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Research Article

Factors Influencing Student Satisfaction with Online Learning in Egyptian Higher Education during the COVID-19 Pandemic

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ABSTRACT

The purpose of this research is to empirically investigate the factors influencing student satisfaction with online learning in Egyptian higher education during the covid-19 pandemic. The paper fill the gap in the literature by having a contribution of providing valuable insights into how educational institutions can better support their students during times of crisis. This can identify specific challenges faced by students and provide recommendations for improving online learning experiences. After the pandemic, this research can serve as a guide for institutions to implement changes that improve overall student satisfaction and ensure a positive learning experience. The developed conceptual framework contained seven independent variables: Computer Self-Efficacy, Accessibility, Instructor related, Course setup, Assessment related, Interaction and Faculty support. The only dependent factor for the research was the overall student satisfaction. Five other variables were examined for their moderator effect on the study variables: Faculty Type, GPA, Gender, Age and Residence status. The research was conducted at four Egyptian private higher education institutions (HEIs) in Alexandria, Egypt, with the data being collected through an online questionnaire. The sample size included 434 students who responded successfully to the online questionnaire. The methodology is performed based on quantitative analysis for the collected data and structural equation model analyses (SEM) using AMOS software. Twelve hypotheses were formed to examine the relationship between each independent variable and moderator variable with the dependent variable. All the Twelve hypotheses were statistically validated by the analysis. Thus the whole selected factors for the developed conceptual framework influence the online learning student satisfaction. It was found that the students were overall satisfied with the online learning during COVID-19 pandemic. The students ranked their level of satisfaction with the seven investigated factors as the following: the highest level of satisfaction for Computer Self-Efficacy, then Accessibility, Course setup, Interaction, Faculty support, Instructor related and the least level of satisfaction for Assessment related. 35.7% of the respondent students suggests using online learning in the future while 46.8% suggested using face to face learning. According to Students' perceptions, Google Classrooms and Zoom were the most effective online learning platforms respectively.

Index Terms— COVID-19 Pandemic, Egyptian HEIs, Online Learning, Student satisfaction.

I. INTRODUCTION

The main purpose of higher education institutions (HEIs) is to provide opportunities for students to advance their academic careers and realise desired professional development aspirations. Recently, the contentment of students has become crucial for all higher education institutions worldwide. It has to do with how well academic services are delivered. Since students have been identified as the major target market, it is advised that HEIs operate under demand forces to effectively and aggressively satisfy students. The provision of high-quality services is essential for higher education institutions' long-term existence [1]. Online learning was regarded as one of the cornerstones of information and communication technology in the field of education at the start of this millennium. It facilitated the changes that educators had long called for and altered the traditional roles that students and instructors took on in the classroom [2]. As educational institutions responded to the COVID-19 pandemic by closing schools and providing students with online learning and blended learning choices, online learning has grown in importance as a delivery method. These considerations have made online learning an expanding area of study, especially inspiring scholars to evaluate its effectiveness, ascertain how it affects student satisfaction, and think about how to enhance it [3]. Numerous studies on student satisfaction in this new learning environment have been conducted as a result of the move towards online learning during the COVID-19 pandemic [4].

Students and teachers had to figure out ways to finish their coursework at home in the early days of closures. The Egyptian Ministry of Higher Education and Scientific Research announced a series of emergency measures to address the situation and allay public worries, including setting up multiple platforms to support students' online study. The focus of educational institutions should start to move from determining whether students could learn to determine if they could learn effectively and be happy with their new learning surroundings. As a result, governments, academic institutions, and platform service providers might not have much strategic direction to improve student satisfaction [5]. Focusing on the use of researches to improve the performance of educational services in Egypt and provide them in accordance with modern international standards, most of the researches that found in the literature were studied in the western counties. This study is a response to the call of [6] for further studies to investigate online learning experiences at the end of that pandemic, when educational institutions are expected to have the best plans and have to be all set for online learning. Therefore, this study seeks to investigate the factors influencing student satisfaction with online learning in Egyptian higher education during the covid-19 pandemic and to fill the gap in the literature by having a contribution of investigating the students' perceptions of the most effective employed online learning platforms in their learning process. Also, to investigate the students' recommendation about learning using online classes in the future.

