Evaluating Online Learning Performance and Satisfaction of University Students throughout COVID 19 Pandemic: Evidence from Egypt[1]

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ABSTRACT

The purpose of this research is to investigate and evaluate elements affecting university students' satisfaction and performance whilst e-learning throughout the COVID–19 pandemic duration. This study conducted a quantitative methodology in which data collected were from 544 university students using a survey online. The respondents were Business Administration and Accounting students at University of Alexandria, Egypt. The proposed model and hypotheses were analyzed by using structural equation modeling (SEM). The findings indicated that the four integral elements; Quality of lecturer, Course Layout, Prompt feedback, and Student expectations have a significant effect on students' satisfaction. The performance of the students was also enhanced through students' satisfaction. The research was carried out over the COVID-19 pandemic period 2020/2021.

Keywords: *Quality of lecturer, Course layout, Prompt Feedback, Student expectations, Student satisfaction, Student performance, COVID-19, Egypt.*

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1. INTRODUCTION

Coronaviruses (CoV), a large family of viruses, have resulted in a myriad of illnesses. Symptoms can range from mild to moderate symptoms, but some cases will require hospitalization due to the severity of the illness (WHO, 2019). COVID-19, a newly discovered strain, originated in Wuhan, China. It is a contagious disease, which spreads with fleeting speed. Shortly after its discovery in December 2019, Covid-19 was announced as a global pandemic following its sudden outbreak. The virus then continued to spread to several countries worldwide. According to statistics, the United States, India, France, and Germany were the countries with highest number of deaths around the globe.

Consequently, air travel and tourism were halted, making them one of the most affected sectors during the pandemic due to the mandatory quarantine. A major disruption in education however has been created as a result of the class suspension. Around 1.6 billion students all over the world have been forced to cope with the closure of schools, universities, and other learning institutions. The sudden reality of school and university closures for during this period shed light on the issues regarding students' accessibility to education.

While some educational institutions in most western countries were prepared for the switch as they had previously offered distance learning options, numerous universities and schools in less developed countries were forced to impart education through digital platforms like Zoom and Microsoft Teams. The purpose of administrating classes over Zoom or Microsoft Teams was to meet the need of both students and teachers to see one another whilst still maintaining social distancing (Lowenthal, et al., 2020).

However, these new online lessons were a challenge for a large sector of students, many of which might have never joined online classes before. Benefits and obstacles of e-learning were thoroughly researched during that period (Lowenthal, et al., 2020). As much as these applications seemed to be preferred by most universities, issues regarding internet security and width were inevitable.

During the Covid-19 outbreak, Egypt settled on establishing an extensive strategy to help deal with the corollary. In response to the crisis, a few presidential

decisions were announced, as well as the implementation of a series of emergency preventative procedures in order to significantly strengthen the fields of medical services, schooling, and social harmony.

In institutions of higher education, only some universities had been exposed to the online method of class delivery, hence having the advantage of an established learning management system (LMS). Many other institutions seemed to have no alternative but to begin instructing their professors and students on pedagogical and technical skills through Zoom for course delivery. Considering that not all professors and students were sufficiently equipped for LMSs in their respective educational establishments, most universities used video conferencing applications. Additionally, Zoom and other similar platforms offered both individual and group classes, whilst being cost efficient and simple to use.

Many educators believe that online teaching is an emergency mode of learning delivery, and that video conferencing programs and technologies cannot substitute a fully functional LMS. Research has revealed how e-learning can produce better academic achievements and outcomes through analyzing student satisfaction and performance. Therefore, our objective is assessing a conceptual framework of student's satisfaction regarding virtual lectures throughout COVID-19.

There have been several analysis studies, based on comparison, establishing whether conventional tutoring strategies were found to be more efficient or virtual learning. Shockingly, the findings revealed that student performance is significantly higher learning virtually compared to classroom-based lectures. Previously, investigations had been conducted to assess satisfaction of students, learning efficiency, performance objectives and acceptance of e-learning (Sher, 2009; Lee, 2014; Yen et al., 2018). Nonetheless, there seemed to have been inadequate study available on the variables that influence the student satisfaction and performance of those enrolled in virtual courses, particularly throughout the period of the pandemic (Rajabalee & Santally, 2020).

Therefore, this research explores various factors affecting students' satisfaction and performance whilst distance-learning throughout the pandemic, taking into regard the students' mental health and their readiness during that period for the

shift in learning strategy. The current study proposes that the quality of lecturer, course layout, prompt feedback, and students' expectations are the four prominent determinants of student satisfaction and performance during online classes.

This study is structured as follows: The following segment describes the link and theoretical framework among several variables, as well as how multiple research hypotheses were formulated as a result. The third section of the research discusses the research methodology and then the findings and outcomes of the applied study are presented. Finally, the research concludes with proposed implications for further research.

2. Theoretical Framework

Achievement goal theory (AGT) is commonly used to understand the student's performance, and it is proposed by four scholars Carole Ames, Carol Dweck, Martin Maehr, and John Nicholls in the late 1970s (Elliot, 2005). Elliott & Dweck, (1988, p11) define that "an achievement goal involves a program of cognitive processes that have cognitive, affective and behavioral consequence". According to this idea, the goals and motivations students embraced while participating in learning activities may be used to understand their motivation and achievement-related actions. (Dweck & Leggett, 1988; Ames, 1992; Urdan, 1997). Some of the studies believe that there are four approaches to achieve a goal, i.e., performance approach, performance-avoidance, mastery-approach, and mastery avoidance (Pintrich, 1999; Elliot & McGregor, 2001; Schwinger & Stiensmeier-Pelster, 2011, Hansen & Ringdal, 2018; Mouratidis et al., 2018). Students' performance is also impacted by the surroundings (Ames & Archer, 1988). However, in the modern era, internet-based teaching is also one of the effective tools to deliver lectures, and web-based applications are becoming modern classrooms (Ames, 1992; Clayton et al., 2010).

A review of the literature revealed that, while different researchers investigated the elements influencing student satisfaction, few studies investigated the impact of the quality of lecturer, course layout, prompt feedback, and student expectations on the performance of students learning virtually throughout the pandemic.

The Quality of lecturer profoundly influences the students' satisfaction and performance whilst e-learning. Lecturer quality indicates possessing exceptional teaching capabilities while also comprehending the educational demands of students and the ways to address them (Luekens et al., 2004). Marsh (1987) developed five instruments for measuring the lecturer's quality, in which the main method was Students' Evaluation of Educational Quality (SEEQ). SEEQ is widely utilized and acknowledged, particularly to delineate lecturer quality (Grammatikopoulos et al., 2014).

