Attitudes of Mohammadia School of Engineering Students towards Online Learning during Covid-19 Pandemic

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1. INTRODUCTION

The year 2020 brought a new virus that took over the world suddenly and quickly. The Virus was named Covid-19. It was firstly detected in China late in the year 2019. Soon after, the virus spread widely, enforcing drastic measures such as quarantine. Covid-19 is highly contagious, so face-to-face and physical contact was banned.

Consequently, schools were closed to control the fast-spreading of Covid-19 and not make it (school) a nest of the virus. Education officials encouraged teachers to shift to online education to guarantee the education-continuity. However, the sudden shift to an online form of education uncovered many challenges and obstacles.

2. LITERATURE REVIEW

2.1. Covid-19 in Morocco

With the widespread of Covid-19 throughout the world, Morocco took some preventive measures to save the lives of its people. The first case of Covid-19 in Morocco was detected on the 2nd of March 2020. From then on, the number of Covid-19 positives rose, proving that no one is immune to the infection. On March 15th, the Moroccan state decided to close its borders and cancel all international flights. It was an unavoidable decision regarding the rapid spread of the virus. On March 20th, the Moroccan state resorted to quarantine as the last solution. Moroccans had to stay at home and only go out with written permission from the local authorities. Some jobs were granted exceptional permission, such as a grocer, pharmacists, doctors, truck drivers . . . etc.

Schools became highly dangerous. So on March 16th, the Moroccan government closed all schools and replaced in-class learning with distance education. According to UNESCO (2020), school closure affected 8,943,156 Moroccan students. To guarantee education continuity, the Ministry of education launched an e-learning platform and broadcasted many courses on national TV channels and radio stations. Naji (2020) noticed that Moroccans' interest in distance learning decreased. He declares that the Moroccan digital platform reached its climax in the number of visits on March 16, 2020, with an estimated number of 780 749 visits. However, on April 19th, 2020, the number of visits was only 49 000. This downward trend reflects, to a large extent, the Moroccan attitude toward distance learning during the Covid-19 pandemic.

2.2. Distance Education

Distance education is an essential form of education that attracted interest and debates. A quick review of the literature reveals the variant articles and definitions devoted to it. Fillip (2011) (as in Burns, 2011, p. 19) accounts for the difficulty of developing a comprehensive definition of DE by stating that:

> "Distance education is also a broad approach characterized by a high degree of variation. Such variation includes the types of media or technology used (print, radio, computer); the nature of the learning (workshop, seminar, degree program, supplement to traditional classroom, levels of support); institutional settings; topics addressed; and levels of interactivity support (face-to-face, online, blended, none)"   (Burns, 2011, p. 19)

DE is an interdisciplinary field of study (Bozkurt, et al., 2015). Many variables interfere in defining it, such as the learner, the teacher, the course, the medium, and the institution. Each of these variables can take many different forms. However, Keegan (1980, p. 6) provided six necessary elements to define DE:

- The separation of teacher and learner which distinguishes it from face-to-face (F2F) lecturing
- The influence of an educational organization which distinguishes it from private study
- The use of technical media, usually print, to unite teacher and learner and carry the educational content of the course

- The provision of two-way communication so that the student may benefit from or even initiate dialogue
- The possibility of occasional meetings for both didactic and socialization purposes
- The participation in an industrialized form of education (Keegan, 1980, p. 6).

These variables occur in most of the definitions of DE. UNESCO (2008) defines DE as an educational process combining teachers and students from different times and geographical zones. DE is a highly planned and systematic learning experience that brings together teachers and learners from different geographical places (Saykili. 2018; Holmberg, 1986b). DE uniqueness is in the communication medium between the teacher and the learner. It can be printed or electronic (Keegan, 1980). Admittedly, DE is highly different from in-class teaching. Hence it "requires special techniques of course design, special instructional techniques, and special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements" (Moore & Kearsley, 1996, p. 2)

Accordingly, DE can be defined as a systematic and planned form of learning between a teacher and a learner who do not share the same place and time. Communication, hence, requires a print or electronic device. In addition, the teaching/learning process must be designed to meet the distant nature of distance education.