II. LITERATURE REVIEW

A. Online Learning

Online learning refers to a type of education that takes place in an electronic learning environment, where students do not have physical peers and have the freedom to learn at their own pace and location. It has become an increasingly popular option for those who cannot attend traditional classrooms due to various reasons [4]. There are different types of online learning, such as distance learning, blended learning, and mobile learning. However, research on the effectiveness of these methods has yielded inconclusive results internationally [7]. The popularity of online learning has been influenced by the increased demand for higher education and competition among educational providers. This is particularly important in the context of reduced education funding, especially in professional disciplines. Online education provides access, flexibility, and convenience, allowing participants to customize their study programs to fit their lifestyles. This is especially beneficial for postgraduate students who often struggle to secure study leave [8] . In Egypt, many institutions have shifted towards using online learning methods, such as video conferencing courses. These courses use computer and communications technology to facilitate real-time interaction between students and instructors. Instructors incorporate various materials, including quizzes, activities, and learning sessions, to enhance the learning experience. Video conferencing allows for effective guidance and caters to different learning styles and levels of knowledge and cognitive skills. In video-conference courses, students' contributions can be assigned as individual tasks by the instructor or as group work facilitated by peers. Overall, online learning offers flexibility, customization, and increased accessibility to education, addressing the challenges faced in traditional classroom settings.

B. Student Satisfaction

Customer satisfaction is an important concept that applies to various contexts, including higher education, where the term "student satisfaction" is increasingly being used [9]. However, there is no common definition of this term in the literature. Although some researchers have attempted to define student satisfaction, there is no consensus on the definition. Some define it as a short-term attitude resulting from a student's evaluation of their educational experience [10], while others see it as the favorability of a student's subjective evaluation of the various outcomes [11] and experiences associated with the learning system ([12];[13]).

Due to the COVID-19 pandemic, many educational institutions worldwide have been forced to transition to online learning, which has raised concerns about how this affects student satisfaction. Studies have shown that there are many factors influencing student satisfaction in this context, including the nature of the online learning experience, the platforms used, and the challenges posed by the lack of in-person interactions and practice-based activities s [14].
It is essential to consider students' perspectives and thoughts on these aspects of the online learning process when evaluating and reevaluating the quality of teaching practices in this new context [15]. Understanding and addressing students' concerns regarding online learning can help improve their satisfaction, which ultimately contributes to their overall academic success [16].

III. FACTORS INFLUENCING ONLINE LEARNING STUDENT SATISFACTION

Almost all service opportunities that students encounter during their undergraduate education are varied. Numerous elements that have been examined in numerous research can affect how students experience online learning. The characteristics impacting student satisfaction with online learning in higher education during the COVID-19 epidemic are of attention to many scholars. Administrative obstacles, interpersonal interactions, academic and technical abilities, motivation, time, restricted access to resources, and technical challenges are some of these components. Other elements that have been recognized as obstacles include unfamiliar duties and responsibilities, delays in tutor feedback, a lack of technical support, a strong dependence on technology, and poor student performance and satisfaction. Although there is a sizable body of research on the online learning environment, all of these studies made the assumption that the online courses would be well-planned and that the instructors would have prepared their courses before using the online platform. As a result, their contexts were very different from the quick, individualized redevelopment of the teaching model that we have observed during COVID-19. Therefore, it is necessary to assess the effectiveness of this online learning and to investigate the accompanying difficulties and opportunities [17]. Table (I) summarizes some of the Factors influencing students' satisfaction with online learning that could be found in the literature. The main factors were three central issues: the tutor, the technology and interactivity.

