

## The effectiveness of e-learning on academic growth: A Post-COVID-19 study on Moroccan undergraduate students

Salma Habiballah \*, Mehdi Belghmi and Latifa Belfakir

*Department of English, Faculty of Letters and Human Sciences Dhar El Mahraz, Sidi Mohamed Ben Abdellah University, USMBA, 30000, Fes, Morocco.*

International Journal of Science and Research Archive, 2025, 14(02), 461-469

Publication history: Received on 26 December 2024; revised on 02 February 2025; accepted on 05 February 2025

Article DOI: <https://doi.org/10.30574/ijrsra.2025.14.2.0362>

### Abstract

The repercussions of the COVID-19 pandemic have had a tremendous influence on education, pushing students to migrate to distance or online learning, which has prompted problems with how students perceive this new mode of learning. Hence, this paper aims to investigate students' perceptions of online learning by assessing student engagement, learning outcomes, and student satisfaction in the context of Moroccan higher education. The study addresses the extent to which those three variables affect students' perceptions of online education. Adopting the mixed methods approach, this study recruited 100 EFL undergraduate students from the University of Sidi Mohamed Ben Abdellah to investigate their perceptions towards online education through self-reported questionnaire responses and in-depth interview explanations. The findings showed that online learning is viewed negatively among Sidi Mohamed Ben Abdellah University students, since quantitative scores of engagements, learning outcomes, and satisfaction were low for the study's participants. At the same time, the qualitative data revealed the causes of students' general dissatisfaction with online learning, which stemmed from the poor quality of communication, feedback, and technical help they received.

**Keywords:** Learning Outcomes; Moroccan Higher Education; Student Engagement; Student Satisfaction; Students' Perceptions

### 1. Introduction

The COVID-19 pandemic has significantly impacted education, forcing students to transition to remote online learning. This transition has been challenging due to limited time for adjustments. The shift raises questions about students' perceptions and knowledge management as they face structural difficulties and increased demand for digital, easy-to-read courses [1]. Studies post-COVID-19 pandemic agreed unanimously on the changing educational landscape, including fundamentals taken for granted, such as learning theories and scaffolding techniques that do not belong to nor support modern online learning and nowadays students. The introduction of online courses altered how students viewed education; a study by Anderton et al. (2021) stated that students' perceptions towards education took a new turn, further highlighting the importance of course design as a key determiner in the success or failure of the learning experience.

This paper aims to investigate students' perceptions of online learning by assessing student engagement, learning outcomes, and student satisfaction in an institution of higher education. The study addresses how student engagement, learning outcomes, and student satisfaction affect students' perceptions of online education.

\* Corresponding author: Salma Habiballah.

## 2. Review of Literature

### 2.1. Student engagement

Students' engagement is the time and energy allocated by learners to attend or/and take part in education-related activities. Furthermore, a student's active participation, commitment and devotion to scholarly activities both physically or mentally is also a facet of student engagement [3]. Similarly, student engagement is also the aptitude to collaborate with peers in various school-related activities, take part in designing courses' material, and be supportive of teachers' efforts by thinking, discussing, and interacting with the studied elements. Supporting and fostering students' participative engagement in online classes is critical to guarantee their continuous involvement in the course and their overall learning experience [4].

Quantifying student engagement during online classes, according to theories of learning, deals with assignments that mirror real-life situations and experiences, and the promotion of critical thinking through practical activities all contribute to the fostering and enhancement of learning an example of the lack of student engagement can be described as follows [5]:

"Teachers are unable to observe students' immediate reaction. This is particularly so as students tended to join the online lectures without switching on the camera and microphone. Instructors can obtain little hints of student engagement, which makes offline revision exercises necessary to understand students' learning situation (Tang et al., 2020, p. 03)".

Research on the importance of student involvement highlighted the vital role of courses' design in emphasizing students' needs in the online context [6]. Thus, peer and teacher engagement is the most effective strategy to encourage and set grounds for a participatory online learning style.