2.3.Online Education

Online education is highly related to distance education. Sometimes, it is synonymous with DE; in other cases, it is a different concept. However, this article contends that online education extends distance education. Over the last three decades, distance education evolved into online learning (Anderson & Dron, 2011). Arguably, online education is another form of distance education. It takes the teaching/learning process out of its classical place (the classroom) and connects teachers and learners from different places.

Singh & Thurman (2019) conducted a systematic literature review of definitions of online education between the years 1988 and 2018. They concluded that definitions of online education evolved hand in hand with technology. Online education is shaped and re-shaped by technological advancement (Palvia et al. 2018). Singh and Thurman (2019) declare that most online education definitions revolve around four main concepts: time, interactivity, physical distance, and educational context. They, hence, assert that:

> A definition of online learning should include a clear domain delineation of the concept to avoid overlapping and confusing terms. It must include explication of use of technology and should clearly articulate if the teaching is in a synchronous environment or an asynchronous environment. And a complete definition will include interactivity/learning examples and will acknowledge the role of physical distance if any. (Singh & Thurman, 2019, p. 15)

Online education can be broadly defined as education that takes place through the internet. It is a form of education that flourished thanks to internet availability. Online

education outperforms other forms of distance education by the anywhere and anytime quality. Students can learn, at their own pace, in the time and place they choose. It guarantees teacher-learner and learner-learner communication and interaction. Curtain (2002) defines online education "as the use of the internet in some way to enhance the interaction between teacher and student. Online delivery covers both asynchronous forms of interaction, such as assessment tools and the provision of web-based course materials and synchronous interaction through email, newsgroups and conferencing tools, such as chat groups". Online education is presented in two forms: synchronous and asynchronous. Synchronous online education takes place when the teacher and the learner contact directly at the same time. It includes video conferencing and chats rooms. On the other hand, asynchronous online education takes place when courses are sent to students to see them at their convenience. The teacher and the learner do not share the same time.

2.4. Toward a successful online education

Online education is a strong form of education, and the number of students enrolled in online courses is continuously rising. During the Covid-19 pandemic, people realized the potential of online education. If done correctly, it can guarantee an excellent educational process. However, it is worth noting that several factors affect the effectiveness of online education.

Dillon and Gunawardena (1995) note that three variables affect online education. These are technology, instructor's characteristics, and students' characteristics. (a) Technology necessitates a high-speed internet that guarantees smooth and continuous communication between the teacher and students. Indeed, during the Covid-19 pandemic, weak internet coverage caused many problems, especially for students in rural areas. In addition, technology also concerns the platform. The latter should be interactive to allow students to be active members and benefit from their teachers' feedback.

Moore (1989) recognizes three forms of interaction that are essential in distance education: learner-learner, learner-instructor, and learner-content interaction. (b) Moreover, the instructor contributes to the success of online education. "It is not the technology but the instructional implementation of the technology that determines the effects on learning" (Collis, 1995, p. 146). The instructor should have a positive attitude toward technology, an interactive teaching style, and good control of technology (Webster & Hackley, 1997). (c) The learner, on the other hand, should enjoy special qualities to benefit from online education. A good mastery of the technological tool is mandatory. Hence, students with previous experience in online education are likely to outperform their peers with no experience in online education. Additionally, Artino (2007) declares that students' self-discipline is necessary in online education. It refers to the capability to organize and execute internet-related actions (Eastin & Larose, 2000). When studying online, distraction becomes a high possibility. Students may lose focus due to two main reasons: the physical absence of the teacher (control), and the unlimited websites and videos on the internet. Thus, self-discipline is a prerequisite to the success of any online course.