The course layout entails the curriculum along with its instructional objectives, program organization, and course structure (Wright, 2003). Optimized course layout, according to Mtebe and Raisamo (2014), helps learners perform better by enhancing their abilities and comprehension skills (Khan & Yildiz, 2020; Mohammed et al., 2020). This will in turn raise students' acceptance of the e-learning system, improving their overall performance. However, if the course is poorly constructed, it may prevent students from using e-learning systems to their full potential (Almaiah & Almulhem, 2018). This will require many instructors who are teaching blended courses for the first time to completely revamp their courses in order to be accessible online (Bersin, 2004; Ho et al., 2006).

Prompt feedback is essentially information provided by tutors and instructors on their students' performance. Feedback is a "consequence of performance" (Hattie & Timperley, 2007, p. 81). Knowing what you already know and what you don't in terms of learning is referred to as prompt feedback in the field of education (Simsek et al., 2017, p.334). Christensen (2014) investigated the relationship between feedback and performance and presented the positivity ratio notion, a mechanism that is crucial for determining performance through feedback. It has also been found that prompt feedback helps develop a stronger linkage between faculty and students which ultimately leads to better learning outcomes (Chang, 2011).

In a prior study, Appleton-Knapp and Krentler (2006) looked into the effect of student's expectations on their performance. Higher levels of student satisfaction resulted from their expectations being met (Bates & Kaye, 2014). These results were further supported by the research model "Student Satisfaction Index Model" (Zhang et al., 2008). Consequently, if expectations are continuously not being met, student satisfaction and performance will inevitably suffer. The

ability of students to compare the desired benefit and the observed effect of a certain product or service is the essence of student satisfaction (Budur et al, 2019). Students with high grade expectations will exhibit greater satisfaction than those with low grade expectations.

Therefore, Figure 1 represents the proposed research model and the relationships between different independent and dependent variables.

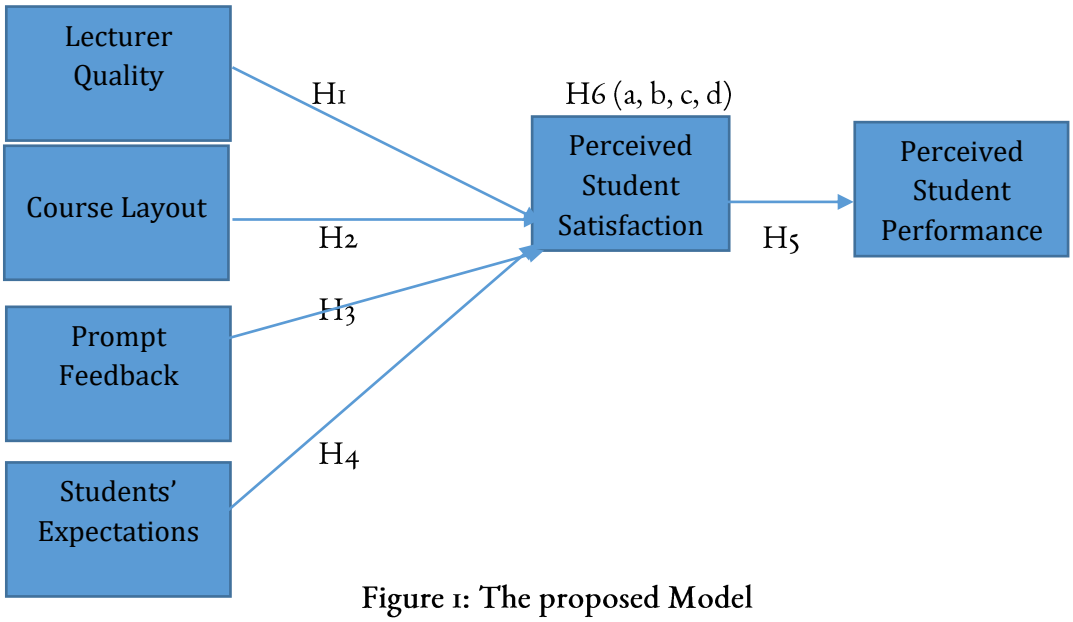

Figure 1: The proposed Model

3. Development of Hypotheses

3.1 The relationship between lecturer's quality and satisfaction of students

One of the most important measures of perceived student satisfaction, which affects the result of the educational process, is the lecturer's quality. Quality interactions between teachers and students inevitably lead to student satisfaction (Malik et al., 2010; Martinez-Arguelles et al., 2016). Enhanced student satisfaction is the result of the lecturer's ability to successfully present and deliver the material and motivate the students to succeed in their coursework (Ladyshewsky, 2013). In order to guarantee student satisfaction, it is crucial for

the lecturer to comprehend the needs of the student (Kauffman, 2015). Thus, the theory proposed entails the hypothesis that lecturer quality significantly impacts students' satisfaction.

H1: The quality of the lecturer favorably influences student satisfaction.

3.2 The relationship between course layout and student satisfaction

Effective course layout, in contrast to standard course design, enhances students' performance (Black & Kassaye, 2014). Visual learners especially benefit from this as developing an efficient online course design provides students with a variety of learning styles. The course design elements should be established and used, according to (Jenkins, 2015), to improve student performance. This study thus includes the hypothesis that the course layout greatly influences students' satisfaction.

H2: Course layout favorably influences student satisfaction.

3.3 The relationship between prompt feedback and student satisfaction

Understanding the impact of prompt feedback on student satisfaction was a key objective in this study. Feedback provides information on how well students are doing while also improving the learning experience for students (Chang, 2011; Grebennikov & Shah, 2013; Simsek et al., 2017). This not only increases student satisfaction but also allows students to self-evaluate their progress, which is of great value for future practice and growth of students' developmental processes (Eraut; 2006). This study contains the hypothesis that prompt feedback greatly influences student satisfaction.

H3: Prompt feedback favorably influences student satisfaction.

3.4 The relationship between student expectations and student satisfaction

Student expectations are gauged using the Expectation Disconfirmation Theory (EDT) (Oliver, 1980; Schwarz & Zhu, 2015). Meeting student expectations is the most effective way to enhance student satisfaction. Recognizing student expectations for growth and satisfaction is absolutely attainable (ICSB, 2015). Finally, it has been demonstrated that the positive approach utilized in many online learning courses places high expectations on students and has produced

effective results (Gold, 2011). This study includes the hypothesis that student expectations have a substantial impact on their satisfaction.