### 2.2. Learning outcomes

Evaluation of learning outcomes is secondary in importance; it enhances the value of online courses and improves students' learning experiences. Students' perception of their learning is critical for teachers. This assessment should encompass course design, delivery, and assessment to identify areas for improvement [7]. Hence, perceived learning is a crucial aspect of course evaluation as it serves as a learning indicator [8]. Alvi et al. (2002) define perceived learning as changes in the student's skill and knowledge levels pre/post the learning experience. For Alvi et al. (2002), perceived learning is students' comprehension of a particular body of knowledge gained through new learning. By understanding the factors that impact students' perceived learning, instructors can improve online courses' assets in terms of course planning, delivery, and valuation, to enhance the overall experience of student learning [9].

To attract and retain online students while providing them with a well-designed learning experience, it is essential to explore and investigate learning outcomes in online learning. Educational institutions can uncover opportunities for the development and enhancement of online learning by studying its features [10].

### 2.3. Student satisfaction

What mirrors students' experience with online learning is student satisfaction [7]. Student satisfaction is one of the pointers to educational efficiency, whether learning takes place online or offline [9,11,12].

For Hettiarachchi et al. (2021), a student's perception of how well their other needs, objectives, and wants have been fulfilled determines their satisfaction. Student satisfaction can also be defined as a short-term attitude based on evaluating the educational experience, services, and facilities provided to them [14]. According to Elliot et al. (2002), student satisfaction is a student's attitude based on a subjective assessment of educational achievements and experiences. As a result, student satisfaction may be referred to as a function of the relative degree of experiences and perceived performance in terms of educational service over a specific study time [16].

The literature shows that student satisfaction is defined and measured following various approaches [17]. "Learner relevance, active learning, authentic learning, learner autonomy, and technical competence" were recognized as five student satisfaction factors by Ke et al. (2013, p. 10). In a related study, learner-instructor interaction and learner-content interaction, paired with technological competence, were valid markers of student satisfaction by Kuo et al. (2013). Moreover, Rubin et al. (2013) relied on the prior Community of Inquiry model [20] which recognizes social, cognitive, and teaching presence as critical to student learning and satisfaction. According to scholars, learning management systems (LMS) also substantially impact community perceptions and, as a result, student satisfaction.

Frameworks for comprehending how this paper employs the three concepts to examine the COVID-19 pandemic's effects on education in general and to gauge students' opinions of online learning in the context of EFL instruction in higher education institutions in specific are provided by this body of literature [21].

### 3. Research Methods

#### 3.1. Participants

One hundred undergraduate students from the English department of the Faculty of Letters and Human Sciences Dhar El Mahraz in Sidi Mohamed Ben Abdellah University were chosen as respondents of this study. Fifty-two females and Forty-two males took part in the study. For their age, 17 participants are 18-20 years old, 43 of them are 20-22 years old, and 40 are 22+ years old. Moreover, 72 participants were third-year students, while 28 were second-year students.

#### 3.2. Instruments

First, a questionnaire with 18 items and three sections was designed. It was adopted from existing research studies and helped measure quantitative data. The sample was asked to react to the items using a 5-point Likert scale.

**Table 1** Case Number

Case Processing Summary			
		N	%
Cases	Valid	100	100.0
	Excluded <sup>a</sup>	0	.0
	Total	100	100.0

**Table 2** Cronbach's Alpha Coefficient for the 18 items

Reliability Statistics	
Cronbach's Alpha	N of Items
0.920	18

Tables 1 and 2 show the Cronbach's Alpha Coefficient for the 18 questionnaire items. With a .920 value, the scale relied on for the study is highly reliable.

Also, six interview questions were asked to get raw qualitative data from respondents and enrich the paper with in-depth input regarding students' perceptions of online learning. The interviews were unstructured, administered online, and allowed the participants to elaborate on their overall perception of online learning freely.