2.5. Related Studies: Online Education in Morocco

The experience of distance education during the Covid-19 pandemic in Morocco triggered the interest of many scholars and researchers. Universities have organized many conferences under the theme of online education in Morocco. The aim was to assess the experience and uncover its advantages, obstacles, and teacher/student attitudes.

Jamiai (2020) studied the attitudes of two master's programs students at Dhar Mahraz University. Interviewees confirmed that distance education could not replace face-to-face education. They also uncovered the main obstacles of online education: time management, connectivity, interaction, and technical support. Hjiej et al. (2022) studied the engagement of 3174 medical students from different faculties of Medicine in Morocco. They declared that the pandemic affected students' psychology. They found a strong correlation between a student's psychological state and their engagement in the online course. The same fact is reported by Hantem (2020), the data reported that 83 % of students are worried about the pandemic. Indeed, loss and anxiety were the central themes of life during the quarantine. People had no idea about what tomorrow was bringing, especially with the daily depressing news.

Belhassan and Azegagh (2021) studied the impact of Covid-19 on higher education. They noticed a general dissatisfaction from teachers and students alike. According to their study, students'/teachers' dissatisfaction can be attributed to three main reasons: (a) an infrastructure unsuitable for DL: Connectivity problems appear in most online education studies. Internet issues appear heavily in synchronous learning (Jamiai. 2020). (b) Lack of physical supervision: As stated earlier, self-discipline is essential in online education. Hence, students who can't control and direct their learning will likely lag behind in online courses. Benkraache et al. (2020) found that 60% were not current in their courses, and 28,4% of students had problems organizing themselves. (c) A critical psychological situation: students experience unprecedented anxiety and worrying, which can directly affect their performance. "Stressors related to COVID-19 and confinement conditions are more likely to worsen emotional distress….and negatively interfere with their ability to cope with their distant studies and to actively engage in their learning" (Hjiej et al., 2022, p. 2).

Most studies conducted about online education during the Covid-19 pandemic detected a general dissatisfaction among teachers and students. It is a typical result because it was the first time teachers/students had experienced online education. Moreover, the sudden outbreak of the virus pushed everyone to improvise with the simple means and knowledge s/he has. It was like a little toddler making his/her first steps in the darkness.

3. METHODOLOGY

To attain the aim of this study, which is to investigate the Attitudes of Mohammadia School of Engineering Students towards Online Learning, a quantitative research method was adopted to collect, analyze and interpret data. For the collection of data, a questionnaire was designed and distributed using Google Docs. The questionnaire is composed of three parts: the first one includes questions that target the demographics of the respondents, the second part tackles the use of online learning during the period of the pandemic and its impact on the learners' level, and the third part sheds lights on the attitudes and assessment of the respondents to the experience of studying online.

As to the sample of the respondents in this study, it is composed of 137 first, second, third year and over students of Mohammadia School of Engineering. The selection of this sample is carried out based on the availability of participants enrolled in this institution. Henceforth, the selection of the sample is carried out using non-probability (convenience/ availability) sampling strategy. The employment of this strategy targets reaching a large number of participants from the population and therefore increasing the representativeness of the sample. The research questions that the study aims to answer are the following:

- To what extent are Mohammadia School of Engineering students satisfied with the experience of online learning?
- Does the use of the new mode of teaching/learning impact the level of students?

4. FINDINGS OF THE STUDY.

As stated in the methodology part, a questionnaire was disseminated to a sample of conveniently chosen students from Mohammadia School of engineering. As displayed in the table below, in reaction to the first two questions related to the demographics of the respondents, it was found first that 57.7% of the respondents are male students and 42.3% are female girls. Second, a vast majority of 87.6% of the respondents are first-year students, 10.9% are in their second year, 0.7% are in their third year, and 0.7% are over. The variety of participants in terms of level would inevitably enrich the study's findings and give more validity to the results.