H4: Students' Expectations favorably influences student satisfaction.

3.5 The relationship between student satisfaction and student performance

Enhanced performance and student satisfaction was increased by the enrichment of tutoring methods, teaching quality and course content (Sanderson, 1995). According to Mensink and King (2020), performance is a product of collaborative classroom interaction reflecting on students' engagement in class. Performance has always been a crucial component of education (Rono, 2013), making it the focal point around which the whole educational system revolves. Narad and Abdullah (2016) deduced that success or failure of academic institutions was defined by the performance of the students.

According to Singh et al. (2016), student performance has a direct impact on the socioeconomic growth of the nation. Farooq et al. (2011) stated that all faculties' top priority is the performance of the students. Narad and Abdullah (2016) contend that regular evaluations or tests are necessary over a specific period to evaluate students' performance and provide better results. As a result, this study contained the hypothesis that student satisfaction has a significant influence on student performance.

H5: Student satisfaction favorably influences student performance.

3.6 Student satisfaction as a mediator variable

Goal theory was applied by Sibanda et al. (2015) to explore the elements that influence students' achievement, which highlighted the significant relation of student satisfaction and performance. This hypothesis contends that students do well if they are aware of the variables that affect their success. In regard to aforementioned elements, institutional factors affecting student performance include the quality of lecturer, course layout, prompt feedback, and students' expectations. Consequently, the hypothesis that the quality of lecturer, course layout, prompt feedback, and student expectations greatly influence performance of students through satisfaction was contained.

H6a: Student satisfaction mediates the link between quality of lecturer and student performance.

H6b: Student satisfaction mediates the link between course layout and student performance.

H6c: Student satisfaction mediates the link between prompt feedback and student performance.

H6d: Student satisfaction mediates the link between student expectations and student performance.

4. Research Methodology

A descriptive research design was adopted in this study, in which the variables "Quality of Lecturer, Course Layout, Prompt Feedback and Student Expectations" were independent variables. Performance was the dependent variable and student satisfaction was a mediator variable. Data were gathered from 544 respondents enrolled in Business Administration and Accounting degrees at University of Alexandria, Egypt. For the purposes of this study, the quantitative research approach which is rooted in the post-positivism worldview is adopted and the data was gathered using the purposive sampling approach. According to descriptive data, 48.35% of the respondents were Business Administration students and the rest of the respondents were accounting students. Male students made up 71% of the total, while female students made up 29%. Male pupils outnumbered female students by nearly a factor of two. The students ranged in age from 18 to 23.

This study's instrument consisted of two components. The first addressed the demographics such as gender, age, discipline, and degree of education (Grade one to grade 4). The subsequent segment measured the following proposed variables: the quality of lecturer, course layout, prompt feedback, student expectations, student satisfaction, and student performance. The measurements of those variables were adopted from previous studies.

In accordance with this, the "quality of the lecturer" was assessed using a seven-item scale created by Bangert (2004). The items for "course layout" and "prompt feedback" were taken from Bangert's study work from 2004; the former scale

contained six items and the latter had five. Five items made up the "students' expectation" scale, four of which were taken from Bangert and one from Wilson et al. (1997). However, "Students' satisfaction" was evaluated using six items that were taken from Bangert, Wilson et al., and Yin and Wang (2015). Through a six-item scale created by Wilson et al., "students' performance" was evaluated.

5. Data Collection, Analysis and Results

The questionnaire for this study was created using a Likert scale with a range of 1 (strongly disagree) to 5 (strongly agree). The 34-item survey asked questions on how the first four categories affected students' performance and satisfaction levels.

Respondents in this cross-sectional study were chosen via non—probability sampling (purposive/judgmental sampling). The respondents were told about the study's purpose and the data collection method. They were reassured regarding the anonymity of the data obtained via an online survey. The survey was designed utilizing Google Forms and then delivered via the students' university email addresses.

The study was conducted in Egypt during the COVID-19 pandemic. This was the optimum timing to gather data for the present study because essentially all courses were taking place online at the time. As a result, students had enough time to comprehend and answer the questionnaire appropriately. A total of 615 questionnaires were issued, with students submitting 574 of them. Thirty replies were eliminated because the respondents only completed the demographic portion of the survey and left the remainder blank. Ultimately, the present study used 544 accurate questionnaires.

5.1 Exploratory Factor Analysis (EFA)

SPSS and AMOS software were employed to analyze the data. An exploratory factor analysis (EFA) was carried out on a sample of 544 to determine the various variables. The EFA analysis indicate six unique variables The first variable was lecturer quality, featuring criteria such as "The lecturer communicated efficiently," "The lecturer was passionate about online teaching," and "The lecturer showed concern regarding student learning," etc. "The course was well structured" and "The lecturer conveyed the course effectively" were the factors

under element two, "Course Layout". “Prompt feedback” was classified as variable three, and statements included "The lecturer responded promptly to my queries concerning Webinar use" "The lecturer responded promptly to my inquiries regarding the whole course" and so on.

The element of Student Expectations comprised responses such as "The lecturer offered models that realistically met student expectations" "The lecturer used meaningful examples to clarify statistical concepts," and so on. Student satisfaction was measured through expressions such as "The online classes were beneficial" "I am overall satisfied with the quality of this course," and so on. The final aspect was student performance, with statements including "Learning online has enhanced my analytical skillset," "Online courses encouraged me to utilize my full potential" and so on. These six variables accounted for 67.784% of the total variation. The researcher employed AMOS for the confirmatory factor analysis (CFA) for verifying factors obtained from EFA, and structural equation modelling (SEM) to investigate the predicted correlations.

5.2 The Measurement Model

The outcomes of EFA and CFA are summarized in Table 1 (Factor Analysis), which concludes that EFA generates six distinct components that CFA validates. Table 2 (Validity Analysis of Measurement Model) (Aggarwal et al., 2018a, b) shows that the proposed measurement model has excellent convergent validity. According to the results of the confirmatory factor analysis, the standardized factor loading values were statistically significant at the 0.05 level. The results of the measurement model also showed acceptable model fit indices as CMIN = 710.709; df = 480; CMIN/df = 1.481 p.000; incremental fit index (IFI) = 0.979; Tucker-Lewis index (TLI) = 0.976; goodness of fit index (GFI) = 0.928; and adjusted goodness of fit index (AGFI) = 0.916.