#### 3.3. Data analysis

The quantitative data gathered from the online questionnaire were analyzed using SPSS (Statistical Package for the Social Sciences). The mean and standard deviations were calculated, and item correlations were established. The qualitative data gathered from the interviews was analyzed using repetitive patterns of thematic analysis.

## 4. Results and Findings

### 4.1. Student engagement

**Table 3** Mean & standard deviation of students' engagement

	N Valid	Missing	Mean	Std. Deviation
I can share my ideas in the online courses	100	0	3.3700	1.36814
I can moderate discussions in online courses	100	0	2.9900	1.34461
I pay attention when the teacher provides learning explanations during online learning	100	0	3.4500	1.33617
I like to participate in discussions in online courses	100	0	3.0600	1.37672
I submit assignments given by the teacher on time	100	0	3.2100	1.42343
I like the reliance on my own self-discipline in online classes	100	0	2.5400	1.38841

According to the findings illustrated in Table 3, student engagement has neutral primarily points of view as the BA students pay attention when the teacher provides learning explanations during online learning (Mean=3.45), share their ideas online (Mean=3.37), submit assignments given by the teacher on time (Mean=3.21), and like to participate in discussions in online courses (Mean=3.06). The participants, however, disagree that they moderate discussions in online courses (Mean=2.99) and like the reliance on their own self-discipline in online classes (Mean=2.54).

### 4.2. Learning outcomes

**Table 4** Mean & standard deviation of students' learning outcomes

	N Valid	Missing	Mean	Std. Deviation
I can interrelate the important issues in the online course's materials	100	0	3.2100	1.17461
I gained a good understanding of the basic concepts of the online course's materials	100	0	3.2200	1.38957
I learned to identify the central issues of the online course's materials	100	0	3.2100	1.26567
I developed the ability to communicate clearly about the online course's materials	100	0	2.9100	1.29564
I improved my ability to integrate facts and develop generalizations from the online course's materials	100	0	3.0900	1.34911
I learned concepts and principles during online courses	100	0	3.4100	1.31114

In Table 4, results indicate that students' perceived learning is neutrally viewed, in all its elements, by the participants of this study.

### 4.3. Student satisfaction

Table 5 displays that the satisfaction of BA students is neutral in elements such as liking the flexibility of the study location (Mean=3.32) and spending time on the computer (Mean=3.05). Nevertheless, students disagreed that they were satisfied with online learning (Mean=2.84). They would not recommend online learning to other students (Mean=2.79), do not prefer online learning to face-to-face learning (Mean=2.70), and do not like online learning methods (2.68).

**Table 5** Mean & standard deviation of students' satisfaction

	N Valid	Missing	Mean	Std. Deviation
I am satisfied with online learning	100	0	2.8400	1.46142
I prefer online learning to face-to-face learning	100	0	2.7000	1.62990
I like online learning methods	100	0	2.6800	1.43464
I like the flexibility of study location	100	0	3.3200	1.33242
I like spending time on the computer	100	0	3.0500	1.45210
I would recommend online learning to other students	100	0	2.7900	1.47227

Concerning students' overall perceptions of online learning, interview questions allowed participants to comment on their experiences with online learning. Excerpts from different students can be found below.

- When asked, "*How do online educational programs compare to traditional in-person instruction in your opinion?*", students answered by citing the advantages and disadvantages of online education:

#### 4.3.1. Theme 1: Face-to-face education supremacy

"Online education is not as effective as in-class instruction"; "I experienced new ways of interaction with both my teachers and classmates during online courses, but still face-to-face classes feel more engaging and profiting"; "During the pandemic, we practiced online education, it was a hard period. It lacks the pedagogy"; "It was bad in every way".

