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RESEARCH ARTICLE

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A National Survey about Online Teaching in Medicine and Dental Medicine in the Universities of Morocco

Boujoual I*, Benazouz I, O.H. Wahid, Khalil A, Regragui M and Elboussiri KH

Faculty of Dentistry, University Hassan II Casablanca, Morocco.

ABSTRACT

Introduction: Learning is the process by which we acquire knowledge or expertise. All teaching is done with the objective of transferring factual, conceptual or processual knowledge, acquiring skills, inculcating attitudes or bringing out, appropriating or developing reflexes or routines. Distance learning can be a substitute for face-to-face teaching, a complement or a useful reinforcement to it. Distance learning has emerged as a new teaching method to maintain the continuity of medical education during the closure of educational institutions due to the COVID-19 pandemic.

Objectives: The purpose of this study is to explore the status of distance learning among medical students during their clinical years and to identify possible challenges, limitations, satisfaction, and prospects for this approach to learning.

Methods: This cross-sectional study was based on a questionnaire that was designed and administered to students in their clinical years from public and private medical and dental schools. For this study, the estimated sample size was 1584.

Results: A total of 1584 students completed the questionnaire, among them 1407 respondents (88.8%) stated that they had used the educational platform to access their course. Among these students, 55.4% (878) think that access is easy, 35.3% (550) find it quite difficult and 9.3% (149) difficult. 43.2% (685) of the students prefer the face-to-face system, 35.4% prefer the hybrid system. Only 21.4% (339) prefer the distance learning system. The overall satisfaction rate with medical distance education was 18.2%; with 31.4% being somewhat satisfied with distance education during this period of confinement and 5.7% very satisfied.

Discussion: Regardless of the reported benefits, medical students prefer the blended or face-to-face approach to teaching because distance learning was a major challenge to acquiring equivalent clinical medical skills. Satisfaction with distance education is strongly related to students' prior experience with distance education as well as instructors' experiences and interactions. Technical and infrastructural resources were reported as a major challenge to implementing distance learning.

ARTICLE HISTORY

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Introduction

In recent years, Information and Communication Technologies (ICT) have revolutionized teaching methods and have therefore constituted a real opportunity to be seized in order to meet the growing training needs, whether for the initial training that for continuing education. New types of learning, such as online learning, have become popular in medical education since the emergence of the Internet. These new models make it possible to learn to transcend the borders of space and time; they improve collaboration and individualization, the efficiency of learning and are more practical.

Teaching has therefore taken a new turn and we can no longer rely on the old ways. The traditional lecture; which remains prevalent in most of our universities, with an overcrowded lecture hall where the teacher, embodying the role of the knowing, addresses hundreds of strangers is less and less relevant. The use of distance education (EAD) by Moroccan universities has been able to support and facilitate education in general as well as support educational innovations. Previous studies have been carried out on the situation of EAD at the level of certain Moroccan universities and in particular in medical faculties. However; since 2018 no study has taken stock of this situation; noting that private medical faculties have since emerged in the national territory.

Contact Boujoual I, Faculty of Dentistry, University Hassan II Casablanca, Morocco.

It is in this context that this work was carried out and which aims to make a recent assessment of distance education in the faculties of health sciences by integrating the new private medical faculties. A consultation of the university circles made it possible to detect an inventory of the digital situation and E-Learning platforms in the Moroccan medical and dental faculties.

The objective of this work is to answer a number of questions:
- Determine the degree of use and familiarization of students with the various tools of distance education.
- Identify the problems encountered during distance education.
- Determine the degree of satisfaction of distance education students; and to collect opinions on this type of teaching.

This work is carried out in two main parts:
• A first bibliographic section, which will provide an overview of distance education (EAD) and will look at the current situation of Moroccan universities of health sciences in distance education.
• A second part in the form of a survey carried out in 9 Moroccan medical faculties. The objective is to assess the degree of use of distance education in these faculties and the degree of student satisfaction with this type of pedagogical model.