Table (I) Literature considering the factors influencing students' satisfaction with online learning

tudies	Factors influencing students' satisfaction with online learning
[18]	▪ Evaluation ▪ Facility Performance ▪ Recommendations
[19]	▪ Platform availability of system ▪ Designed content ▪ Interactive learning activities ▪ Quality of service ▪ Teacher evaluation
[20]	▪ Support and adaptation in the virtual mode ▪ The interaction in the Virtual classroom ▪ The development of the study program
[21]	▪ The process ▪ Perceived self-satisfaction ▪ Lecturer services ▪ Availability of supporting technology
[22]	▪ Tangible ▪ Reliability ▪ Responsiveness ▪ Assurance ▪ Empathy
[23]	▪ Content Quality ▪ Content Availability ▪ Teacher Interaction ▪ Mode of Lecture Delivery

As a result of reviewing the literature, the researchers constructed a conceptual framework to investigate Factors Influencing Student Satisfaction with Online Learning in Egyptian Higher Education during the COVID-19 Pandemic. This developed framework is shown in Fig. 1. The Factors influencing the overall student satisfaction is considered as independent variable (Computer Self-Efficacy, Accessibility, Instructor related, Course set up, Assessment related, Interaction, Faculty support), while (Faculty Type, GPA, Gender,

Age and Residence Status) are considered the moderators and overall student satisfaction is considered the dependent variable for the current research.

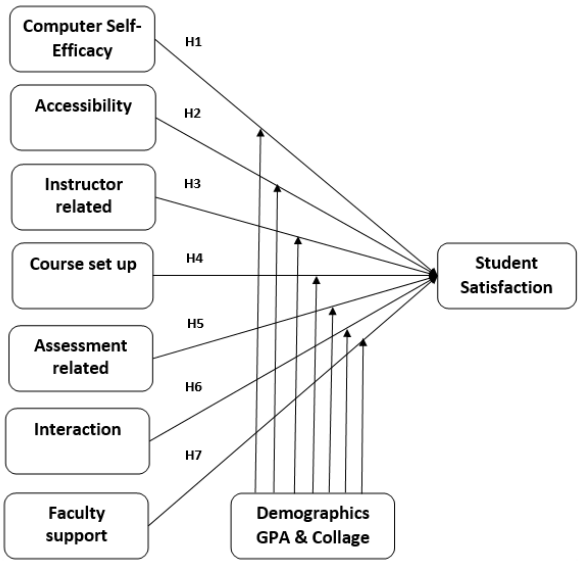

Figure (1) Conceptual framework (modified from [5], [24], [25])

A. Computer Self-Efficacy

Computer Self-Efficacy, refers to a student's belief in their ability to use a computer effectively. This belief can influence how confident they feel when using technology and how willing they are to engage with it. Recent studies [5], [26], [27] have shown that students with higher levels of Computer Self-Efficacy tend to be more satisfied with their online learning experiences. This is because they feel more comfortable navigating the digital environment and are better equipped to handle any technical challenges that may arise.

B. Accessibility

Accessibility is a crucial aspect of online learning that can have a significant impact on student satisfaction. It refers to the ease with which students can access course materials and participate in class activities. This includes everything from the availability of digital resources to the usability of online platforms. [28] Explores the relationship between accessibility and online student satisfaction and found that accessibility was one of the key factors influencing student satisfaction with online learning. Overall, it's clear that accessibility plays a critical role in shaping students' experiences with online learning.

C. Instructor related

When it comes to instructor-related factors that can influence online student satisfaction, it is talking about things like instructor support, communication skills, and teaching style. [29], [30] explores the relationship between instructor-related factors and online student satisfaction and found that instructor related was one of the key predictors of online learning satisfaction among college students during the pandemic. Instructor-related factors play a critical role in shaping students' experiences with online learning. By prioritizing instructor support, effective communication, and a teaching style that fosters engagement and motivation, educators can help ensure that their students are satisfied with their virtual learning experience.

D. Course set up

Course set up belongs to the organization and structure of the course content, as well as the ease with which students can access and navigate through that content. [4] explores the relationship between course set up and online student satisfaction and found that course design was one of the key predictors of online learning satisfaction among higher education students. By prioritizing effective organization and navigation, as well as accessibility considerations for all students, educators can help ensure that their courses are designed to maximize student satisfaction and success.

E. Assessment related

Assessment-related factors in online learning, means the frequency and type of assessments used, as well as how those assessments are graded and provided feedback on. [31], [32] explores the relationship between assessment and online student satisfaction During COVID-19 Pandemic and found that students who were given frequent formative assessments (i.e., low-stakes assessments designed to provide feedback) were more satisfied with their online learning experiences than those who only had high-stakes summative assessments (i.e., exams or final projects).