#### 4.3.2. Theme 2: Advantages of online education

"I guess an online educational program is better it just needs some adjustments so that everyone will be satisfied with it. Personally, I got good remarks when I studied online in my second year. So my experience with it was good"; "Online studies allowed me to balance between studying and working. The experience may be lacking in the sense of interactions with students. The professors were equipped enough to maintain a balanced educational discourse in their approach to online teaching"; "It was better as I don't need to go to the faculty and all the lessons are available on the website, I can study whenever I feel capable of without the risk of missing any lesson".

- A question about communication among students and with their instructors split the respondents' opinions in two:

#### 4.3.3. Theme 1: The easy flow of communication online

"It was easy to communicate with each other"; "Being a somewhat lazy person, I do not interact much, only when I deem it needed. Yet online classes motivated me to participate more as I'm usually just in front of my computer, I can focus on other tasks while splitting my focus on the class room, allowing myself to multitask and operate better."; "Good and rich with benefits and enjoyment".

#### 4.3.4. Theme 2: Hardships of online communication

"I feel that there is a one-to-one interaction which is the one between the instructor and the whole group. It's hard to interact with the other students in online meetings."; "With some instructors, I feel stressed a bit to communicate with them, but with other student it went pretty well"; "It depends on the person himself either the instructor or a classmate"; "I had consistent conversations via Whatsapp. I contacted my profs via e-mail, few would respond".

- The students were also asked "*Do you believe that online education could help you accomplish your learning objectives? Why? How?*", they answered with the following:

#### 4.3.5. Theme 1: Benefits of online education

"I think online learning reduces distractions. I can absorb more info than learning in a Classroom environment. I would visit websites where journals and researches are available, listen to lectures in Youtube"; "Yes, because online education provides you with more benefits like studying anytime and if someone is working he could find his lecture recorded online"; "Even though we don't have any experience on online education, we almost made it. So, our outcomes could be

achieved via online education, if we have a great pedagogy and the materials”; “yes, because it is a more convenient way to have a deeper look into the program of studies, plus you browse the internet where you can reinforce your knowledge about the lessons”.

#### 4.3.6. *Theme 2: A neutral stance*

“I think my learning outcomes can occur in both online and physical learning. The outcome depends on my as a student and how intrigued I am to learn and absorb knowledge from the professors. Why? because online class is more passive in a way, there no noises no distraction, only focus and gaze at the computer screen. How? as stated, the link between the student and the laptop screen allows the student to identify with the knowledge presented, as long as the professor talks or discusses something of importance, the student will shed his unlimited focus on the matter at hand and will by extension identify with it completely”.

#### 4.3.7. *Theme 3: Online education drawbacks*

“No I don’t think so because I didn’t learn anything when we were studying online”; “I don’t think so because there is far less interaction and motivation with online education”; “No I don’t think so because I believe online learning only complements real courses. It cannot totally replace it”.

- “What are your thoughts on the instructor’s feedback? Is it delivered on time? Is it effective?” is a question that had the following feedback:

#### 4.3.8. *Theme 1: Poor feedback quality*

“There was no response, they barely reply, professors have disadvantages in this side. Approaching them in the university halls is more effective”; “On the matter of feedback, I would argue that the feedback from the professors is limited. In the instances where multiple students ask questions or certain information are requested, the professor is met with the blocking of time constraint.”; “Instructors try to interact as much as they can with their students, but they can’t answer all the possibly asked questions”.

#### 4.3.9. *Theme 2: The constructiveness of feedback*

“In a timely manner”; “Yes it was constructive”; “At this level I think that the instructor’s feedback is significant”.

- There was an overall consensus in the responses to “What do you think of your university’s technological assistance? Is there anyone you could address to solve problems you encounter?”:

#### 4.3.10. *Theme 1: Technical problems*

“Apart from a set of e-mail addresses and some Moodle accounts, nothing of great assistance was really offered by the university. We mostly end up depending on our own selves to these matters”; “There were a lot of technical problems but I don’t know why no one has tried to contact the team in the university”; “The support is not the best but eventually all problems get solved”; “There is no technical support provided from the university only in papers, but in reality, it doesn’t exist from anyone there”; “No, and it’s not sufficient”.