Material and Methods

Study framework

Our population comes from 11 medical and dental faculties spread over Moroccan territory, joining public and private faculties.
The faculties in question are:
- The Faculty of Medicine and Pharmacy of Casablanca (Hassan 2 University)
- The Faculty of Dentistry of Casablanca (Hassan 2 University)
- The Faculty of Medicine and Pharmacy of Rabat (Mohamed V University)
- The Faculty of Medicine and Pharmacy of Marrakech (Cadi Ayyad University)
- The Faculty of Medicine and Pharmacy of Fez (Sidi Mohamed ben Abdellah University)
- The Faculty of Medicine and Pharmacy of Agadir (Ibn Zohr University)
- The Faculty of Dentistry of Rabat (Mohamed V University)
- The Mohamed VI Foundation for Health Sciences [General and dental medicine]
- Abulcassis International University of Health Sciences [General and dental medicine]

Type of study

We conducted a prospective cross-sectional survey.
The survey included a questionnaire, which was distributed randomly to a minimum of 30 students per promotion in the faculties concerned.

Study period

The study period ran from January 03 to February 27, 2021.

Study population

- Students of the 1st, 2nd, 4th and 5th years enrolled in the 2020/2021 academic year at the level of the 11 faculties of health sciences.

Sampling method

We have chosen our samples wisely so that they are well dispersed over all the students of these faculties, especially in relation to their university years. We randomly selected at least 30 students from 4 university promotions within these medical faculties.
This choice was random by strata, and the questionnaire was distributed as follows:
FMDC: 200 questionnaires
FMPC: 165 questionnaires
FMDR: 162 questionnaires
FMPR: 135 questionnaires
FMPF: 136 questionnaires
FMPM: 127 questionnaires
FMPA: 125questionnaires
UM6SS General medicine: 145 questionnaires
Dental UM6SS: 126 questionnaires
UIASS Medicine: 180 questionnaires
Dental UIASS: 110 questionnaires
f) Data collection:
The survey included a questionnaire, which was distributed, mainly in hard copy and online by e-mail in some faculties. The paper version was distributed to medical students by investigators and peers.

Conduct of the survey and data collection

The completed paper questionnaires were collected in a predetermined location for each faculty by one of the authors to ensure confidentiality and avoid any response bias. Not returned, questionnaires were recorded as missing. Participants were not aware of the purpose or results of the study to reduce the risk of any possible bias, and it did not contain any participant identification data to ensure confidentiality. The questionnaire primarily covered the basic demographic data of the participants, such as their gender, academic year and faculty. Then it dealt with the use of the educational platform of the institutions and the availability of courses.

Then their level of satisfaction with distance education during this period. Finally, opinions on the representations and perception of change among students for the future of this teaching.

Statistical analysis

To study the results collected, we used pivot tables in Excel and statistical methods allowing us to trace the correlation between the different answers proposed.

Results

The total number of questionnaires distributed was 1611 with a return of 1584 completed questionnaires. Our sample was composed of 1029 women, or (65%). The highest response rate was noted at the level of the Faculty of Dental Medicine of Casablanca with 186 completed questionnaires (11.7%), followed by the Abulcassis University of Health Sciences

(178 completed questionnaires, 11.2 %). A summary of the distribution of responses among universities are shown in Figure 1. The number of respondents: first year (701; 44.3%), second year (319; 20.1%), 4th year (252, 15.9%) and 5th year (312, 19.7%).

A / The educational platform

The survey showed that around 1407 respondents (88.8%) said they had used the educational platform to access their course, while 177 respondents (11.2%) said they did not use to the latter. As for the degree of difficulty encountered when using the platform, among the students who use the platform, it appears that 55.4% (n=878) think that access is easy, however 35.3% (n=550) find it quite difficult and 9.3% (n=149) difficult. However, 75% of the students surveyed state that the courses are mostly available against 25% who say that their courses are not available.

When asked how the courses were delivered:

43.7% (691) of students say that the courses are taught online, while 36.3% (575) use the hybrid system. Only 20% of students (317) had their lessons given face to face. Questions 7,8,9 which concern the most interesting and effective pedagogical model for lectures, tutorials and practical work. The table below groups together the responses received (Table 1).

Student satisfaction with online education during the COVID-19 period

The results of the student survey show that a percentage of 31.4% is quite satisfied with online education during this period of confinement and that nearly 27.1% are unhappy. According to 18.2% of the students surveyed, the online teaching is satisfactory. However, 17.6% remain dissatisfied with this teaching. Only 5.7% are very satisfied with this teaching.

Discussion

The objective of the questionnaire was to:
- Determine the degree of use and familiarization of students with the various tools of distance education,
- Identify the problems encountered during distance education.
- Determine the degree of satisfaction of distance education students during this period and collect opinions on this type of education.