F. Interaction

Interaction in online learning, refers to the ways in which students and instructors communicate and collaborate with one another. This can include things like discussion forums, video conferencing, and group projects. Most studies found that students who reported higher levels of interaction with their instructors and peers tended to be more satisfied with their online learning experiences. Multiple studies [4], [20], [33] that highlighted social interaction as one of the barriers to remote education; thus, this element needs to be looked into when designing online courses to improve the impression of students with regard to online learning and enhance their satisfaction.

G. Faculty support

Faculty support is any type of support produced by the faculty to make the online learning more successful. It may be related to online faculty communication, technical support, counselor or academic advising. The availability of technical support during online learning refers to students' judgment about access to adequate help in resolving technical issues during online learning [34]. A study focuses on effects of the online learning in the era of the COVID-19 pandemic at a university in Brazil, Colombia, and Peru. The students who were surveyed from the three countries showed moderate satisfaction related to the support they have received from their institutions [20].

In [25] study, Students indicated they were satisfied with the tools and methods of communication they utilized for online learning. Additionally, it was discovered that interactions between students and staff foster a positive learning environment, enhance student achievement, and increase student satisfaction.

IV. RESEARCH METHODOLOGY

Due to the simplicity of data collection and sample selection, the researchers chose a convenience sample from the population [35], and due to the limited time and funds. The survey is distributed using (online surveys with Google Forms). The Arab Academy for Science and Technology and Maritime Transport, Pharos University in Alexandria, Egypt Japan University of Science & Technology, and Alamein International University were chosen for the study from among all the registered students in all years, in any faculty, to ensure a representative sample. The overall population of the current study, which included all enrolled students, was estimated to be no more than 100,000. The Statistical Package for Social Sciences (SPSS) program is used to analyze the data obtained from the questionnaires, including descriptive statistics (frequency and percentages), inferential statistics (correlations), and structural equation model analyses (SEM) using Analysis Moment of Structures (AMOS) software, will analyze the hypothesized models.

V. RESULTS AND FINDINGS

A. Data collection

The research survey was conducted from 13th September 2022 to 28th December 2022, a total of three and half months. This research used google form platform that has technology to avoid the same person giving multiple responses from the same Email address, 476 questionnaires representing were returned, 42 questionnaires representing were incomplete or ineligible or refusals. There were 434 acceptable responses . The frequency of "university" indicates that the majority (208) of respondents "Arab academy for science and technology and maritime transport", which 47.9%, the next highest of respondents "27.6%" which "Pharos University in Alexandria", the third highest of respondents, Alamein International University 15.9%, while the remained "8.5%" were "Egypt Japan University of Science & Technology. Measurement items have standardized loading estimates of 0.5 or higher (ranging from 0.518 to 0.968 at the alpha level of 0.05, indicating the convergent validity of the measurement model. Discriminant validity shows the degree to which a construct is actually different from other constructs [36].

B. Validity and reliability

The average variances extracted (AVE) should always above 0.50 [36]. The average variances extracted (AVE) of the particular constructs (Computer Self Efficacy = 0.690, Accessibility =0.629, Instructor related =0.510, Assessment related = 0.745, Interaction = 0.500, Course setup= 0.538, Faculty support = 0.548 and Student satisfaction = 0.533) are more than 0.500. Overall, these measurement results are satisfactory and suggest that it is appropriate to proceed with the evaluation of the structural model. Composite reliability (CR) is used to measure the reliability of a construct in the measurement model. CR is a more presenting way of overall reliability and it determines the consistency of the construct itself (Hair et al., 2019). The CR of Computer Self Efficacy = 0.917, Accessibility =0.874, Instructor related =0.838, Assessment related = 0.936, Interaction = 0.821, Course setup= 0.849, Faculty support = 0.831 and Student satisfaction = 0.872). So, it clearly identified that in measurement model all construct have good reliability.

C. Descriptive statistics

It was found that the students were overall satisfied with the online learning during COVID-19 pandemic (mean=3.439). The students ranked their level of satisfaction with the seven investigated factors as the

following: the highest level of satisfaction for Computer Self-Efficacy (mean=4.091), then Accessibility (mean=3.775), Course setup (mean=3.562), Interaction (mean=3.512), Faculty support (mean=3.439), Instructor related (mean=3.429) and the least level of satisfaction for Assessment related (mean=3.418). 35.7% of the respondent students suggests using online learning in the future while 46.8% suggested using face to face learning. According to Students' perceptions, Google Classrooms (mean=3.72) and Zoom (mean=3.461) were the most effective online learning platforms respectively.

