

Evaluation of Student Satisfaction of Remote Learning: Exploring Moroccan Higher Education Performance in Morocco in Times of Crisis

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ABSTRACT: The quarantine related to the COVID-19 crisis outbreak educational institutions to reschedule their courses, exams, and trainings and to switch to remote learning methods. The rapid and wide spread of a global pandemic, such as the coronavirus, requires effective strategies for managing the crisis with less damage. In higher education, the massive adoption of emergency remote learning (ERL) is crucial solution, which has been contributing to minimizing the spread of the COVID-19 pandemic. However, different factors need to be taken into consideration to assess student satisfaction as well as the performance of higher education institutions. This study reports the results of an evaluation of student satisfaction and the performance of Moroccan institutions, while identifying factors that may affect the success of remote learning in higher education. As the coronavirus crisis spread around the world, almost all countries had to react. Thus, today, Morocco finds itself with 99% of all officially registered students in higher education affected. These students were part of the Moroccan experience, with a wide variety of modalities to ensure the continuity of their higher education. This paper explores the efficacy of remote learning and presents an investigation of the impact of COVID crisis on the higher education.

KEYWORDS: Remote learning, Student satisfaction, Higher education, COVID crisis

Introduction

Managed as a health crisis, the COVID-19 pandemic is disrupting almost every aspect of the life and organization of our societies, including higher education. One of the first measures to stop the spread of an epidemic considered highly contagious was containment, first in Italy and then elsewhere. Even in countries without mandatory federal or national containment measures, such as the United States, Australia and Russia, most universities were forced to close their campuses to the public and suspend face-to-face teaching for several weeks (Sahu 2020).

UNESCO has been monitoring the situation on a daily basis and shows that this closure of physical student spaces has been one of the most widespread preventive measures. By the first week of April 2020, there were 195 countries that had closed their entire institutions to the public. Thus, despite national differences, all higher education institutions were suddenly faced with the impossibility of carrying out one of their constitutive missions, in its oldest and most traditional modality: the face-to-face meeting between teacher and student (Venkatesh 2020). In Morocco, as in many other countries, the public authorities have asked institutions to ensure pedagogical continuity, to use the words of the Minister of Higher Education.

Remote learning is certainly not a novelty in itself. Since the 2000s, and long before the recent MOOC craze, training modalities have been evolving to familiarize learners with new trends and offer them more chances to review or follow up on courses they missed either for geographical, professional, or family reasons. However, the abrupt and forced shift to fully remote learning generates stress and disorientation, especially among students. These considerations are exacerbated by a more general sense of unpredictability, linked to the prospects of a global economic recession and job market contraction announced by the International Monetary Fund (IMF).

Research studies regarding E-learning has demonstrated considerable diversity regarding the used approaches (Sadeghi 2014; Yawson 2020). Various methods have explored the crucial

factors affecting student satisfaction (Al-Adwan 2013; Al-Sheeb 2018; Kintu 2017). Recently the adoption of artificial intelligence-related techniques, such as sentiment analysis, deep learning, for remote learning, training simulations, forecasting students' performance has been widely used (Abu Saa 2019). Meanwhile, this study explores the current state of higher education in Morocco, investigates students' satisfactions and provides further insights into the adoption of novel techniques tackle the potential future crisis.

The paper is organized as follows: a description of the studied context; the study of traditional and current higher education regarding advanced technologies. Thereafter, the empirical study of the performance of higher education institutions in Morocco is explained. Finally, implications and limitations of this study are presented.

Context and issues

The abrupt of coronavirus crisis around the world, has affected educational systems, and raised a set of critical and necessary decisions to prevent the wide and rapid propagation of the health crisis, while warranting efficient pedagogical continuity. The variant uncertainty of this situation led the Moroccan higher education and scientific research to suspend face-to-face classes, in both public and private institutions, and adopt remote learning. In this context, the higher education sector particularly requires the application of the announced procedures encouraging educational institutions to switch from a traditional teaching way to a remote plan of learning and academic supervision, through ensuring the steadiness of teaching-learning during crisis time and therefore avoid any possible precipitated academic year ending.