Student participation on the educational platform

Students were first asked if they are using the platform at the faculty level. The results showed that 1407 respondents (88.8%) said they had used the educational platform to access their courses, while 177 respondents (11.2%) said they did not use it. E-Learning platforms have been present in Moroccan academia, but their use before the start of the Sars Covid19 pandemic has been very limited. Other studies corroborate these results, particularly in a study at an Algerian university where 71.61% of students have access to online courses. The lack of use of the platform by some students can be explained mainly by its difficulty in handling, given the lack of prior training in the field. It also requires an internet connection and adequate equipment to ensure continuity and access to the courses. Consequently, inequalities in access to tools and technology are not the same for all students because they are not necessarily from the same region or from the same social class [1].

Table 1: Summary table of the responses received concerning the format of the courses, tutorials and practical works.

Lectures	Tutorials	Practicals
43,2% (685) students prefer face to face learning	75,9 % (1200) consider that the face-to-face is the most suitable for tutorials	The vast majority (96.2%, 1524) are for the face-to-face in the practical works
35,4% (560) prefer the hybrid mode	16,7 % (285) opting for the hybrid mode	2,2% (35) opting for the hybrid mode
21,4% (339) prefer e-learning	7,4 % (118) prefer online	1,6% (25) prefer online

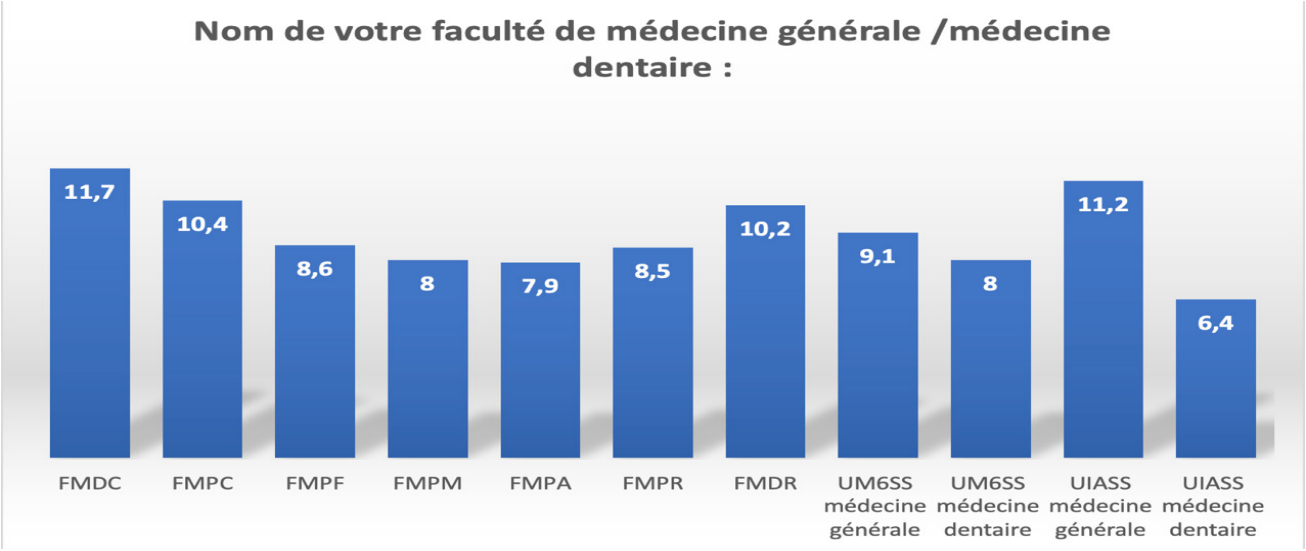

Figure 1: Participation rate of medical / dental schools.

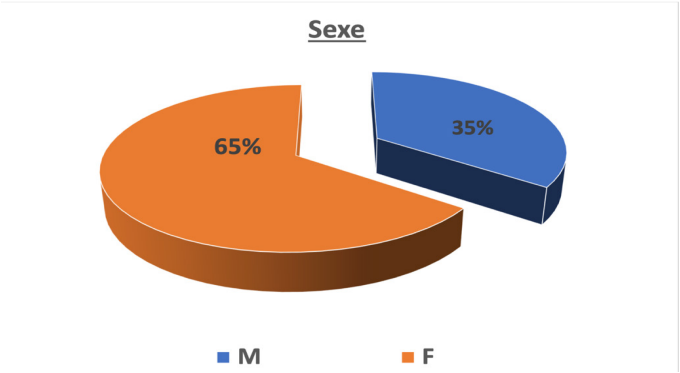

Figure 2: Distribution of the study population according to sex.

