodges et al., 2020).

Additionally, 11% of respondents were uncertain "Can't judge", and 8% had no clear opinion "Have no idea", which may signal varying levels of digital literacy or differing personal circumstances. Some teachers may have had prior experience with e-learning tools, while others, (mainly in rural or under-resourced schools) faced greater difficulties due to limited internet access and technological infrastructure (El Firdoussi et al., 2020).

If Research Hypothesis 1 (RH1) presumed that Moroccan teachers were well-prepared for digital transition, the survey results disprove this assumption. The overwhelming majority reported significant disruptions, reinforcing the idea that the shift was reactive rather than strategic. Studies confirm that many Moroccan educators lacked formal training in digital pedagogy before the pandemic, leading to improvised teaching methods and inconsistent student learning outcomes (Trust & Whalen, 2020).

Beyond pedagogical struggles, the lockdown blurred the boundaries between professional and private life. Teachers reported longer working hours, as they had to create digital content, respond to students outside traditional school hours, and manage technical issues (Greenhow et al., 2020). The 4% who reported no impact may represent teachers with strong digital skills or those in well-equipped urban schools, highlighting inequalities in resource distribution.

Economically, many teachers incurred additional costs, such as purchasing better internet plans or devices, without institutional support. Physically, increased screen time led to fatigue, eye strain, and musculoskeletal problems, further affecting their well-being (Dhawan, 2020).

Despite initial struggles, the pandemic accelerated the adoption of digital education in Morocco; which ultimately "triggered a new hybrid approach", blending traditional and online methods. While the transition was chaotic, it revealed opportunities for innovative instructional practices, such as flipped classrooms and blended learning (Trust & Whalen, 2020). However, for this model to succeed, Morocco must invest in teacher training, digital infrastructure, and equitable access to ensure all educators and students benefit.

Overall, it could be argued that the sudden shift to online teaching during the Covid-19 lockdown had a profound impact on Moroccan teachers, with most facing emotional, professional, and logistical challenges. The findings contradict assumptions that educators were prepared for the digital transition, instead highlighting systemic gaps in training and resources. Yet, the crisis also paved the way for a more flexible, hybrid education system. Moving forward, policymakers must address these disparities to create a more resilient and inclusive learning environment for future disruptions.

The data presented in **Figure2** provides clear insights into Moroccan middle and high school teachers' satisfaction with distance teaching (DT) during the Covid-19 pandemic. The finding reveals that only **14% of respondents were fully satisfied**, while the **largest proportion (42%) reported being only partially satisfied**. Additionally, **24% were moderately satisfied**, **8% remained undecided**, and **12% were clearly unsatisfied**. These figures highlight a significant **ambivalence or lack of full endorsement** of the emergency remote teaching model. With **66% of respondents falling into either the 'partially satisfied' or 'moderately satisfied' categories**, the overall tone reflects cautious acceptance rather than enthusiasm. This suggests that while teachers made efforts to adapt, their experiences were shaped by **multiple limitations**, confirming **Research Hypothesis 2 (RH2)** that assumes moderate to low satisfaction levels among teachers during the pandemic.

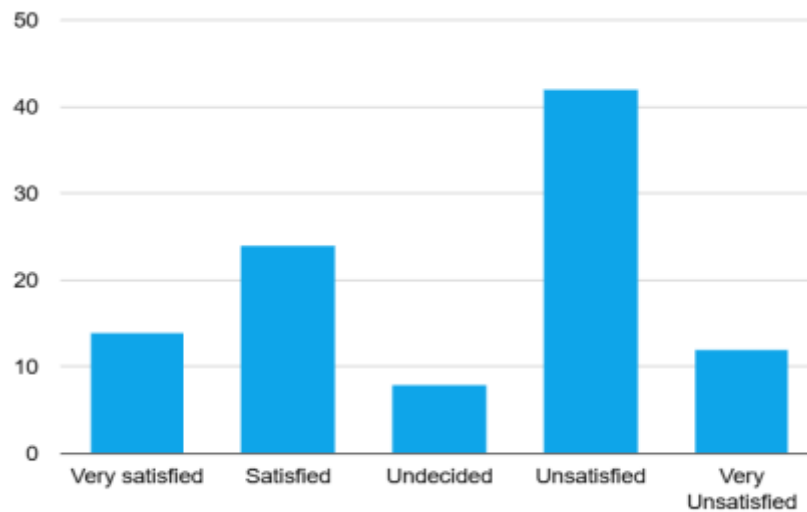


Figure 2. Screening Teachers's Satisfaction with DT during Covid-19 pandemic
Source : Fieldwork Results

Then again, the statistical trends corroborate the broader arguments raised by the present study. Specifically, the **sudden transition to digital platforms** during the pandemic created a learning environment that was **improvised and reactive**, rather than strategic and well-supported. The **"new and complex teacher-learner interaction"** mentioned earlier likely contributed to both technical and pedagogical challenges, which may explain the **low satisfaction rates**. The ambiguity in satisfaction levels also underscores how **insufficient training, digital infrastructure gaps**, and the **lack of a clear pedagogical framework** during the emergency period hampered teachers' ability to effectively deliver content.