The Root Mean Square Residual (RMR) is 0.042, the Root Mean Squared Error of Approximation (RMSEA) is 0.030, and the Comparative Fit Index (CFI) is 0.978. The Average Variance Explained (AVE) should be greater than the squared correlations between the latent variables and all other variables,

according to the acceptable index. The discriminant validity is established because the square root of the AVE is greater than the inter-construct correlation coefficient (Hair et al., 2006). As a consequence, the Table 2 data suggested that the measurement model had strong discriminating validity.

Table 1. Factor Analysis

Variables and Items	Mean	Factor Loading	Eigen value	Variance explains. %	SRW	t-value	Composite Reliability (CR)
Lecturer Quality							
The professor communicated efficiently.	4.03	0.76			0.783	19.519	
The professor was passionate about online teaching.	3.91	0.73			0.776	19.321	
The professor expressed concern in regard to students.	4.01	0.75			0.763	18.918	
The professor was attentive.	4.03	0.76	9.62	14.07	0.755	18.659	0.911
The professor was reachable during office hours.	3.83	0.73			0.774	19.257	
Webinar was utilized during the learning process.	3.92	0.73			0.757	18.739	
I was able to have one on one conversations with my professor when necessary.	3.93	0.70			0.780		
Course layout							
The course was well structured.	3.52	0.70			0.638	17.160	
I was able to complete assignments with ease on different platforms.	3.27	0.89			0.895	30.949	
The professor conveyed the course effectively.	3.39	0.83	4.92	12.36	0.776	23.344	0.912
The use of Webinar cultivated a positive learning atmosphere.	3.20	0.76			0.727	20.932	
The use of Webinar assisted me in acquiring educational statistics faster.	3.26	0.85			0.820	25.848	
The course was meant to empower me to take charge of my own education.	3.13	0.89			0.901		
Prompt Feedback	3.81	0.75			0.707		
The lecturer promptly replied to queries about Webinar use.	3.85	0.81	1.44	7.25	0.761	12.951	0.776
My inquiries concerning general course requirements were promptly answered by the professor.	3.86	0.83			0.728	12.940	
My inquiries concerning course assignments were promptly answered by the professor.	3.04	0.70			0.583		
I found the professor feedback beneficial.							
Students' expectations	3.83	0.80			0.821		
The professor offered models that realistically met student expectations.	3.86	0.76			0.770	19.747	
Statical concepts were appropriately demonstrated through examples.	3.77	0.76	1.74	10.35	0.741	18.782	0.886
Course duties were of suitable difficulty level.	3.81	0.79			0.794	20.581	
I was able to understand Webinar design instructional materials used.	3.89	0.70			0.776	19.960	
Professors conveyed the course excellently.							
Students' satisfaction							
The online lessons were beneficial.	3.91	0.75			0.873	25.462	
My interest in educational statistics has grown as a result of taking virtual courses.	3.66	0.78			0.803	22.351	
I was able to comprehend educational statistics of the online classes.	3.88	0.66			0.834		

I am satisfied with the course's quality.	3.78	0.78	3.15	12.23	0.843	24.108	0.924
I am allowed a sufficient amount of time to study the course material.	3.80	0.66			0.747	20.114	
Virtual learning has been the most beneficial educational experience thus far.	3.70	0.77			0.806	22.479	
Students' performance							
My analytical abilities have developed throughout the course of virtual courses.	3.08	0.82			0.815		
An online class strives to maximize the potential of all of its students.	3.38	0.79	2.52	11.50	0.734	18.385	0.891
This course has assisted me in developing my capacity to plan my own work.	3.18	0.83			0.804	20.654	
Virtual courses have allowed me to pursue my own academic interests to the greatest extent possible.	3.17	0.76			0.723	18.047	
My written communication abilities have improved thanks to online classes.	3.10	0.79			0.749	18.848	
As a result of taking online classes, one gains confidence in confronting unfamiliar situations.	3.44	0.77			0.725	18.097	

Table 2: Validity Analysis of Measurement Model

	CR	AVE	1	2	3	4	5	6
Satisfaction	0.924	0.670	**0.819**					
Quality	0.911	0.593	0.740	**0.770**				
Layout	0.912	0.637	0.070	0.125	**0.798**			
Feedback	0.776	0.536	0.015	0.044	0.026	**0.732**		
Expectations	0.886	0.610	0.615	0.615	0.001	0.071	**0.781**	
Performance	0.891	0.576	0.137	0.042	0.242	-0.020	0.027	**0.759**

AVE= Average Variation Extracted, CR= Composite Reliability

5.3 Structural model

The proposed hypothesis of the current study was investigated using a structural equation modelling (SEM) approach. A multivariate statistical method called structural equation modelling (SEM) includes the processes of factor analysis and multiple regression analysis. The structural relationship between measurable variables and latent constructs is investigated.

The SEM model fitness indices with all variables combined were shown in Table 3 (Criterion for model fit), where CMIN/DF was 2.479. Additionally, Table 3 demonstrated that all of the model fit values fell within a reasonable limit. A good model fit, and well-fitted data were indicated by other fit indices, such as GFI = 0.982 and AGFI = 0.956, which were both within the acceptable limit.

Table 3. Criterion for model fit

Criterion for goodness of fit measure	Recommended values	Model fit value
CMIN/DF	≥ 3	2.479
GFI	>0.90	.982
AGFI	>0.80	.956
RMR	≤0.08	.040
RMSEA	≤0.08	.052

A statistical significance level of p 0.001 was reached for each covariance and regression weight between variables. The association between exogenous, mediator, and endogenous factors—quality of lecturer, prompt feedback, course layout, student expectations, satisfaction, and performance—was shown in Table 4 (SEM Analysis). Student satisfaction was favorably correlated with the first four variables, which enhanced performance. For online classes, it was also found that the lecturer's quality was positively correlated with students' satisfaction (SE =0.706, t-value = 24.196; p 0.05). H1 was consequently approved.

Course layout (SE = 0.064, t-value = 2.395; p 0.05) was the second factor that showed a positive relationship with student satisfaction. Therefore, H2 was also supported.

The third element was prompt feedback, and the results show that it was positively correlated with student satisfaction (SE =0.067, t-value = 2.520; p 0.05). H3 was consequently supported.

