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The Relationship between Online Learning and Student Satisfaction with Training Quality in Private Universities during the COVID-19 Pandemic

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Abstract

This study aims to explore the relationship between the influential factors of online learning and the satisfaction of economics and business majors with the quality of their training in the context of the Covid-19 pandemic. A total of 900 students in private universities completed a questionnaire. The principal findings of this research are that the students are satisfied with their online learning and that learning conferencing software is the most important driving factor leading to the students' satisfaction when compared with learning conditions and learning devices. Another interesting finding is that the experience of using learning conferencing software results in a slight difference in the students' perceived level of satisfaction, adding that users with more than two years' experience are more satisfied with their training quality than users with less than one year's experience. However, the results also show that students want to switch to offline learning when the pandemic is over. This study should, therefore, be of value to higher education authorities wishing to understand their students' perceptions of online learning. In addition, results from the study suggest more managerial approaches as well as improve the online teaching quality during the pandemic.

Keywords: Online learning, Student satisfaction, Learning conferencing software, Learning conditions, Learning devices, COVID-19 pandemic, Training quality.

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Contents

Contribution of this paper to the literature

This study has contributed to existing literature by identifying the relationship between the influential factors of online learning and students' perceived level of satisfaction with their training quality. The findings indicate that learning conferencing software is the most influential factor leading to the students' perceived level of satisfaction. Results from the study suggest more managerial approaches as well as improve the online teaching quality in the complicated context of the COVID-19 pandemic.

1. Introduction

In Vietnam, Covid-19 has slowed down all socio-economic activities and significantly disturbed people's lives. In Ho Chi Minh City, the fourth outbreak of the pandemic resulted in a cessation of most activities. The current school year, 2021-2022, was forced to switch to online learning (Vui, Van, Duong, & Thach, 2021). This is a critical issue for students who have to maintain their studies in the complicated context of the pandemic (Huwaidi, Nandiyanto, & Muhammad, 2021). Online learning is an advanced and developed learning model in many countries around the world, but the difficulties and barriers around it are still very much present (Irvianti, Hurriyati, & Dirgantari, 2021; Roman & Plopeanu, 2021). Disadvantages include the applicability of the learning platform, the ability of students to use technology, and students' poor concentration (Febrianto, Mas' udah, & Megasari, 2021; Jamalpur, Chythanya, & Kumar, 2021; Sharin, 2021). These barriers are negatively impacting the students' learning performance (Bahasoan, Ayuandiani, Mukhram, & Rahmat, 2020).

To support the students' learning during the complex pandemic landscape, educational institutions have employed popular conferencing software platforms such as Google Meeting, Zoom, and LMS (Sakkir, Dollah, & Ahmad, 2020). The popularity of e-learning tools depends on their functionality and simplicity of use (Suriyani & Kamilah, 2020; Trong, Phi, Nguyen, Lan, & Thuy, 2021). As a priority, the software should be easy to use, easy to set up, and free from technical errors (Atina, 2020; Fuady, Sutarjo, & Ernawati, 2021).

Although studies have recognized the effect of conferencing software on students' performance, research has yet to systematically investigate the relationship between dominant factors of online learning and student satisfaction with the training quality. Our objective was to assess the significance of the dominant factors of online learning (learning conditions, learning conferencing software, and learning devices) in satisfying the students' training quality. At the same time, the study synthesizes the comments recorded by the respondents to target the type of learning that students want to maintain post-pandemic.

2. Literature Review

2.1. Definition of e-Learning

Online learning or e-learning (electronic learning) has long been a popular method of imparting education in developed countries. It is a term used to describe education that takes place only through a website, meaning it does not involve any physical learning materials or direct contact with students. Online learning consists of the use of e-learning media in a distance learning mode by using the internet as the sole medium for students to interact and learn (Nichols, 2003).