Furthermore, this mixed satisfaction is indicative of a broader systemic issue in Moroccan education, namely the **need for a long-term, sustainable integration of digital learning tools**. The findings suggest also that while teachers adapted under pressure, their satisfaction levels reflect a strong desire for **more coherent policies, better support mechanisms**, and **contextually relevant professional development** to handle such disruptions.

Considering all the foregoing, the data reinforces indeed the study's central claim: **Covid-19 acted as both a disruptor and a catalyst**, pushing educators toward hybrid education models, but without the necessary groundwork, the shift remained incomplete and dissatisfying for many. The insights gained from this point toward a critical need for rethinking instructional design in Moroccan education post-pandemic; not just as a contingency, but as a future-facing model.

In the same line of thought, the data (see Table 2 below) indicates that only 9% of teachers reported high student engagement (70-90%) during online classes, while 28% noted average engagement (35-49%), highlights significant challenges in fostering effective online learning environments, while also showcasing how engagement is critical for successful learning outcomes, particularly in online settings (**Baker,2010**).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Low Engagement	20	20,0	20,0	20,0
	Low Engagement	24	24,0	24,0	45,0
	Moderate Engagement	28	28,0	28,0	73,0
	High Engagement	19	19,0	19,0	92,0
	Very High Engagement	7	7,0	9,0	100,0
	Total	100	100,0	100,0	

Table 3. Screening Students' Engagement With DT
Source : Fieldwork Results

In this respect, Baker argues that engagement encompasses behavioral, emotional, and cognitive dimensions, and the lack of interaction observed in the study suggests deficiencies in these areas. **Garrison & Anderson (2003)** introduced the Community of Inquiry framework, which posits that effective online learning requires the interplay of social, cognitive, and teaching presence. The weak interaction reported by teachers may indicate a lack of social presence, which is essential for creating a supportive learning environment. The abrupt transition to online learning due to the pandemic likely hindered the establishment of this presence, as teachers were unprepared to facilitate meaningful interactions in a virtual context.

In the same vein, **Moore (1989)** identified three types of interaction essential for distance education: learner-content, learner-instructor, and learner-learner interactions. The findings suggest that the learner-learner interaction was particularly weak, which could explain the low engagement levels. The lack of peer interaction may have contributed to feelings of isolation among students; as social interaction is a key factor in maintaining student motivation in online learning environments (**Hwang & Chang, 2011**).

The findings also resonate with **Dziuban, Hartman, & Moskal (2004)**, who discussed the importance of instructional design in online education. They argue that effective online courses must be intentionally designed to promote engagement and interaction. The data suggests that many teachers may not have had the necessary training or resources to design engaging online learning experiences, which could explain the average engagement levels reported.

Arguably, the low levels of student engagement during the lockdown underscore the need for educators to adopt innovative instructional practices. **Salmon (2000)** proposed a five-stage model for online learning that emphasizes the importance of building community and fostering interaction. Implementing such models could help educators create more engaging online environments that promote higher levels of student participation.

Significantly, **Bonsignore et al. (2016)** highlight the role of technology in enhancing student engagement. They suggest that incorporating interactive tools, such as discussion forums, quizzes, and collaborative projects, can significantly improve student interaction and motivation. Educators should consider integrating these tools into their online teaching practices to foster a more engaging learning experience.

More to the point, the findings (see Table 4 below) from the survey questionnaire (Question 4) reveal significant challenges faced by teachers during distance teaching, particularly concerning online interaction. The data indicates that a substantial majority (63%) of teachers reported dissatisfaction with internet connectivity, which is a critical factor in the effectiveness of online education. Only a small fraction (1%) of respondents indicated that they did not encounter any problems, highlighting the pervasive nature of these issues.

Category	Frequency	Percent	Valid Percent	Cumulative Percent
Internet connection cuts	63	63.0%	63.0%	63.0%
Lack of digital resources (books, files..)	6	6.0%	6.0%	69.0%
Students' interaction is not effective during digital classes	22	22.0%	22.0%	91.0%
Uninterested students disturb and interrupt the lesson	8	8.0%	8.0%	99.0%
Other: Nothing	1	1.0%	1.0%	100.0%
Total	100	100,0	100,0	

Table 4. Distribution of Issues Faced During Digital Classes

Source : Fieldwork Results

The most pressing problem identified by teachers was internet connection cuts, affecting 63% of respondents, since successful online learning heavily depends on having reliable internet access; in contrast to poor connectivity that can lead to interruptions in teaching and learning, ultimately hindering educational outcomes (Huang et al., 2020). Actually, the reliance on stable internet connections is particularly crucial in distance education, where face-to-face interaction is replaced by virtual communication.