Prompt feedback was the third component, and the findings indicated a positive relationship between feedback and student satisfaction (SE = 0.067, t-value = 2.520; p0.05). This further supported H3.

Students' expectations comprised the fourth factor, and the findings showed a positive relationship between this factor and satisfaction (SE = 0.149, t-value = 5.127; p 0.05). H4 was consequently approved.
Additionally, SEM analysis revealed that lecturer quality was the most important factor influencing students' satisfaction with online classes (SE =0.706), followed by students' expectations (SE= 5.127) and prompt feedback (SE = 2.520).

The course layout, however, was found to have the least impact on students' satisfaction (2.395). Table 4 amply demonstrates the link between student satisfaction and performance (SE = 0.186, t-value = 2.800; p 0.05). H5 was consequently approved.

Table 4: SEM Analysis

Hypothesis	Relationship	Standardized Estimate (SE)	C.R.	*p* value	Decision
H1 (+)	Quality of lecturer → Satisfaction	0.706	24.196	***	Supported
H2 (+)	Course layout → Satisfaction	0.064	2.395	0.017	Supported
H3 (+)	Feedback → Satisfaction	0.067	2.520	0.012	Supported
H4 (+)	Expectations → Satisfaction	0.149	5.127	***	Supported
H5 (=)	Satisfaction → Performance	0.186	2.800	0.005	Supported

Table 5 (Analysis of mediating variables) found that the students' satisfaction mediated the positive relationships established between the lecturer quality and students' performance. H6a was therefore supported. Furthermore, the examination of the mediating variable revealed that satisfaction mediated the positive association between course layout and student performance in part. As a result, H6b was also supported. However, the findings revealed that students' satisfaction completely mediated the positive association between prompt feedback and performance. As a result, H6c was approved. Finally, the findings in Table 5 demonstrated that students' satisfaction mediated the positive link between students' expectations and student performance. As a result, H6d was also approved.

Table 5: Analysis of Mediating Variables

Hypothesis	Relationship			Estimate	P value	Estimate	P value	Mediation
H6 (a)	Quality of lecturer →	Satisfaction →	Performance	.131	.009	.274	.001	Partial
H6 (b)	Course layout →	Satisfaction →	Performance	.012	.009	.252	.001	Partial
H6 (c)	Feedback →	Satisfaction →	Performance	.012	.007	.078	.055	Full
H6 (d)	Student expectations →	Satisfaction →	Performance	.028	.004	.258	.001	Partial

6. Discussion

The current study assessed the various factors directly related to students' satisfaction and performance with distance learning courses throughout the Covid-19 crisis. Given the global pandemic, most governments urged all their universities and learning institutions to transition to online instruction. Despite the fact that some of the teachers were not technologically sophisticated, they were forced to adapt and deal with the unanticipated predicament (Pillai et al.,2021). The present study's findings will help the lecturers enhance the student's satisfaction and performance during distance learning sessions by understanding the premise requirements for effective online teaching.

The current study was carried out in the duration of Egypt's quarantine to help recognize the critical elements that influence the student's satisfaction with distance learning courses. This study aims to investigate the causal correlation between student's satisfaction and their performance, and the results revealed that lecturer's quality was the most significant aspect that impacted the student's satisfaction during virtual courses. This implies that the lecturer must be highly effective over the course of the lectures and needs to have a deep understanding of students' psychology in order to deliver the course efficiently. The lecturer's perspective was critical because their enthusiasm, in turn, lead to a much better quality of course delivery.

The second most important element influencing students' satisfaction during online classes was their expectations. The lecturers should always recognize their students' expectations and adjust the course structure accordingly. Prompt feedback was the third element that had an impact on the students' satisfaction. Prompt feedback should also be considered by the lecturer to help in improving their future teaching strategies (Tawafak et al., 2019).

The last factor that impacted the students' satisfaction was the course layout. The course material must be well constructed for students to grasp it. In some cases, such as practical lab demonstrations, it proved challenging to provide the course material using an online teaching platform. In this case, the lecturer needed to be more innovative in creating and presenting the course material with

greater student participation in order to further improve the overall satisfaction of students enrolled in online classes.

Overall, the students acknowledged the value and benefits of the online teaching technique, despite the fact that many students hadn't had the opportunity to take a course online prior to the Covid-19 outbreak. Previous study has shown that the usage of technology during classes does indeed have a direct correlation with student achievement.

Demographics were critical in assessing how well the online course performed. It is assumed that students with good performance have a deeper understanding of technology use and its advantages for achieving academic success. Presumably, they're exposed to the most recent technological innovations hence having greater computer literacy, which makes using the Internet simpler for them.

According to the findings, gender also seemed to have a fundamental importance in how much people value online learning. A study released by the American Association of University Women in October 1998 (AAUW). Educational research has shown that females start school with less computer experience than males, and they leave school in the same fashion years later (Weinman & Caine 1999). As a result, there are fewer women than men who pursue technology-related fields in graduate and undergraduate programs. Few women are also seen working in computer-related fields outside of secretarial data input. Only a small percentage of the students in a computer class are female. Only 17% of computer science test takers in 1996 took the advanced placement exam, while the remaining 83% were men. Men often use computers for problem-solving and programming, but women typically just use them for word processing. Additionally, males tend to use computers more often outside of the classroom, which can further develop their computer-related skills.

According to the APA Work Group of the Board of Educational Affairs (1997) learner-centered proposals stress students ought to be diligent and prepared to dedicate the effort necessary to accomplish tasks. Tutors willing to undertake virtual courses should have the passion to create learning materials that engage students and motivate them to succeed proficiently. Both instructors and students have equal accountability for better student performance. The student must ask the instructor for solutions when he runs into any problems grasping the topics (Bangert, 2004). As a result, we may infer that the "quality of lecturer,

course layout, prompt feedback, and student expectations" all have a substantial impact on students' virtual learning experiences.

7. Implications

The findings of this study have an array of imperative implications for lecturers, students, and researchers. It contributes to the body of literature by demonstrating that a range of elements influenced students' performance and satisfaction in the distance learning settings in Egypt during the pandemic.

The relevance of investigating the variables impacting students' satisfaction hasn't been sufficiently addressed in prior applied research (Baber, 2020). It's also important to note that none of those studies have examined students' expectations, quality of lecturer, prompt feedback, and course layout and their effects on student satisfaction.