D. Structural model

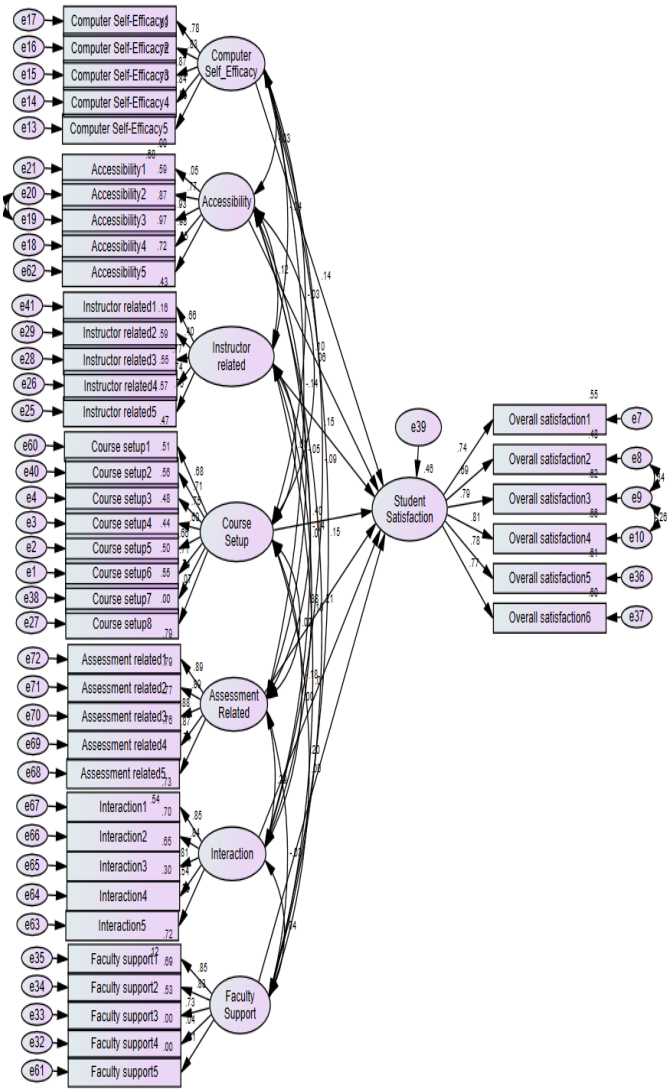

Figure (2) Structural Model (Final Result)

According to the structural model's results using the AMOS software, DF was 872 (it should be more than 0), and the value of $\square^2$ /DF is 2.326, which is less than 3.0 (it should be less than or equal to 3.0). The RMSEA was.050 when it ought to be under 0.08. A score of 1.0 denotes perfect match, and the TLI index was.906, which is extremely near to that figure. CFI was.914, and. The measurement models offer strong support for the factor structure identified by the CFA, as shown by the fact that all indices are near to a value of 1.0 in the CFA.

E. Direct effects

According to [36], the correlations between the latent variables show that each of the hypothesized effects generated for this research model appropriately captures the importance and degree of each effect, demonstrating a good model fit. Overall, a model's fitness measurement was higher than what was considered to be acceptable.

Table (II) presents the results; the individual tests of significance of the relationship between the variables. Therefore, H1: There is a statistically significant relationship between Computer Self-Efficacy (CSE) and the overall student satisfaction (OSS) is supported. H2: There is a statistically significant relationship between Accessibility (ACB) and the overall student satisfaction (OSS). H3: There is a statistically significant

relationship between Instructor related (INS) and the overall student satisfaction (OSS). H4: There is a statistically significant relationship between Course setup (CSU) and the overall student satisfaction (OSS). H5: There is a statistically significant relationship between Assessment related (LRN) and the overall student satisfaction (OSS). H6: There is a statistically significant relationship between Interaction (INT) and the overall student satisfaction (OSS). H7: There is a statistically significant relationship between Faculty support (FCS) and the overall student satisfaction (OSS).