A smaller percentage of teachers (6%) reported a lack of digital resources, such as books and files. This issue can significantly impact the quality of instruction, as educators may struggle to provide comprehensive learning materials. Bates (2019) highlights that access to digital resources is essential for effective online teaching, and the absence of such resources can limit both teaching effectiveness and student engagement. In addition, 8% of teachers reported that uninterested students disturbed and interrupted lessons. This behavior can further exacerbate the challenges of online teaching, as it detracts from the learning environment. In their turn, Martin & Parker (2014) found that student motivation and engagement are critical for maintaining a productive online classroom, and disruptions can lead to frustration for both teachers and students.

Admittedly, the findings confirm the second research question (RQ2) regarding the nature of problems teachers face in online interaction and support the hypothesis (RH2) that these issues significantly affect distance teaching. The cumulative impact of these challenges underscores the need for improved infrastructure, resources, and strategies to enhance online teaching effectiveness. As educators reflect on their experiences during the pandemic, there is a clear opportunity to enhance instructional practices and improve student engagement in future online learning scenarios.

4.3 The Post

A more tentative analysis of DT experiences in the post Covid-19 pandemic period, gathered from the qualitative data, reveals a complex landscape of perceptions, characterized by a mix of positive, neutral, and negative responses. This analysis aims to contextualize these findings within the broader framework of educational research, particularly focusing on the challenges and opportunities presented by the post shift to online learning.

Viewed in this light, a subset of teachers expressed positive sentiments about their DT experiences, describing them as "good," "interesting," and "amazing", suggesting that, despite the challenges, there were instances where innovative practices emerged, allowing for effective engagement with students that emphasize the importance of social presence in online learning environments, which can enhance the educational experience. These responses reflect, indeed, a recognition of the potential benefits of online education, such as flexibility and the opportunity for creative teaching methods (Garrison & Anderson, 2003).

Moreover, the notion of distance education as a "turning point" in professional life is significant as many teachers not only found that online teaching can foster creativity and new pedagogical approaches, but also helped them both into a) leveraging technology to create meaningful learning opportunities and b) fostering collaboration and interaction (Darling-Hammond et al., 2017; Gonzalez et al., 2020; Salmon, 2000). Table 4 below gives more insights in to this point

However, the neutral responses indicate a level of ambivalence among teachers regarding their online teaching experiences. Phrases such as "interesting but difficult" and "needs development" (see Table 4) suggest that while teachers recognized the

potential of online education, they also faced significant hurdles. To fully capture the dialectical nature of DT, it is helpful to turn to Moore's (1989) theory of transactional distance, which posits that the effectiveness of distance education is influenced by the perceived distance between teachers and students. The neutral responses may reflect a struggle to bridge this gap, particularly in a context where many teachers and students were unprepared for the sudden transition to online learning, suggesting that while online learning can be effective, it requires ongoing refinement and support to meet the needs of both educators and students (Hodges et al., 2020).

Moving on, there are several lines of negative responses which can be distinguished in discussions on DT as follows. The first highlighted significant concerns about the effectiveness of distance education. The second is that most teachers described their experiences as "boring," "stressful," and "isolating," with many expressing dissatisfaction with the lack of interaction and logistical challenges. The third revealed significant challenges and difficulties faced by teachers in maintaining student engagement and interaction in a virtual environment, including feelings of isolation, lack of resources, and ineffective communication (Miller, 2021). The overwhelming nature of the experience, as indicated by phrases like "stress" and "fatigue," suggests that many educators felt unprepared for the demands of online teaching as they lack adequate training and resources that are crucial for successful online education (Baker et al. 2020).