The study's initial key contribution focused on the moderator function of the teacher and the way the students' satisfaction was influenced by the quality of lecturer (Gray & DiLoreto, 2016). The analysis demonstrated that lecturer quality played a critical role in determining the satisfaction of students throughout the Covid-19 lockdown. In post-secondary education, the lecturer's quality referenced their distinctive individual traits prior to beginning the course, such as their academic expertise, pedagogical expertise, enthusiasm, and skill.

More importantly, people who possess a high degree of technical expertise may serve towards the field of schooling by presenting examples of practical methods that may be used to properly acknowledge students' objectives from their class. Before enrolling at a university, many students hope to find employment. Teachers concur that they need to do more to meet the expectations of their students regarding employment (Gorgodze et al., 2020). Following that, the teacher might utilize that information to balance expectations and raise student satisfaction. The findings of studies may be used to develop and design new courses, as well as to decide on policies that would enhance educational programs.

Thirdly, in light of the findings, instructors and online course designers will explore how to design and construct virtual classes efficiently, particularly layouts that maximize positive expression while reducing negative expression, enhancing student satisfaction (Martin et al., 2018). Based on observations, the

course layout dramatically increases student outcomes in the online course. The results show that for students to deem online learning useful, the layout of the course must deliver necessary elements in a consistent manner. The main premise of those essential details is coursework, academic objectives, curriculum design, and course output. This will allow students to use the system efficiently, which enhances student performance (Almaiah & Alyoussef, 2019).

Finally, the outcome demonstrates how lecturers who promptly respond to queries from their students and give consistent feedback on tasks in a timely manner, enhance student engagement, and teacher-student communication, engagement, and comprehension (Martin et al.,2018). For students to concentrate on the performance, feedback is exceptionally helpful.

8. Challenges and future study

Due to the cross-sectional nature of data collection used in this study, the causal link between the variables is difficult to establish. A longitudinal study can be used in future studies to overcome this limitation. Additionally, just one type of respondents—students—were used to obtain the data. As a result, it is impossible to extrapolate the study's findings to other samples. To further generalize the findings, future study might also incorporate viewpoints from teachers and policy makers.

Since only Egyptian students were questioned in this study, it would be more helpful to collect data from different countries to better understand students' perspectives, resulting in better comparative results. This study is restricted to evaluating student performance, hence why it would be immensely informative to evaluate teachers' performance in future studies.

Other difficulties faced by students, such as restricted internet connection or disruption from weak signals, could also be measured for more accurate future research.

The environment at home and disturbance due to family members are also considered main factors which could affect their performance. The aforementioned ideas can be included into future stud

References

Aggarwal, A., Dhaliwal, R. S., & Nobi, K. (2018a). Impact of structural empowerment on Organizational commitment: The mediating role of women's psychological Empowerment. *Vision, 22*(3), 284–294.

Aggarwal, A., Goyal, J., & Nobi, K. (2018b). Examining the impact of leader-member exchange on perceptions of organizational justice: The mediating role of perceptions of Organizational politics. *Theoretical Economics Letters, 8*(11), 2308–2329.

Almaiah, M. A., & Almulhem, A. (2018). A conceptual framework for determining the success. Factors of e-learning system implementation using Delphi technique. *Journal of Theoretical and Applied Information Technology, 96*(17), 5962–5976.

Almaiah, M. A., & Alyoussef, I. Y. (2019). Analysis of the effect of course design, course Content support, course assessment and instructor characteristics on the actual use of E- Learning system. *Ieee Access, 7*, 171907–171922.

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84*, 261–271.

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Student's learning strategies and motivational processes. *Journal of Educational Psychology, 80*, 260–267.

Appleton-Knapp, S., & Krentler, K. A. (2006). Measuring student expectations and their effects on satisfaction: The importance of managing student expectations. *Journal of Marketing Education, 28*(3), 254–264.

Baber, H. (2020). Determinants of Students' perceived outcome and satisfaction in online Learning during the pandemic of COVID-19. *Journal of Education and e-Learning Research, 7*(3), 285–292.

Bangert, A. W. (2004). The seven principles of good practice: A framework for evaluating on- ine teaching. *The Internet and Higher Education, 7*(3), 217–232.

Bates, E. A., & Kaye, L. K. (2014). "I'd be expecting caviar in lectures": The impact of the new Fee regime on undergraduate students' expectations of higher education. *Higher Education, 67*(5), 655–673.

Bersin, J. (2004). *The blended learning book: best practices, proven methodologies and lessons Learned.* Pfeiffer Publishing.

Black, G. S., & Kassaye, W. W. (2014). Do students learning styles impact student outcomes in Marketing classes? *Academy of Educational Leadership Journal, 18*(4), 149–162.

Budur, T., Faraj, K. M., & Karim, L. A. (2019). Benchmarking operations strategies via hybrid Model: A case study of cafe-restaurant sector. *Amozonia Investiga, 8*, 842–854.

Chang, N. (2011). Pre-service Teachers' views: How did E-feedback through assessment Facilitate their learning? *Journal of the Scholarship of Teaching and Learning, 11*(2), 16–33.

Christensen, A. L. (2014). *Feedback, affect, and creative behavior: A multi-level model linking. Feedback to performance.* (Doctoral Dissertation, Arizona State University)

Clayton, K., Blumberg, F., & Auld, D. P. (2010). The relationship between motivation, learning Strategies and choice of environment whether traditional or including an online Component. *British Journal of Educational Technology, 41*(3), 349–364.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*(2), 256–273.

https://doi.org/10.1037/0033- 295X.95.2.256

Elliott, J. (2005). *Using narrative in social research: Qualitative and quantitative approaches.* SagePublications,Inc. https://doi.org/10.4135/9780857020246

Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology, 54*(1), 5-12. https://doi.org/10.1037/0022-3514.54.1.5

Elliot, A. J., & McGregor, H. A. (2001). A 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology, 80*(3), 501–519.

https://doi.org/10.1037/0022- 3514.80.3.501

Eraut, M., (2006). Feedback. Learning in Health and Social Care. Volume-5, issue-3. Pg 111–118. Retrieved from https://edservices.wiley.com/how-student-feedback-creates-better-online-learning/.Accessed 23 Oct 2020.

Farooq, M. S., Chaudhry, A. H., Shafiq, M., & Berhanu, G. (2011). Factors affecting students' Quality of academic performance: A case of secondary school level. *Journal of Quality and Technology Management, 7*, 1–14.