- When asked “What steps may you take to boost the effectiveness of your online education?”, the participants had the following suggestions:

#### 4.3.11. **Theme 1: Suggestions for a better online education experience**

“Better and stable internet connection. Good technological devices”;

“Having a good network, and develop my soft skills. Moreover, try to not rely only on the online education”;

“Have the sessions as planned on time not randomly and the visual part should be present too not only an audio”;

“I would provide training for professors. Certain pedagogical approaches need to be established within professors, for them to adapt to this new form of education, they are required to be equipped for it at first. By extension, their training will allow that knowledge to be transmitted to the students”;

“In order to improve the quality of online learning, a whole culture to work online needs to be established and educational leaders have to provide universities and students with the necessary equipment and tools to facilitate the process”.

---

## 5. Discussion

The study's findings demonstrated how students view online learning, with participants expressing neutral and disagreeing opinions on all aspects of student engagement, learning outcomes, and satisfaction. Additionally, qualitative data from questions about communication, feedback, technical support, and overall online learning experience showed that students do, in fact, prefer in-person instruction and recommend improved technological tools to enhance the quality of online learning. These findings suggest that undergraduate students at Sidi Mohamed Ben Abdellah University prefer in-person instruction due to their self-reported levels of student engagement, learning outcomes, and satisfaction in the online sphere.

These findings are consistent with various studies that argued students generally do not like to learn online. Our findings are similar with those of Belghmi et al. (2024) whose findings concluded that traditional face-to-face learning was usually preferred over online learning. However, several studies reported different findings. In India, Khan et al. (2021) indicated that the Indian respondents had positive perceptions toward online education and were welcoming of this new learning approach. Hazaymeh (2021) found that English department students have positive attitudes towards online learning due to its benefits like time, effort, and money savings, as well as the opportunity to enhance their language skills, creativity, communication, and digital citizenship.

---

## 6. Conclusion

As technology has overrun many educational systems worldwide, examining how this invasion has mostly affected students in recent years is critical. This article thoroughly explores students' perspectives on online learning supported by the findings, which demonstrate that online learning is regarded poorly among Sidi Mohamed Ben Abdellah University students since engagement, learning outcomes, and satisfaction scores were low for all the study's participants. According to the qualitative data, the causes for students' general dissatisfaction with online learning stem from the poor quality of communication, feedback, and technical help they received.

### *Limitations*

- The sample chosen for this study belonged to the English department; thus, the results cannot be applicable or generalized among students belonging to other disciplines.
- This paper only focused on three aspects of academic growth: student engagement, learning outcomes, and student satisfaction.

### *Recommendations*

- Future research into students' perceptions of online learning should include other departments.
- Future studies need to measure other variables to clearly understand how students perceive online learning.

---

## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

### *Statement of ethical approval*

Ethical committee approval for this study was obtained from Sidi Mohamed Ben Abdellah University (Date: 16.05.2022).