The new unplanned change towards the application of remote learning systems and virtual classes. As the main actors in the remote learning experience, professors have to use all their technological and communication skills, to provide efficient online courses. Besides, students are the target of the whole operation for better achievements and learning skills in these exceptional conditions of and health crisis. All these elements accentuate the problem of remote learning to be able to live in a world of uncertainty (Morin 2020).

It is extremely important to evaluate the current case of remote learning, considering the satisfaction of students, who are the primary stakeholders and the central link in the pedagogical reflection and action, and in the superior quality of pedagogical practices. The implementation of innovative solutions allows to improve the performance of higher education and to help all students to develop their knowledge, learning and skills. To clarify the situation of remote learning set up by Moroccan higher education institutions to face the crises, it is necessary to:

- Evaluate experiences with remote higher learning.
- Measure student satisfaction with remote learning.
- Determine the difficulties and constraints encountered during this period of remote learning.
- To draw lessons and suggest ways to improve remote learning.

Importance of advanced technology in higher education

The adoption of technologies, especially intelligent ones, in Moroccan higher education is characterized by a glaring gap between theory and reality on the ground. This leads to a strong need to rationalize the passage from the desirable to what is actually feasible. On the theoretical and discursive level, the national charter of education and training requires that the technologies must form the paths of the future. However, the crisis caused by the coronavirus requires the acceleration of the use of all the technological advances to strengthen remote learning and to ensure a kind of equal opportunity of access to resources. However, various factors hinder the smooth running of remote learning, including the lack of strict adherence to transparency, the lack of willingness and real participation, and the involvement of all stakeholders.

The Ministry of Higher Education has, for years, introduced the teaching of information and communication technologies for the benefit of university students, to contribute to the

improvement of the quality of teaching and learning. In this sense, Morocco has led to many initiatives aimed at the establishment of program of generalization and integration of ICT in higher education such as the development of projects related to the Numeric Morocco 2013 and 2020, the E-Sup program 2006, the Moroccan Virtual Campus project (CVM), the MARWAN network, the APOGEE project, the INJAZ programs, etc.

In this logic, the framework law 51-17 on the system of education of teaching, training and scientific research (Higher Council of Education, 2015), states in Article 33 that the government must take the necessary measures to provide educational, training and research institutions with resources and technologies through the following procedures (CSEFRS 2019):

- Restate the integration of information and communication technologies to promote the quality of learning and improve its profitability.
- Create innovation and production laboratories for digital resources, but also train specialists in this field.
- Develop and improve remote learning mode to accompany face-to-face learning.
- Integrate e-learning in the horizon of its progressive generalization.

The education system in general and the higher education system, shows a digital divide characterized by extremely flagrant delays in the integration of remote learning and training devices. In this sense, the latest report on the reform of Moroccan higher education concludes that there is no structured digital plan for higher education. In short, the role of the Moroccan university today is first to ensure easy access to the platforms used, to show students how to use information and communication technologies wisely and finely, to provide a favorable context for its exploitation in teaching-learning practices, and to overcome the challenges of remote learning. This must inevitably be oriented towards democratization, which establishes access to digital and remote learning for all students, not only so that institutions and classrooms are equipped with computers and multimedia, but also to place this access in the context of improving the quality of teaching and learning.

The state of higher education performance at the time of COVID-19 in Morocco

Each Moroccan university or higher institution has mobilized to succeed in overcoming the difficulties raised by the health crisis through the technological means available. It is obvious that students, today, are initiated to this kind of teaching-learning resources and have their institutional account, which allows them to access these platforms of information exchange and document sharing. It also turns out that some higher education professors have their own spaces in this type of platform and post their online courses there. This experience has allowed for the fluidity of the forced transition to remote learning in an emergency.