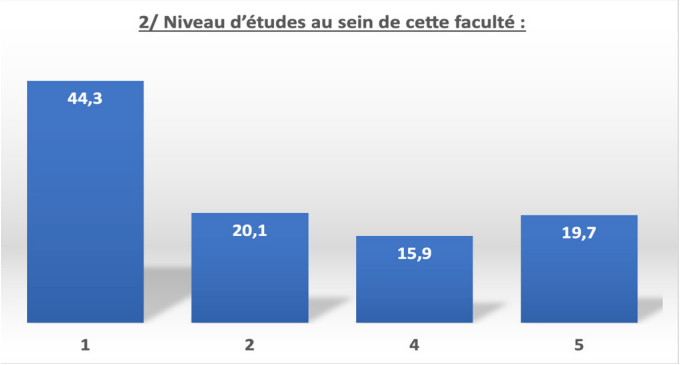

Figure 3: Distribution of the study population according to the study's level

In addition, these results are also in agreement with a study, which aims to verify the effectiveness of the hybrid device and to highlight the predictive variables of the performance of nursing students in France. This study highlights student participation on the platform: among the measurements collected from students, one indicator of student engagement was identified: the number of connections to the platform for each student. This data was collected on the Moodle platform, sorted to eliminate double connections and then added to establish a consultation score. On average, students accessed the platform an average of 21.59 times. This number of platform visits is a measure of engagement in learning and student participation in the development of distance learning [2].

These results are also in agreement with a study developed by the Mohammed V-Rabat University (UMV) where 7 out of 10 students surveyed regularly consult the educational resources posted online by teachers during the period of distance learning continuity. While only 26.64% of students have never consulted digital educational resources.

Another study from Uganda claimed awareness and self-reported use of e-learning platforms (MUELE) was high among 206 (96.3%). However, over 50% lacked the skills to use Makerere University's e-learning platform (MUELE) [3].

In the same context, a team made up of Moroccan teacher-researchers launched two parallel investigations during the confinement period. One affected 200 teachers and the other affected 1,340 public education students, this study affirms that the use of interactive courses via internet platforms was massive at 61%. However, only 44.5% of students appreciate this tool [4]. However, these results do not agree with a survey carried out by ENSAM. The survey shows that 8 out of 10 students are "e-Learning laypersons; making it clear that they are unaware and that they are not initiated "into this practice [5].

Similar to a study in Libya where only 48.4% (1622) of students claim to have used online applications and platforms for their medical training against 1726 (51.6%) [6,7]. Our study found that among students who use the platform, 35.3% find accessing the platform quite difficult and 9.3% difficult; which may therefore explain the refusal to use the platform by some students.

The experience of the Faculty of Law and Political Science at the University of Khemis Miliana in Algeria, in distance education in the era of the global Covid-19 pandemic, was able to note that 38.34% of respondents , are relatively satisfied with the easy access to the courses and their downloads. On the other hand, another category with a rate of 28.33%, did not have at all easy access to this mode of teaching the courses [1].

A good experience of using e-learning is due to the quality of the e-learning system, its ease of use, seaworthiness, accessibility, structure and interface of the systems [8]. Some studies on e-learning have also validated that the user experience in the learning context perceived by learners plays a key role in their satisfaction. Thus, we hypothesize that the quality of the learning system has a direct and positive impact on the use and user satisfaction [9,10].

The previous Libyan study claims that a substantial percentage of respondents actually reported experiencing financial or technical difficulties when using e-learning platforms [6,7]. The results of another study in Saudi Arabia indicate that about 34% of students identify some barriers to the online learning provided [10]. At the level of the E-Learning platform, social and financial factors can be obstacles to the development and effective implementation of e-learning and its programs. As a comparison with a previous study carried out at FMDC on the degree of presence of information and communication technologies and which had shown that 42.5% of the students questioned had declared to encounter difficulties during the use of ICT for their training against 9.3% currently. Probably these students were not introduced to ICTs early enough. They were unable to develop "information skills". This is necessary because the internet is currently a source of access to knowledge. 75% of the students surveyed during our study declared that the majority of the courses are available and that the professors submit the courses as they come, which allows them to stay up to date. However, 25% of students say they cannot prepare for their exam on time due to the unavailability of courses at the platform level, they say they have trouble staying up to date because their courses are submitted shortly before the day of the exam.