Table II: Hypothesized path of the final structural equation model

Hypothesized path		Estimate	Critical Ratio (C.R)	P-Value
Student Satisfaction	Computer Self Efficacy	.135	3.471	.000
	Interaction	.177	3.849	.000
	Accessibility	.102	2.553	.007
	Instructor related	.152	2.724	.013
	Assessment related	.377	12.090	.000
	Course setup	.401	6.336	.000
	Faculty support	.197	4.725	.000

Results also show that the estimated structural model corroborated the seven hypotheses, as Online Learning Factors (Computer Self Efficacy, Accessibility, Instructor related, Assessment related, Interaction, Course setup and Faculty support) construct explained 46.4% of Student Satisfaction variance ($R^2 = 0.464$).

F. Moderating effects (Multi Group Analysis)

The effects of independent variable (E-learning factors) on its dependent variable (Students Satisfaction) must exist and significant. Thus, when a moderator (Factors affecting E-learning) enters the model, the causal effects would change due to some "interaction effect" between independent variable (Online Learning Factors) and moderator variables (Faculty Type, GPA, Gender, Age and Residence Status) that has just entered. As a result, the "effects" of (Online Learning Factors) on (Students Satisfaction) could either increase or decrease. In other words, the effect of independent variable on its dependent variable would depend on the level of moderator variable.

Faculty Type effect analysis: The result shows that H8: Faculty Type moderates the relationship between Online Learning Factors (Computer Self Efficacy, Accessibility, Instructor related, Assessment related, Interaction, Course setup and Faculty support) and the overall student satisfaction (OSS) is supported. The positive relationship between Instructor related/ Assessment/ Interaction related/ Course setup/ Faculty support and Student satisfaction is stronger for Scientific. While the positive relationship between Computer Self efficacy/ Accessibility and Student satisfaction is stronger for Literary.

GPA effect analysis: The result shows that H9: GPA moderates the relationship between Online Learning Factors (Computer Self Efficacy, Accessibility, Instructor related, Assessment related, Interaction, Course setup and Faculty support) and the overall student satisfaction (OSS) is supported.

Gender effect analysis: The result shows that H10: Gender moderates the relationship between Online Learning Factors (Computer Self Efficacy, Accessibility, Instructor related, Assessment related, Interaction, Course setup and Faculty support) and the overall student satisfaction (OSS) is supported. The positive relationship between the whole factors: Computer Self Efficacy/ Accessibility/ Instructor related/ Assessment related/ Interaction/ Course setup/ Faculty support and Student satisfaction is stronger for Females.

Age effect analysis: The result shows that H11: Age moderates the relationship between Online Learning Factors (Computer Self Efficacy, Accessibility, Instructor related, Assessment related, Interaction, Course setup and Faculty support) and the overall student satisfaction (OSS) is supported. The positive relationship between Computer Self Efficacy/ Accessibility/ Assessment related/ Interaction/ Faculty support and Student satisfaction is stronger for 18 years or more up to 22 years. While the positive relationship between Instructor related/ Course setup and Student satisfaction is stronger for More than 22 years.

Residence status effect analysis: The result shows that H12: Residence moderates the relationship between Online Learning Factors (Computer Self Efficacy, Accessibility, Instructor related, Assessment related, Interaction, Course setup and Faculty support) and the overall student satisfaction (OSS) is supported. The positive relationship between Computer Self Efficacy/ Accessibility/ Instructor related/ Faculty support and Student satisfaction is stronger for Out of Alexandria. While the positive relationship between Assessment related/ Interaction/ Course setup and Student satisfaction stronger for In-Alexandria.

VI. DISCUSSION

This study examines the analytical process used to evaluate the hypotheses and achieve the study's goals. Now, a summary of the results and the conclusion could be given. In relation to the first goal: According to [36], the correlations between the latent variables show that each of the hypothesized effects generated for this research model appropriately captures the importance and degree of each effect, demonstrating a good model fit. Overall, a model's fitness measurement was higher than what was considered to be acceptable.