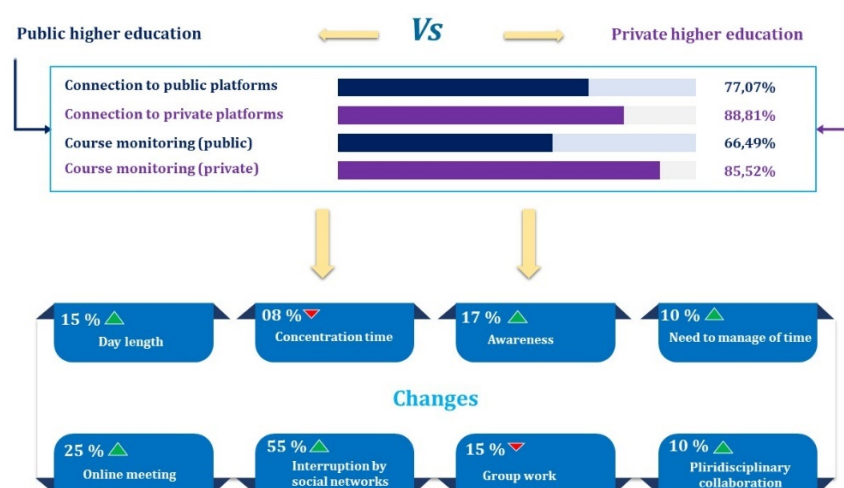


Figure 1. Current state of remote Higher education in Morocco

But it is also essential to emphasize that there is still work to be done in this direction, because the community of higher education including teachers are not, yet all involved in this new mode of teaching. It should be noted that one of the advantages of this epidemic is that a considerable number of teachers have mobilized to succeed in this remote learning. Numerous efforts have been made by the different actors of education to overcome this crisis. Through the different social networks, several initiatives have been taken to help students benefit from remote learning. The latter, for their part, have shown themselves to be involved in this new mode of teaching/learning. Despite the importance of this remote learning initiative, it is quite clear that the continuity of the courses is at risk of being interrupted due to numerous factors as illustrated in Figure 1.

As of early June 2020, more than 20,258 courses have been computerized. These courses represented 82.21% of the courses offered in the calendar of the second academic semester 2019/2020 in the universities of Morocco. Students connected to electronic applications and platforms in public universities was 77.07% of total enrolled students, while for private universities the rate was 88.81%. The number of students benefiting from computerized courses reached 66.49% in public universities, and 85.52% in private universities. In this investigation, 73% of students use their smartphones to access educational platforms for learning purposes, 78% of university professors use laptops, and a wide range of students with neither connection tools nor internet access. The current situation of remote higher education requires the creation of a favorable framework of intervention based on the digitalization of education, which remains a mixed and critical task.

Empirical study and discussion of the finding results

To analyze the satisfaction of students toward the remote course, the investigation was set up by a structured survey filled by 9 058 students of different higher educational institutions in Morocco. The survey includes close-ended entries for the students to fill. The survey form was constructed using Google Forms to collect the responses from the students. The study underlined the encountered limits and difficulties during the remote learning process. The Figure 2 describes the feelings of students regarding the online courses.