The recorded course (Video) with support is the technique most appreciated by students at 51.3%. Classical documents namely PPT presentations and PDF documents are not popular with students [1]. Thus, the use of an animated course is a

perfect solution for their learning, the same conclusion was presented by Robbins (1997) who demonstrated that the arrival of information technologies and the abundant use of images increase the ease of understanding and memorization [11,12].

Indeed, a simple slideshow is appreciated and useful but has limitations. A sound slide show as well as a virtual classroom are the most satisfying supports. However, each has advantages and disadvantages. The slideshow with sound allows you to listen to it multiple times and at any time, but does not offer teacher / student or student / student interaction. The virtual classroom (VC) (whether during a course or a question-and-answer session) leaves room for interactivity, which reduces their feeling of isolation. Nevertheless, it requires the availability and connection of the participants at a time t. However, the provision of courses in the form of traditional text (Doc), which can be directly printable, emerges as an additional need to a Sound Slideshow or a virtual classroom.

Regarding the programming of the courses of the 11 establishments studied, 43.7% (691 of the students) affirmed that the courses are taught at a distance, this can be explained by the fact that some institutions have opted for e-Learning in the absence of traditional courses due to generalized lockdowns imposed by sanitary hygiene measures. However, 36.3% (575 of students) follow the hybrid system, trying to balance between face-to-face and distance lessons, while respecting the social distancing imposed by health measures linked to COVID-19. Only 20% (317 of students) of students have had their old teaching method maintained and continue to have face-to-face lessons. Unlike a research study examining the attitudes of Portuguese students in higher education during the pandemic which stated that regarding the course of their studies, the majority of participants took online courses instead of face-to-face education (n = 170; 98.3%). For 94.8%, it was their first experience of an online course. Students are satisfied with the format of the online courses [13].

To get an idea on the most interesting and effective pedagogical model for lectures, we asked the students of these institutions. 43.2% of them prefer face-to-face. This preference can be explained mainly by the technical problems found during the broadcasts of the lectures, the lack of interaction with the teacher, and the quality of sound that is mentioned by several students.

This explanation is confirmed by a Finnish study, which states that “Some comments from teachers and students were linked to problems with Internet connections, the times when the teacher could not use the application, only the voice of the teacher via the microphone was too quiet or echoed [14].

Yet another educational problem persists. Live online teaching tends to emulate traditional course formats where learners are often passive receivers of information “provided” by the teacher. In this case, learning is led by the teacher and students lose the opportunity to develop independent learning skills. So it seems that in the face of the rapid shift to online education, many students are just replicating mainstream online education. While some may be motivated by the belief that this is the “ideal” form of teaching and learning, many simply do not know how to teach otherwise.

In addition, 35.4% of the students in our survey believe that the hybrid system is preferable due to the student's flexibility in terms of study. In the same context, the majority of Canadian institutions also consider hybrid courses to be of equivalent quality to classroom courses, although a few (19%) consider hybrid courses to be of superior quality. Respondents believe that online and hybrid courses can lead to more innovative teaching [15]. 21.4% of the students from our survey opt for distance learning courses.

Our study does not correlate with a study carried out in France, affecting manipulative students in medical radiology, who for the most part consider that they work a lot and much more at a distance compared to face-to-face teaching. Teacher / student interactions via emails or videoconferences were rated as satisfactory by the vast majority of students [16]. However, managers in the education community in the United States view the learning outcomes of hybrid courses more favorably, with 30% of them judging that hybrid courses are superior to classroom courses, compared to only 19% of establishments in Canada.

Another interesting result of a study involving around 1,500 students at one of the largest public institutions in the United States, Arizona State University, which investigated the causal impact of the pandemic on current student outcomes showed that, in average, students are 4% less likely to opt for online education if they have had the choice between online education and traditional education, due to their experience of online education during the pandemic, 31% of participants are now more or less likely to enroll in online courses. The negative experiences of students with online education, due to the brutality of the transition, has implications for students' willingness to take online courses in the future [17].