Gender		Male	Female			Total
	F	79	58			137
	P	57.7%	42.3%			100%
Level		First-year	Second Year	Third Year	Over	Total
	F	120	15	1	1	137
	P	87.6%	10.9%	0.7%	0.7%	100%

To measure the familiarity of the participants with online learning before the pandemic, a question on whether they had ever had an online course before was asked the participants. In reaction to this question,73.9% of the respondents confirmed that they had never had an online lesson before, 19.4% of them claimed that they sometimes had an online course before, and 5.2% said that they often had an online course before. Only 1.5% said that they had always had an online course before. As to the question of whether the participants had the chance to pursue their studies during the pandemic or not, 78.5% of the participants asserted that they pursued their courses online during that time, and only 21.5% of the participants proclaimed that they did not have the chance to pursue studying during the pandemic.

Students' experience with online learning		Never	Sometimes	Often	Always	Total
	f	100	27	8	2	137
	p	72.9%	19.7%	5.8%	1.45%	100%
Pursuing courses during the pandemic		Yes		No		
	f	107		30		135
	p	78.5%		21.5%		100%

To assess the impact of the new mode of instruction on the students, a question about the influence of online learning on students' levels during the pandemic was directed to the participants. In response to this question, 56.3% claimed that the new mode of teaching/learning affected their level, whereas 43.7% asserted that it did not influence them. Regarding the teachers' adaptability to the new teaching mode, 64.7% of the participants declared that their teachers tailored their teaching techniques and strategies to fit with online learning, and 35.3% said that their teachers kept the same techniques and strategies used in the sit-in classroom. Despite teachers' adaptability to the new mode of instruction, 65.4% of the participants in this study claimed that the teaching material provided by the teachers during this period was not sufficient and clear enough for them, and 34.6% of them said that they were satisfied with the provided teaching material they received from the teachers in the online course.

		Yes	No	Total
The impact of the new mode of Instruction on the student	F	77	60	137
	P	56.3%	43.7%	100%
Teachers' adaptability to the new mode of instruction	F	88	49	137
	P	64.7%	35.3%	100%
The efficiency of the teaching material	F	48	89	137
	P	34.6%	65.4%	100%

Concerning students' motivation during an online course, 67.8% of the respondents proclaimed that they could concentrate only at the beginning of the course, 16% of them asserted that they never focused on an online course, and 15.3% claimed that they could concentrate on the whole session. Only 0.7% announced that they could focus just at the end of the class. In the same vein, 40.8% claimed that they could concentrate for between 20 and

40 minutes, 30.6% could concentrate for less than 20 minutes, 20.4% could concentrate for 40 to 60 minutes, and only 8.08% said that they could focus for more than 60 minutes. As far as students' feelings during an online course are concerned, 38.2% of the participants asserted that they feel comfortable more in an online course, 13.7% of them feel stressed, and 48.1% claimed that their feelings depend on different factors such as the teacher, the subject, the timing of the class and the length of the class.

Students' motivation in an online course		From the beginning until the end	At the beginning of the class	At the end	never	Total
	f	21	93	1	22	137
	p	15.3%	67.8%	0.7%	16%	100%
Time students concentrate on an online course		Less than 20 min	20-40 mins	40-60 mins	More than 60 mins	Total
	F	42	56	28	11	137
	P	30.6%	40.8%	20.4%	8.02%	100%
Students' attitude towards an online course		Comfortable	Stressed	It depends	Total	
		52	20	65	137	
		38.2%	13.7%	48.1%	100%	

The questionnaire disseminated to participants included two questions about the pitfalls and strengths of online learning. As to the drawbacks, 50.3% of the participants said that they suffered from the lack of direct interaction with the teacher, 22.6% claimed that the instructions in an online course are not clear, 10.69% confirmed that they face many technical problems during the course, and 16.05% announced that this mode of instruction has no drawbacks. As for the advantages, 41.6% of the participants claimed that this mode of learning provides added flexibility to the learners, 24.8% of them said that it offers them an opportunity for better time management, 19.7% see that it improves communication and virtual collaboration, whereas 13.8% proclaim that it demonstrates self-motivation for the learners.