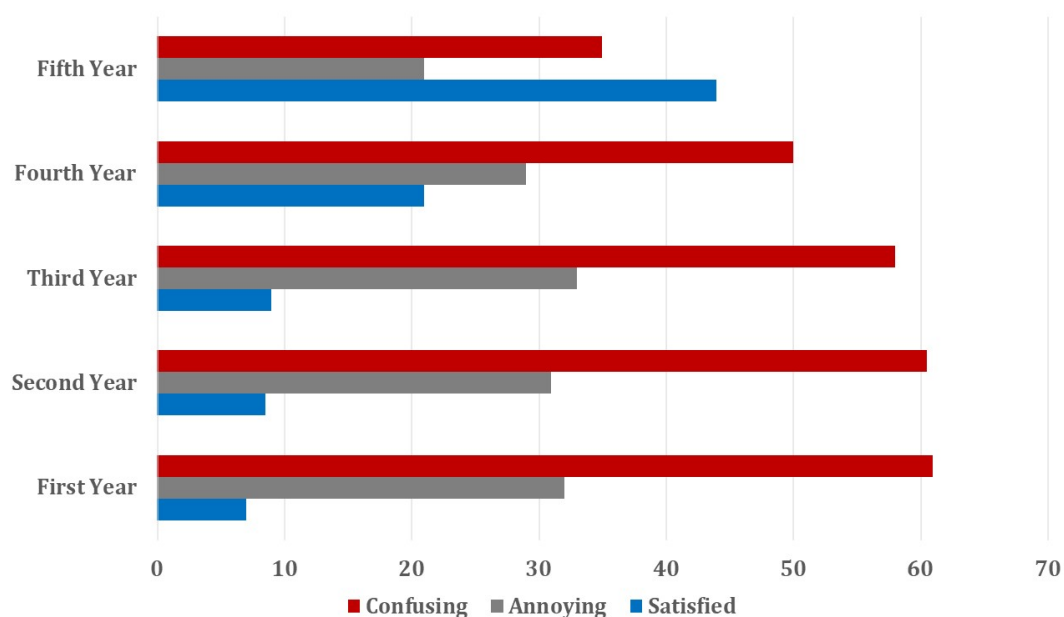


Figure 2. The Satisfaction of students according to their level

Most of students, especially in the first year found that the courses are confusing. In contrast the fifth-year students are more satisfied with remote courses. According to students' answers,

important rates highlighted their dissatisfaction, either they find the presented online classes boring, or confusing so they cannot get the accurate information. Another reason that may influence their satisfaction is the nature of session i.e., animated, narrative, practical, etc. Regarding the 1st year students' impressions, they proclaimed that they were facing new environment during the time of crisis, so they don't have much knowledge about remote learning, they lack the attitude of self-organization and adaption to deal with the new remotely course repartition and requirements. For the students of other levels, they revealed that they are missing the human interactions, the entertainment time, and communication skills development. The divergence of these obtained results refers to distinct factors such as the age, the maturity, the social level, the strategy of remote teaching, the course structures. Another important aspect of remote learning is the attendance rate, which may indicate the success or the failure of the continuity of online courses. Table 1 reveals the attendance rates of students by gender and level. After the evaluation of the assembled data, we observe that females form most of the students who do not attend the course on time, so they need to check the recording course. In the other hand the males are late to attend the online courses. We can infer that the social culture in Morocco impacted the remote learning. In fact, females must deal with homework then focus on studies carefully, thanks to the recorded. However, males have much time, so they can deal with all courses.

Table 1. The rate of remote attendance by gender.

	Female			Male		
	Attendance	Absence	Late	Attendance	Absence	Late
First Year	55,17%	20,83%	24,00%	44,83%	79,17%	76,00%
Second Year	33,62%	49,15%	17,23%	66,38%	50,85%	82,77%
Third Year	32,44%	37,48%	30,08%	67,56%	62,52%	69,92%
Fourth Year	30,11%	34,28%	35,61%	69,89%	65,72%	64,39%
Fifth Year	50,32%	12,43%	37,25%	49,68%	87,57%	62,75%

As this study aims to investigate the satisfaction of students as well as the performance of remote learning, a comparative analysis is required among universities, business schools, and private institutions. Table 2 illustrates the variations of satisfaction and performance rates. The results reveals that the delay encountered in remote learning, especially among public institutions (universities and business schools), are caused by two main reasons, specifically material (the problem of internet access, computer breakdowns, etc.), and pedagogical reasons (teaching methods, the used tools to animate the sessions, learning connection, learning feedbacks, etc.).