A national study this time around, involving students at universities and executive training institutions in Morocco, states that a proportion of 75% of responding students said that distance education is more suited to theoretical courses [1]. A recent study in Croatia states that most participants indicated that in the future they would prefer to combine the classic classroom and online learning (N = 1403; 55.7%) [18]. Another recent study carried out by the team at Paris-Descartes University whose aim was to assess the effectiveness of blended learning compared to that of traditional learning in health education affirmed that the Pooled analysis comparing all hybrid learning to traditional learning showed significantly better knowledge and results for blended learning [19].

Internet teaching appears to have a strong effect when compared with no intervention and appears to be comparable in effectiveness to traditional methods. “There are many advantages associated with interactive online learning systems. Note that the flexibility of these programs allows students to learn at their own pace, from the place they want and often in the way that suits them best. Other benefits are the ability

to deliver high-quality content, offer support for continuing education, and increase opportunities for communication during learning.

In our study, while asking the students what is the most interesting teaching model for tutorials and practical work, the vast majority of students (75.9%, 92%) believed that face-to-face is the most suitable, against a minority opting for the hybrid system (16.7%) and for the distance (7.4 %). The predominance of face-to-face can be explained mainly by the difficulty of doing practical exercises (tutorials and practical work) without the supervision of the teacher as well as internet problems [1]. Also, home learning can be hindered if the student does not have a suitable environment and / or if a myriad of distractions (social networks, video games for example) or if the student cohabits with them are added to it. other people who are not in the process of working (eg: young siblings).

The most effective strategy is therefore to alternate between face-to-face and distance learning because this allows both to have the lessons recorded and contact with the teacher and classmates during the practical or tutorial. This correlates with the study at the University of Health Sciences in Croatia, which found that just over half of students felt that online learning cannot compensate for hands-on teaching and seminars (51, 7%) [18]. The same study highlights concerns about the lack of practical education.

Although there were no predominant opinions about being private or concerned about lack of practical education, nearly half of students (47.4%) agreed that they feared that it is not possible to compensate for the lack of practical training during their studies and the majority (55.1%) indicated that they feared that the lack of practical training would have permanent consequences on their future preparation for employment.

For students enrolled in the first year of Moroccan medical studies, adapting to change in university and then to distance learning has been a tough test. The lack of supervision, interaction with teachers, and sociability clearly disrupted the integration of undergraduates during their medical studies.

In this sense, the development of online distance education is not without challenges, in particular the lack of sense of belonging and the feeling of isolation among students, leading to dropouts. While there is no deterministic effect of online environments on social interactions, being online undoubtedly reshapes social behaviors [14]. At the end of this survey, students were asked to express their degree of satisfaction with their teaching during this critical period, the results of the survey show that a percentage of 31.4% is quite satisfied. Distance education and that almost 27.1% are not very satisfied. According to 18.2% of the students surveyed, distance education is satisfactory. However, 17.6% remain dissatisfied with this teaching. Only 5.7% are very satisfied with this education. Another study where the results are encouraging in terms of student satisfaction. Thus, even if more than 70% of the students of the university Mohamed V surveyed affirm that they have never been involved in a distance education before, 71% among them are at least rather satisfied with the device of EAD put in place to ensure educational continuity during the confinement period [1].

The results concerning the general appreciation among all MERM students in initial training in France estimated that the main parts of distance education as satisfactory at 63.7% or excellent at 12.1% concerning pedagogy and satisfactory at 50.5% or excellent at 20.9% regarding communication [16].

Canada's public postsecondary institutions this time around perceive e-learning positively: A clear majority of responding institutions (61%) indicated that their students were as satisfied with online courses as they were with classroom courses, if not more satisfied [15]. Data from a quantitative student survey in Finland shows that distance education has been implemented with great success. However, open feedback from students reveals that while there were positive elements in distance education, like being able to study independently and sometimes even relaxing, it was often more difficult because it required more time. self-discipline. He also lacked social relations and some students had lost their motivation. Student descriptions showed that the difficulties did not go away over time, but rather increased due to motivational aspects [14].