RESPONSE CATEGORY	THEMES	REPRESENTATIVE PHRASES	FREQUENCY
Positive	Flexibility and Innovation	"Good, interesting, amazing" "Nouvelle intéressante" "Efficacité - continuité - implication" "ناجحة" "Virtual, flexibility" "C'était une bonne expérience" "تميزة" "It was an amazing experience" "Créativité, Persévérance, Volonté" "تجربة تعلمنا منها الكثير وكنا ندرس نحن أيضا مثل" "المتعلمين" "Un avenir prometteur."	15
	Professional Growth	"Good, easy" "تجربة جديدة مفيدة" "Defi - riche expérience - formation" "جيدة. راضية" "Good experience" "جديدة قابلة للتطوير" "Une expérience enrichissante" "التعليم عن بعد تجربة جميلة وقيمة مضافة للأستاذ والتلميذ" "une expérience inédite" "Turning point in my professional life" "تجربة" "تستحق التطوير"	11
Neutral	Potential for Development	"Students - Interaction - Internet." "Peut être développée" "تجربة وجب" "الوسائل - التكوين - حضور" "مازال الكثير بالنجاح هذه التجربة" "تطويرها" "Une technique complémentaire à améliorer" "Une expérience - effort de plus - un autre choix à exploiter" "À développer"	10
	Mixed Feelings	"Intéressante mais difficile" "Hard, busy, hectic" "Bas niveau" "ليست" "فعالة لا يجب عمل بها"	4
	Need for Support	"Boring and stressful" "Isolated" "تحتاج إلى تطوير" "مرهق" "Experience à développer." "ليس بديلا فعالا" "N'est pas efficace" "N'est pas efficace" "Plus d'effort - experience - stress"	8
Negative	Challenges and Frustrations	"C'était une expérience échouée. Comme c'est nouveau pour eux, les élèves avaient du mal à assumer une telle responsabilité." "غير راضية" "Non" "More to do" "difficile en l'absence de moyens et de formation pour les profs et les élèves" "Needs better preparation" "Il faut disposer de moyens pour réussir l'expérience" "Manque du contact direct avec les élèves" "Il nous faut de la formation et les moyens" "Stress - fatigue - double effort" "noninteractive" "Manque d'interactions" "تجربة فاشلة" "New exhausting experience" "Tiring, challenging, worthy to be tried" "عمل منهك توتر دائم" "امكانيات ضعيفة تفاعل ضئيل صبيب انترنت ضعيف" "Difficile, fatiguant, problème interaction" "التعليم عن بعد في المغرب" "تجربة فاشلة بامتياز" "Insatisfaisante" "Outil pédagogique à exploiter" "démotivante faute de réciprocité de connexion internet"	30

		<p>"Unrewarding lack of feedback patience consuming" " لن يعوض التعليم تجربة تتطلب " "Difficulté de planification et d'interaction" " الحضور تجربة مفيدة أظهرت الجانب الآخر لكل واحد منا " "المزيد من التعبئة والانخراط ينعدم فيه التفاعل والتواصل المباشر" "سواء تلاميذ ام أساتذة</p>	
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Table 5. Teachers' Perceptions of Distance Teaching Experience (DTE) During the Lockdown
Source: Fieldwork Results

At stake here is thus an emphasis on how social interaction is crucial for maintaining student motivation in online learning environments (Hwang & Chang 2011). In this reading, the lack of direct contact with students, as noted by many teachers, likely contributed to feelings of isolation and frustration. Furthermore, the logistical challenges mentioned in the fieldwork results, such as poor internet connectivity and inadequate training, further divide the gap towards having effective online teaching. The negative experiences reported by teachers underscore the need for robust infrastructure, support systems, comprehensive training and resources to facilitate and achieve successful online education (Dziuban et al., 2004).

Importantly, however, the change of perspective in DT mixed responses experiences from teachers highlights the urgent need for innovative instructional practices and improved support systems in the Moroccan educational context. In fact, the Covid-19 pandemic has catalyzed a shift towards hybrid learning models that combine traditional and online education. To capitalize on this shift, educators must be equipped with the necessary tools and training to navigate the complexities of online teaching.

Overall, the findings suggest that while distance teaching during the lockdown presented opportunities for innovation and professional growth, it also highlighted significant challenges that need to be addressed. The mixed perceptions underscore the necessity for ongoing support, training, and resources to enhance the effectiveness of distance education in the future.

5. Conclusion

This study examined the impact of COVID-19 on distance teaching in Morocco, revealing that the abrupt shift to online instruction presented significant challenges for educators, including technological barriers, difficulties in pedagogical adaptation, and student engagement issues. The findings showed that while many teachers initially struggled with the transition during lockdown, they subsequently developed a preference for blended learning approaches, recognizing their potential to complement traditional instruction when properly implemented. The study demonstrated that effective distance education fundamentally depended on student engagement and showed how the pandemic served as an unexpected catalyst for teacher professional development. To address these challenges, the study recommended comprehensive teacher training in digital pedagogy, the integration of distance learning modules into teacher preparation programs, student orientation about virtual classroom dynamics, content diversification through multimedia resources, and improved accessibility to digital platforms. The qualitative findings painted a complex picture of Moroccan educators' perceptions, revealing both skepticism about online education's efficacy and optimism about its innovative potential. The pandemic exposed critical vulnerabilities in Morocco's education system while simultaneously creating opportunities for transformation, suggesting that future success would require sustained investment in teacher support, technological infrastructure, and pedagogical research to develop distance education as an effective, rather than merely emergency, solution. Ultimately, the study emphasized the need for ongoing collaboration between policymakers, institutions, and educators to refine practices and foster meaningful learning experiences in virtual environments, building a more resilient education system capable of meeting future challenges.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

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