In this study, the COVID-19 pandemic-related elements affecting the satisfaction of students with online learning in Egyptian higher education were examined. Based on the seven constructs: computer self-efficacy, accessibility, instructor-related, course setup, assessment-related, interaction, and faculty support—a proposed model was constructed. The suggested model was evaluated, and SEM was used to examine the relationships between the constructs.

The finding of this research showed that the students were overall satisfied (3.439) with the online learning in the Egyptian higher education during the COVID-19 pandemic. All the seven factors were found significantly affect the overall students' satisfaction. The maximum level of satisfaction was (4.091) for Computer Self-Efficacy, while the minimum level of satisfaction was (3.418) for Assessment related. These results could be explained as that online learning was the only method available to students to complete their studies during the lockdown brought about by the COVID-19 pandemic, it means that their participation in online learning activities did not depend on their perceptions of its usefulness. Also it might be due to the novelty of this educational system and the students' lack of familiarity with it before the pandemic, so that they can more accurately judge the quality of this new method for them.

These results are in line with most researches found in this field such as: [37] and [38] who assessed that self-efficacy positively influenced student satisfaction in blended learning. Interestingly, [39] reported conflicting findings regarding the impact of students' self-efficacy for using technology on student satisfaction. A study's results by [6] regarding satisfaction with e-learning at the College of Health and Rehabilitation Sciences (CHRS) at Princess Nourah bint Abdulrahman University showed that, the highest satisfaction factor score was obtained for accessibility of e-learning materials for both instructors and students. Another research found that with accessibility issues, suggested additional support was needed from IT technicians to improve the accessibility to the online materials [40]. [4] research results showed that instructor facilitation and knowledge is an important determinant for students' satisfaction during online learning amid the pandemic. In addition, Wang et al., 2021 examined the relationships between the role of the instructor and university students' learning outcomes in cloud-based classrooms during the COVID-19 pandemic. Moreover, [41] provided an evidence on the importance of assessment as an integral part of the HEIs pedagogy. [4], [20], [33] highlighted social interaction as one of the barriers to remote education; thus, this element needs to be looked into when designing online courses to improve the impression of students with regard to online learning and enhance their satisfaction. Moreover, a study focuses on effects of the virtual learning in the framework of the COVID-19 pandemic at a university in Brazil, Colombia, and Peru. The surveyed students from the three countries showed average satisfaction related to the support they have received from their institutions [20]. Despite not being familiar with online learning, the majority of students of [42] research, reported no difficulty with this new method of learning. They also reported the advantages of online learning, such as its convenience and flexibility, and the availability of necessary support for their online learning when needed.

Overall, the COVID-19 pandemic has provided an opportunity for higher educational institutions in Egypt to apply a real experience for online learning for undergraduate students. The findings of the current research show that students were satisfied with their online learning experience, which reveal that the implementation of online learning in the educational process would be accepted by the most of students. The results of this study also focus on the importance of online learning systems as an essential aspect of higher education in Egypt, especially for the improvement of learning quality. Then, considering that the pandemic has given rise to long-term improvements for Egypt's higher educational system. As now this pandemic has officially ended, higher educational institutions, instructors, and decision makers should evaluate the total experience with the pandemic and consider the findings of the whole researches in their quest to better understand how to improve the online learning system for students and how best to raise their satisfaction level with online learning.

CONCLUSION AND LIMITATIONS

Every crisis provides an opportunity, and this pandemic may just be the opportunity to move from an outdated, stagnant education to one that celebrates intuition, insight, imagination, skills, and creativity. The challenge lies in developing an educational framework in Egypt that is more responsive to technological progress. This is an opportunity that should be taken forward by not trying to hold back but to reimagine the future.

Some of the limitations of this study highlight the need for additional study. The data were gathered from the private sector in higher education institutions in a single Egyptian governorate, which makes it challenging to generalise the results. The satisfaction of students with online learning at various public and private colleges

in Egypt, as well as at universities in other nations, needs to be further investigated. Second, in this study, self-reported measures were utilized to collect student perceptions as part of the cross-sectional survey approach. To have a deeper understanding of each aspect and student satisfaction levels, future studies should use longitudinal and qualitative study approaches. Finally, the current study was limited to examining the influence of a few moderator factors on online satisfaction among students. Therefore, more study is required to determine the effect of other mediator elements.

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