Drawbacks		Unclear instructions	Lack of interaction with the teacher	Technical problems	It has no drawbacks	Total
	F	31	69	15	22	137
	P	22.6%	50.3%	10.9%	16.05%	100%
Advantages		Added flexibility	Better time management	Demonstrated self-motivation	Improve virtual communication and collaboration	Total
	F	57	34	19	27	137

	P	41.6%	24.8%	13.8%	19.7%	100%

5. DISCUSSION

Some presumptions and ideas are getting clear in light of the collected data. As to the first question about students' attitudes toward online learning, statistics show that students at Mohammadia School of Engineering (EMI) hold a negative attitude toward online learning. This is clearly reflected in their inability to concentrate in an online course. 67,8 % of respondents can only concentrate at the beginning of the course. Additionally, respondents highlighted the drawbacks of online learning. 50,3 % criticize the bad interaction with the teacher, while 22,6 % suffer from online instruction ambiguity. This attitude is not surprising given that most students (73,9 %) have never had an online course before. Moreover, students reported that most practical subjects could not be explained orally without first-hand experience. Not to mention the psychological state of a feeling of loss and anxiety that was dominant during the quarantine.

Regarding the second question related to the impact of online learning on students' levels, the data are virtually equal. 56,3 % of Respondents confirm that online learning affected their level positively, whereas 43,7 % assert that it has no impact on their learning. This can account for the different learning styles and ability to adapt to a new learning mode. In addition, students' responses clearly notice teachers' endeavours to improve their online teaching practices. 64, 7% declared that their teachers modified their teaching styles and practices to fit the online environment. However, much work is still needed as 64,5 % of respondents considered the online teaching material insufficient and unclear.

The findings of this study correlate with previous related studies. Jamie (2020) notes interaction as one of the main obstacles to online learning. Students had to shift from live spontaneous feedback from the teacher into a computer-mediated interaction with all its inconveniences. Similarly, Hjiej et al. (2022) and Hantem et al. (2020) assert that students' experience with online learning during Covid Pandemic is heavily overshadowed by their stressful psychological state; hence a negative attitude is the typical direct result. Benkraache et al. (2020) add that independent learning is a prerequisite to the success of every online learning experience. Obviously, Moroccan students who were taken by surprise by the pandemic are not independent learners.

Despite the negative attitude of respondents toward online learning, the importance of online learning cannot be denied. Online learning in Morocco is still in its infancy stage; thus, educators and officials should work hand in hand to find the best way to implement it. Teachers, for example, should understand that online learning is a unique learning form with a unique teaching style. Transferring the classroom technique into the online environment is a guaranteed failure. On the other hand, students should improve their ability to learn independently. Online learning requires mature learners who can control and organize their learning. Students should assume responsibility for their learning without teacher censorship and direct guidance. Eventually, officials should develop teaching material that can be taught online. Research proves that some classroom techniques, such as long, tedious lectures, cannot work online.

6. CONCLUSION

The farfetched aim of the research is to study the Attitudes of Mohammadia School of Engineering Students towards Online Learning during Covid-19 Pandemic. To attain this objective, a quantitative design was used for it is the appropriate design to deal with the research questions and the suitable one that fits the purpose of this study. The study concluded that online learning might be not only a permanentsolution in times of crisis to keep the teaching/learning process going smoothly but also a promising technique that can boost the quality of education in the new digital era.

Based on the outcomes of this study, many implications for implementing online learning and integrating new technologies in the Moroccan educational system can be drawn. Even though the findings of this study imply that many participants favour online learning, most of them stressed that this new mode of instruction faces many challenges that hinder its success in our Moroccan context. These challenges include the lack of continuous training for students and teachers alike to use new technologies for educational purposes and technical problems related to the low internet coverage.

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