Table 2. The satisfaction rates of the students with remote learning

	Public Institutions										Average
	I 1	I 2	I 3	I 4	I 5	I 6	I 7	I 8	I 9	I 10	
Courses %	45	71,14	68,25	69	81	78,65	88	32	59,98	89	68,20
Online meeting attendance %	52,95	79,09	76,20	75,20	74,10	81,85	86,05	48,97	66,18	85,83	72,64
Teamwork %	58,32	78,32	74,32	73,32	88,32	83,32	93,32	63,32	63,32	93,32	76,92
Performance %	55	75	71	70	85	80	90	60	60	90	73,6

	Private Institutions										Average
	I 1	I 2	I 3	I 4	I 5	I 6	I 7	I 8	I 9	I 10	
Courses %	50,4	76,5	73,61	74,36	86,4	84,01	93,4	37,4	65,34	94,4	73,56
Online meeting attendance %	57,86	84,00	81,11	80,11	79,01	86,76	90,96	53,88	71,09	90,74	77,55
Teamwork %	63,99	83,99	79,99	78,99	93,99	88,99	98,99	68,99	68,99	98,99	82,59
Performance %	59,4	79,36	75,36	74,36	89,4	84,36	94,4	64,4	64,36	94,4	77,96

Another important aspect is last year (fifth) students' readiness for practical jobs in the market. Table 3 underlines clearly that students are not definitely sure of their acquired abilities and skills before graduation. Besides, only 28.8% have confidence to get an accurate job, and 3.1% of them aim to start an independent business after graduation. Therefore, most students intend to have a well-structured and appropriate training after graduation.

Table 3. Students' readiness after graduation

Questions	No %	Usure %	Yes %
Do you have believed that you acquired the needed skills before graduation?	3,8	35,1	61,1
Do you prefer to have face to face courses before graduation?	11,5	24,4	64,1
Do you need extra structured courses before graduation?	27,5	44,3	28,2
Do you have the confidence to have the suitable skills for market demand?	31,9	39,3	28,8
Do you prefer to trainings after graduation?	28,5	44,9	26,6
Do you prefer to start your own work after graduation?	86,3	10,6	3,1

Higher education systems have to overcome the covid-19 crisis and provide performant learning solutions. As there is no clear sign of the end of this health crisis, especially with the variants developing each time, it is essential to overcome the challenges limiting the smooth running of remote learning. The higher educational institutions need an accurate management of the current crisis and a quick reflection on educational system recovery is a vigorous way. Students need better equipment's, support and following, and a revitalized sense of responsibility to understand and tackle the urgency for better education quality. However, the rapid migration of the Moroccan higher education system from a 1.0 technology (based on the use of paper and face-to-face courses) to a 4.0 technology (based on platforms for courses or exams) remains an undeniable achievement despite the success rates that remain modest.

Despite the gap between public and private institutions in terms of course attendance, student satisfaction or the performance of the remote learning operation in the face of the health crisis, it is quite important to value the need for more investment and consideration to achieve valued achievements, and promising E-learning, based on the gains made during the health crisis of Covid-19. The current crisis affected immediately the higher educational system and fastened the adoption of latest information and communication technologies. In that context, it is recommended to adopt advanced and intelligent technologies such as artificial intelligence, augmented reality to enhance the quality of the proposed courses as well as the performance of the higher educational system.

The results of this research show that despite the importance of the efforts made by the faculty and the motivation for remote learning in the future, students share common opinions regarding the overall dissatisfaction with this experience of remote learning reinforced by several difficulties and constraints encountered related to the poor connection to the Internet (especially in rural areas), the costs of connection, the costs of computer peripherals, etc. The response to the questions of this study on remote learning in a particular period, has allowed to draw several lessons on the way Moroccan universities through their institutions and staff and administrative bodies have managed the unlikely situation, experiences, and level of satisfaction of students with the device of remote learning.

Conclusion

The distress caused by covid-19 crisis affected the entire educational system in Morocco. The learning process have been impacted and disrupted according to the unprecedented new crisis

variations. With this study, we noticed that both teachers and students are unable to lead the learning operation normally, with the current human and materiel resources as well as the limited possibilities.

Our role as academicians is to guarantee students' readiness, but it is also essential to understand their needs and perspectives of remote learning. The coronavirus crisis triggered a huge need to set new educational policies and solutions, even never experienced before, to tackle the current remote learning issues and provide a strong pedagogical performance.

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