Gold, S. (2011). A constructivist approach to online training for online teachers. *Journal of Asynchronous Learning Networks, 5*(1), 35–57.

Gorgodze, S., Macharashvili, L., & Kamladze, A. (2020). Learning for earning: Student Expectations and perceptions of university. *International Education Studies, 13*(1), 42–53.

Grammatikopoulos, V., Linardakis, M., Gregoriadis, A., & Oikonomidis, V. (2014). Assessing The Students' evaluations of educational quality (SEEQ) questionnaire in Greek higher Education. *Higher Education, 70*(3).

Gray, J. A., & DiLoreto, M. (2016). The effects of student engagement, student satisfaction, and Perceived learning in online learning environments. *International Journal of Educational Leadership Preparation, 11*(1).

Grebennikov, L., & Shah, S. (2013). Monitoring trends in student satisfaction. *Tertiary Education and Management, 19*(4), 301–322.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). Multivariate Data analysis 6th edition. *Pearson Prentice Hall. New Jersey. Humans: Critique and Reformulation. Journal of Abnormal Psychology, 87*, 49–74.

Hansen, G., & Ringdal, R. (2018). Formative assessment as a future step in maintaining the Mastery approach and performance-avoidance goal stability. *Studies in Educational Evaluation, 56*, 59–70.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81–112.

Ho, A., Lu, L., & Thurmaier, K. (2006). Testing the reluctant Professor's hypothesis: Evaluating A blended-learning approach to distance education. *Journal of Public Affairs Education, 12*(1), 81–102.

ICSB (2015). *Addressing undergraduate entrepreneurship student expectations: An Exploratory Study.* International Council for Small Business (ICSB). Retrieved from https:// search. proqu est. com/docview/ 18269 18813? accounted= 147490. Accessed 20 Oct 2020.

Jenkins, D. M. (2015). Integrated course design: A facelift for college courses. *Journal of Management Education, 39*(3), 427–432.

Kauffman, H. (2015). A review of predictive factors of student success in and satisfaction with Online learning. *Research in Learning Technology, 23.*

Khan, N. U. S., & Yildiz, Y. (2020). Impact of intangible characteristics of universities on Student satisfaction. *Amazonia Investigate, 9*(26), 105–116.

Ladyshewsky, R. K. (2013). Instructor presence in online courses and student satisfaction. *International Journal for the Scholarship of Teaching and Learning, 7*, 1.

Lee, J. (2014). An exploratory study of effective online learning: Assessing satisfaction levels of Graduate students of mathematics education associated with human and design factors.

of an online course. *The International Review of Research in Open and Distance Learning, 15*(1), 111–132.

Lowenthal, P., Borup, J., West, R. & Archambault, L. (2020), Thinking Beyond Zoom: Using Asynchronous Video to Maintain Connection and Engagement During the COVID-19

Pandemic". *Journal of Technology and Teacher Education*, 282, 383-391. Waynesville, NC USA: Society for Information Technology & Teacher Education. Retrieved from

https://www.learntechlib.org/primary/p/216192/.

Luekens, M.T., Lyter, D.M., and Fox, E.E. (2004). Teacher attrition and mobility: Results from the teacher follow-up survey, 2000–01 (NCES 2004–301). *National Center for Education Statistics, U.S. Department of Education*. Washington,

DC. https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004301.

Marsh, H. W. (1987). Students' evaluations of university teaching: Research findings, methodological issues, and directions for future research. *International Journal of Educational Research, 11*, 253–388.

Malik, M. E., Danish, R. Q., & Usman, A. (2010). The impact of service quality on students' Satisfaction in higher education institutes of Punjab. *Journal of Management Research, 2*(2), 1–11.

Martinez-Arguelles, M. J., & Batalla-Busquets, J. M. (2016). Perceived service quality and Student loyalty in an online university. *International Review of Research in Open and Distributed Learning, 17*(4), 264–279.

Martin, F., Wang, C., & Sadaf, A. (2018). Student perception of helpfulness of facilitation Strategies that enhance instructor presence, connectedness, engagement, and learning in Online courses. *The Internet and Higher Education, 37*, 52–65.

Mensink, P. J., & King, K. (2020). Student access of online feedback is modified by the Availability of assessment marks, gender and academic performance. *British Journal of Educational Technology, 51*(1), 10–22.

Mohammed, S. S., Suleyman, C., & Taylan, B. (2020). Burnout determinants and consequences Among university lecturers. *Amazonia Investiga, 9* (27), 13–24.

Mouratidis, A., Michou, A., Demircioğlu, A. N., & Sayil, M. (2018). Different goals, different Pathways to success: Performance-approach goals as direct and mastery-approach goals as indirect predictors of grades in mathematics. *Learning and Individual Differences, 61*, 127–135.

Mtebe, J. S., & Raisamo, R. (2014). A model for assessing learning management system success in higher education in sub-Saharan countries. *The Electronic Journal of Information Systems in Developing Countries, 61*(1), 1–17.

Narad, A., & Abdullah, B. (2016). Academic performance of senior secondary school students: Influence of parental encouragement and school environment. *Rupkatha Journal on Interdisciplinary Studies in Humanities, 8* (2), 12–19.

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *JMR, Journal of Marketing Research (Pre-1986), 17*(4), 460.

Pillai, K. R., Upadhyaya, P., Prakash, A. V., Ramaprasad, B. S., Mukesh, H. V., & Pai, Y. (2021). End-user satisfaction of technology-enabled assessment in higher education: A coping theory perspective. *Education and Information Technologies*. https:// doi. org/ 10. 1007/ s10639- 020- 10401-2.

Pintrich, P. R. (1999). The Role of Motivation in Promoting and Sustaining Self-Regulated Learning. *International Journal of Educational Research*, 31, 459-470. http://dx.doi.org/10.1016/S0883-0355(99)00015-4

Rajabalee, Y. B., & Santally, M. I. (2020). Learner satisfaction, engagement, and performances in An online module: Implications for institutional e-learning policy. *Education and Information Technologies*.

https://doi. org/ 10. 1007/ s10639- 020- 10375-1.

Rono, R. (2013). *Factors affecting pupils' performance in public primary schools at Kenya Certificate of primary education examination (Kcpe) in Emgwen Division, Nandi District, Kenya (*Doctoral dissertation, University of Nairobi*).* http://erepository.uonbi.ac.ke/bitstream/handle/11295/52949/ABSTRACT.pdf?sequence=3, Accessed 6th Jan 2022

Sanderson, G. (1995). Objectives and evaluation. In S. Truelove (Ed.), *Handbook of training and Development* (2nd ed., pp. 113–144). Blackwell.