In a survey of Portuguese university students, it was asked whether they consider the replacement of face-to-face teaching by distance learning methodologies to have had a positive result, 51,4 % (n = 89) saying yes and 48.6% (n = 84) saying no, along the same lines when asked about maintaining this format in the after school year, 56.1 % (n = 97) are for and 43.9% (n = 76) are against [13]. Also, about half (n = 104, 49%) of Ugandan students feel that online learning reduces the quality of the knowledge acquired and is not an effective teaching method [3]. Another interesting study targeting selected participants from around the world (across developed, developing and least developed countries) using a convenience sampling technique. This study examined the effectiveness of the delivery and evaluation of virtual programs at higher education institutions (HEIs) during the COVID-19 pandemic and showed that the availability of students in developing countries to regard to online learning was negative and stemmed from their anxiety about what would become of their academic results / performance [19]. It could be inferred that students in higher education institutions in developing countries were unfavorably inclined to virtual learning because of the unfounded fear of failure. This view was also reinforced by the statement, that students were unfamiliar with online learning, which further explains the reason for their virtual learning phobia. This ties in with Pushpanadham's (2019) idea that the preparation of learners is a key factor in determining the success of digital / virtual education.

Cabi & Kalelioglu (2019) reported that students' attitude towards virtual learning was positive for the majority, while the minority was unfavorably disposed. The Moroccan study targeting public higher education students or the results of the survey shows that the majority are not or are not very satisfied with distance education (79.4%) [1]. However, the investigation by Gormley et al. Conducted with undergraduate medical students in Jordan, assessing the effectiveness of

online learning in clinical skills, demonstrated that learners found online learning particularly useful as learners would be able to access and review online learning materials before learning. Second, it also encouraged them to see real patients by downloading relevant online videos for use.

In addition, most of the health science students in Croatia were satisfied with the exclusive online learning, as well as their personal and institutional adaptation to this type of education. Student feedback may have helped institutions improve the exclusive online learning experience for students during the pandemic. The results of a study to assess the distance online learning experience of Saudi Arabia's pharmacy students during the COVID-19 pandemic also indicated that 49.2% of students showed a positive attitude with regard to the e-learning provided [10]. Accompanying these reflections, a recent study of undergraduate health care students at a medical school in London, using a mixed-methods approach indicated that the nature of online learning often takes a systematic approach. to learning, that is, moving from the simple to the complex of learning, arguing that ideas or knowledge are logical and interconnected for consolidating learning and achieving learning objectives. Likewise, (Morente et al.) a study conducted with nursing students this time also reported that online learning improved the effectiveness of education for better learning acquisition [20].

Several studies have further shown that e-learning is the most effective approach to transfer clinical skills. Some authors of the article “COVID-19 and the push to online Learning: reflectionsfrom5 countries” predicted that the digital switchover imposed by COVID-19 could make online learning more acceptable in the future. Indeed, as a perhaps more flexible approach than face-to-face learning, it shows great potential but requires more thought.

Conclusion

Our study showed an evolution in the quality of distance education and a good integration of ICT for students. The results of our current study show that only 43.2% prefer the option of face-to-face lectures compared to 21.4% of students prefer hybrid education. Today, virtual education has quickly moved from a distant perspective to a tangible reality thanks to the accelerating effect of the pandemic. Acting in a hurry, the actors of Moroccan higher education have more or less succeeded in pulling out of the game, despite the major challenges they faced.

Our study clearly indicates that the quality of e-learning systems and the quality of information have a positive impact on learner satisfaction, as does the quality of information and the quality of collaboration that have an impact. Positive about the use of e-learning systems. We can draw the following practical implications derived from this study: Higher education institutions should place greater emphasis on eLearning content in terms of adequacy, as this influences its acceptance and learner satisfaction.

New information and communication techniques represent new communication tools; entering most sectors of socio-economic life. Their use in the world of health is very advanced. Along with a medical practice tool, they are also training tools.

The use of digital technology for medical education and training in Morocco is a topic that is not new. In higher education, it has been several years since the process was set in motion at varying rates and with more or less convincing results. For a good number of establishments, the question was not a priority until the health crisis came to give it an indisputable urgency and the idea of "going slowly, but surely" was no longer appropriate. In this unprecedented time of the COVID-19 pandemic, medical and dental schools have a duty to provide continuing education to students. Evidence suggests that virtual education is effective and institutions are working to further develop these resources to improve student engagement and interactivity.

Our study was able to highlight the degree of student use of the platforms offered for EAD and showed student satisfaction for this type of education. These results have been encouraging. However, much remains to be done to improve the quality of distance education in medical schools. For this, the involvement of teachers, students and administrative staff is necessary.

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