E-learning is known to be a learning revolution that delivers many benefits to students. It is a term with many perspectives and is understood in multiple ways. According to Smaldino, Lowther, Russell, and Mims (2008), e-learning is defined as a medium of delivering the content of learning or experience in learning electronically with the use of a computer or computer-based media (Smaldino et al., 2008). Similarly, Clark and Mayer (2016) state that e-learning is a teaching method appearing on computers with the following characteristics: content associated with education through teaching methods, use of technology, media for supporting means to provide new learning content and methods, building new knowledge and skills related to the lesson, and improving work and study performance Clark and Mayer (2016).

2.2 The Characteristics of e-Learning

Today, e-learning is being considered as a training method for the future due to its outstanding features compared with earlier, traditional learning models, which include (1) Learners can learn anytime, anywhere because the widespread popularity of the internet has gradually closed the gaps in terms of time and space for e-learning; (2) Ease of use—E-learning platforms are generally not too complicated, as long as users have an internet-connected device so they can use the e-learning platform comfortably; (3) high efficiency—e-learning is highly interactive on multimedia platforms, allowing learners to exchange information easily as well as providing learning content tailored to students' abilities and interests. There is also an entertainment element, memory, and the integration of many other useful functions (Angeliki, Asimina, & Eleni, 2005). Brown and Voltz (2005) listed three factors that contribute to the effectiveness of online learning, including learning content, experiential activities, and feedback activities. By integrating these outstanding features, designers must create an online learning platform that meets the needs of studying and working and brings satisfaction to users, especially students (Steen, 2008).

2.3. Online Learning Media

In the context of the complex Covid-19 pandemic, online learning is an effective method to help students maintain their learning progress. The development of science and technology has brought many great benefits to the education industry. The media used for online learning is increasingly popular and diverse, creating virtual classrooms in cyberspace such as Google Classroom, Class-in, Edmodo, and WhatsApp. Other platforms help people interact with each other through live video, such as Zoom, Google Meeting, Microsoft Teams, and others (Kind & Evans, 2015; Moşteanu, 2021; Odiboh et al., 2020). In addition to the main function of helping students maintain their learning and improve their understanding, each platform is supplied by different publishers, so they offer different functions. This leads to a comparison of the popularity and ease of using these online learning products (A'yun, Suharso, & Kantun, 2021; Trong et al., 2021; Yildiz, Tezer, & Uzunboylu, 2018). Besides the importance of not being inferior to

the traditional learning model, e-learning and the use of e-learning media do have some weaknesses. Specifically, while studying online, students may encounter problems related to software use and internet connectivity, and other issues related to users' technology skills. These influences directly affect the user experience and can make users feel uncomfortable, affecting learning outcomes and satisfaction with the platform being used.

2.4 The Novelty of the Study

In addition to investigating the experience of using online learning conferencing software by students majoring in economics in private universities in Ho Chi Minh City, the study also measures student satisfaction in the process of using online learning with the impact of factors such as learning conditions and learning devices through reliability analysis, exploratory factors, and regression equations analysis. In terms of the research implications for the current pandemic situation in Ho Chi Minh City, the study proposes educational management implications for the management team to improve the quality of teaching and learning at private universities. For this novelty and originality, it is hoped that our data will be used for larger studies on the same topic. In addition, the study hopes to be extended to all universities in the country, thus contributing to improving the quality of education in Vietnam.

3. Method

3.1. Developing a Quantitative Survey Questionnaire

This research uses a quantitative approach through online survey questionnaires to measure the satisfaction of students majoring in economics with using online learning tools. Specifically, the questionnaire is designed according to the Likert scale with five levels from strongly disagree to strongly agree, divided into different questions, and classified into two main groups: (1) experience using respondents' learning background and (2) influence of online learning on student learning outcomes. The group questions include platforms commonly used by students in online learning, the number of years of using the platform, and the level of student consent during the use of the online learning platform (nine items). These questions aim to examine the satisfaction of students in different years of study with using the learning platform. From there, it is possible to assess the status of using the online learning platform and the level of student satisfaction to identify various suitable solutions. The group questions are designed to include learning conditions (four items), learning conferencing software (five items), learning equipment (six items), the satisfaction when using learning media (six items), the differences between online and offline learning, and students' favorite form of learning.