Schwarz, C., & Zhu, Z. (2015). The impact of student expectations in using instructional tools on Student engagement: A look through the expectation disconfirmation theory lens. *Journal of Information Systems Education, 26*(1), 47–58.

Schwinger, M., & Stiensmeier-Pelster, J. (2011). Performance-approach and performance- Avoidance classroom goals and the adoption of personal achievement goals. *British Journal of Educational Psychology, 81*(4), 680–699.

Sher, A. (2009). Assessing the relationship of student-instructor and student-student interaction to student learning and satisfaction in web-based online learning environment. *Journal of Interactive Online Learning, 8*(2).

Sibanda, L., Iwu, C. G., & Benedict, O. H. (2015). Factors influencing academic performance of University students. *Демографія та соціальна економіка, 2*, 103–115.

Simsek, U., Turan, I., & Simsek, U. (2017). Social studies teachers" and teacher candidates" Perceptions on prompt feedback and communicate high expectations. *PEOPLE: International Journal of Social Sciences, 3*(1), 332, 345.

Singh, S. P., Malik, S., & Singh, P. (2016). Factors affecting academic performance of students. *Paripex- Indian Journal of Research, 5*(4), 176–178.

Tawafak, R. M., Romli, A. B., & Alsinani, M. (2019). E-learning system of UCOM for improving student assessment feedback in Oman higher education. *Education and Information Technologies, 24*(2), 1311–1335.

Urdan, T. C. (1997). Examining the relations among early adolescent students' goals and friends' orientation toward effort and achievement in school. *Contemporary Educational Psychology, 22*(2), 165–191. https://doi.org/10.1006/ceps.1997.0930

Weinman J. and Cain L., Technology—The New Gender Gap, *TECH.NOS Quarterly for Education & Technology*, 8: 1, pp. 9–12,1999.

Wilson, K. L., Lizzio, A., & Ramsden, P. (1997). The development, validation and application of The course experience questionnaire. *Studies in Higher Education, 22*(1), 33–53.

World Health Organization (2019). https://www. who. int/health- topics/coronavirus# tabtab_1, Retrieved 29 March 2020.

Wright, C. R. (2003). Criteria for evaluating the quality of online courses. Alberta distance Educ. *Training Assoc., 16*(2), 185–200.

Yen, S. C., Lo, Y., Lee, A., & Enriquez, J. (2018). Learning online, offline, and in-between: Comparing student academic outcomes and course satisfaction in face-to-face, online, and Blended teaching modalities. *Education and Information Technologies, 23*(5), 2141–2153.

Yin, H., & Wang, W. (2015). Assessing and improving the quality of undergraduate teaching in China: The course experience questionnaire. *Assessment & Evaluation in Higher Education, 40*(8), 1032–1049.

Zhang, L., Han, Z., & Gao, Q. (2008). Empirical study on the student satisfaction index in higher Education. *International Journal of Business and Management, 3*(9), 46–51.

English Version of Research Questionnaire

	1	2	3	4	5
The professor communicated efficiently.					
The professor was passionate about online teaching.					
The professor expressed concern in regard to students.					
The professor was attentive.					
The professor was reachable during office hours.					
Webinar was utilized during the learning process.					
I was able to have one on one conversations with my professor when necessary.					
The course was well structured.					
I was able to complete assignments with ease on different platforms.					
The professor conveyed the course effectively.					
The use of Webinar cultivated a positive learning atmosphere.					
The use of Webinar assisted me in acquiring educational statistics faster.					
The course was meant to empower me to take charge of my own education.					
The lecturer promptly replied to queries about Webinar use.					
My inquiries concerning general course requirements were promptly answered by the professor.					
My inquiries concerning course assignments were promptly answered by the professor.					
I found the professor feedback beneficial.					
The professor offered models that realistically met student expectations.					

Statical concepts were appropriately demonstrated through examples.					
Course duties were of suitable difficulty level.					
I was able to understand Webinar design instructional materials used.					
Professors conveyed the course excellently.					
The online lessons were beneficial.					
My interest in educational statistics has grown as a result of taking virtual courses.					
I was able to comprehend educational statistics of the online classes.					
I am satisfied with the course's quality.					
I am allowed a sufficient amount of time to study the course material.					
Virtual learning has been the most beneficial educational experience thus far.					
My analytical abilities have developed throughout the course of virtual courses.					
An online class strives to maximize the potential of all of its students.					
This course has assisted me in developing my capacity to plan my own work.					
Virtual courses have allowed me to pursue my own academic interests to the greatest extent possible.					
My written communication abilities have improved thanks to online classes.					
As a result of taking online classes, one gains confidence in confronting unfamiliar situations.					

تقييم التحصيل الاكاديمى و مستوى الرضا لطلاب الجامعه عن التعلم الالكترونى أثناء جائحه كورونا 19 : دليل من مصر

د.صفاء أحمد محمود حسين

ملخص البحث باللغة العربية

الغرض من هذا البحث هو تقييم العوامل التي تؤثر على التحصيل الأكاديمي ومستوى الرضا عند طلاب الجامعات أثناء التعلم الإلكتروني أثناء جائحه كورونا. COVID-19 أتبعت هذه الدراسة منهجية كمية حيث تم جمع البيانات من 544 طالبًا جامعيًا باستخدام استطلاع عبر الإنترنت.

كانت العينة من طلاب اداره الأعمال والمحاسبة بكلية الاعمال – جامعه الإسكندرية بمصر، و قد تم تحليل النموذج المقترح وفروض الدراسة باستخدام نمذجة المعادلة الهيكلية SEM.

و قد أشارت نتائج الدراسه الى ان الاربع متغيرات الاتيه: جودة المحاضر, تصميم البرامج , استجابه المحاضر, و توقعات الطلاب لها تأثيركبير على مستوى الرضا للطلاب. كما تم تعزيز كفاءه الطلاب من خلال ارتفاع مستوى الرضا عند الطلاب و قد تم إجراء البحث خلال جائحة كورونا في الفترة من 2020/2021.

الكلمات الدالة: جودة المحاضر، تصميم البرامج، استجابه المحاضر، توقعات الطلاب، مستوى الرضا للطلاب، التحصيل الاكاديمى للطلاب، كوفيد 19، مصر

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