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

## References

- [1] Baticulon RE, Sy JJ, Alberto NRI, Baron MBC, Mabulay REC, Rizada LGT, et al. Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. *Med Sci Educ* 2021;31:615–26.
- [2] Anderton RS, Vitali J, Blackmore C, Bakeberg MC. Flexible teaching and learning modalities in undergraduate science amid the COVID-19 pandemic. *Front Educ (Lausanne)*, vol. 5, Frontiers Media SA; 2021, p. 609703.
- [3] Kuh GD. What student affairs professionals need to know about student engagement. *J Coll Stud Dev* 2009;50:683–706.
- [4] Sharma K, Giannakos M, Dillenbourg P. Eye-tracking and artificial intelligence to enhance motivation and learning. *Smart Learning Environments* 2020;7. <https://doi.org/10.1186/s40561-020-00122-x>.
- [5] Tang YM, Chen PC, Law KMY, Wu C-H, Lau Y, Guan J, et al. Comparative analysis of Student's live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education sector. *Comput Educ* 2021;168:104211.
- [6] Evans E, Menold J, McComb C. Critical Thinking in the Design Classroom: An Analysis of Student Design Reflections. *International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, vol. 59216, American Society of Mechanical Engineers; 2019, p. V003T04A012.
- [7] Alqurashi E. Predicting student satisfaction and perceived learning within online learning environments. *Distance Education* 2019;40:133–48.
- [8] Wright VH, Sunal CS, Wilson EK. Research on enhancing the interactivity of online learning. IAP; 2006.
- [9] Alavi M, Marakas GM, Yoo Y. A comparative study of distributed learning environments on learning outcomes. *Information Systems Research* 2002;13:404–15.
- [10] Kuo Y-C, Walker AE, Belland BR, Schroder KEE. A predictive study of student satisfaction in online education programs. *International Review of Research in Open and Distributed Learning* 2013;14:16–39.
- [11] Eom SB, Wen HJ, Ashill N. The determinants of students' perceived learning outcomes and satisfaction in university online education: An empirical investigation. *Decision Sciences Journal of Innovative Education* 2006;4:215–35.
- [12] Belghmi M, El Hilali E, Belfakir L. Students' Attitudes Towards E-learning: BA Students at the University of Belgrade as a Case Study. *European Journal of Education and Pedagogy* 2024; 5:11–7.
- [13] Hettiarachchi S, Damayanthi BWR, Heenkenda S, Dissanayake D, Ranagalage M, Ananda L. Student satisfaction with online learning during the COVID-19 pandemic: a study at state universities in Sri Lanka. *Sustainability* 2021; 13:11749.
- [14] Weerasinghe IMS, Fernando RL. Students' satisfaction in higher education. *Am J Educ Res* 2017; 5:533–9.
- [15] Elliott KM, Shin D. Student satisfaction: An alternative approach to assessing this important concept. *Journal of Higher Education Policy and Management* 2002; 24:197–209.
- [16] Mukhtar U, Anwar S, Ahmed U, Baloch MA. Factors effecting the service quality of public and private sector universities comparatively: an empirical investigation. *Researchers World* 2015; 6:132.
- [17] Forid MS, Hafez M, Khan W. Student satisfaction and retention: impact of service quality and digital transformation 2022.
- [18] Ke F, Kwak D. Online learning across ethnicity and age: A study on learning interaction participation, perception, and learning satisfaction. *Comput Educ* 2013; 61:43–51.
- [19] Rubin B, Fernandes R, Avgerinou MD. The effects of technology on the Community of Inquiry and satisfaction with online courses. *Internet High Educ* 2013; 17:48–57.
- [20] Garrison DR, Anderson T, Archer W. A theory of critical inquiry in online distance education. *Handbook of Distance Education* 2003; 1:113–27.
- [21] Belghmi M, Marzak M. The impact of COVID-19 on international education: challenges , adaptations , cross-cultural experiences , and globalization 2025:3–6.



- [22] Belghmi M, Habiballah S, Belfakir L. Enhancing Students' Satisfaction through Asynchronous Blended Learning in Higher Education: PhD Students at the University of Sidi Mohamed Ben Abdellah as a Case Study. *International Journal of English Language Studies* 2024; 6:70–82.
- [23] Khan M, Yoo S-J, Clijsters M, Backaert W, Vanstapel A, Speleman K, et al. Visualizing in deceased COVID-19 patients how SARS-CoV-2 attacks the respiratory and olfactory mucosae but spares the olfactory bulb. *Cell* 2021; 184:5932–49.
- [24] Hazaymeh W. EFL Students' Perceptions of Online Distance Learning for Enhancing English Language Learning during COVID-19 Pandemic. *International Journal of Instruction* 2021; 14:501–18.