3.2. Data Collection

Survey data was recorded from 900 respondents (233 males and 667 females) majoring in economics at private universities in Ho Chi Minh City. In addition, the respondents who participated in the survey using the standard sampling method were divided into different years of study from the first year to the last year to bring the most objective results into the survey (freshman = 301 (33.4%), sophomore = 345 (38.3%), junior = 232 (25.8%), and senior = 22 (2.4%)).

3.3. Data Processing

Survey data were collected and analyzed using the Statistical Package for Social Science (SPSS) software. Through analytical techniques such as descriptive statistics, one-way ANOVA, verification of the reliability of the scale thanks to the analysis of Cronbach's alpha coefficient, exploratory factor analysis (EFA), and linear regression equation analysis, the software provides the data needed for this research. The results obtained will serve as a basis to assess the satisfaction with online learning of students studying economics at private universities in Ho Chi Minh City.

4. Results

4.1. Learning Conferencing Software

The Covid-19 pandemic has caused many difficulties for the education sector. To adapt to these difficulties, university students in Ho Chi Minh City need to change their mode of learning from traditional to e-learning based on learning platforms provided by the school. Mubin, Aziz, Astutik, and Hasanah (2020) studied the popular studying media in Indonesia. Research results indicate that Google Meet, Zoom, and Microsoft Teams are the three most used systems for learning during the pandemic.

Table 1. Online learning media.

		N	Percent
Learning platforms	Google Meet	882	70.3%
	LSM	339	27.0%
	Zoom	33	2.6%
Total		1254	100.0%

Table 1 illustrates the online learning platforms selected by students. Overall, Google Meet is the most popular conferencing software used at private universities in Ho Chi Minh City as it is the platform that accounts for the highest percentage of students' choices (70.3%). This is twenty-six times more popular than Zoom in the survey.

4.1.1. Devices Used for Online Learning

The effective use of learning media requires users to have a device suitable for each different type of platform. Figure 1 suggests the sorts of devices that students normally use for their online learning.

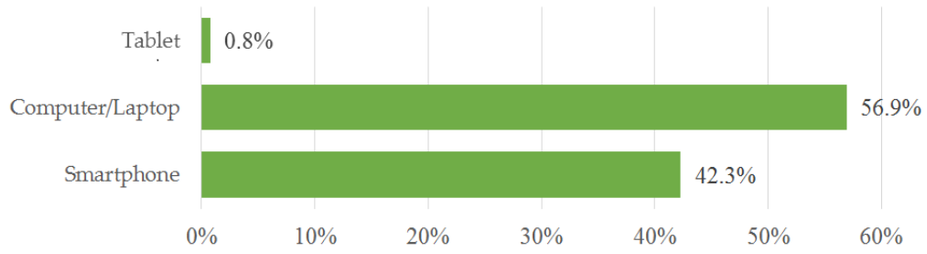

Figure 1. Devices used for online learning.

The findings of Figure 1 indicate that most students use computers/ laptops (56.9%) and smartphones (42.3%) for studying online. The use of tablets by students in online learning accounts for only 1%.

4.1.2. Experience with Using Conferencing Software

Malik and Mubeen (2009) studied the factors affecting student satisfaction with online learning platforms in which the main factors affecting student satisfaction are student factors (attitude, perceived level, level of technology use), instructor factors (feedback of instructors, interaction), design engineering factors (software quality, user-friendliness, ease of use), and course elements (content, quality, flexibility). Based on the above article, the study found that students' experience with using software is one of the important factors affecting online learning.

Table 2. Statistical table of years of using online learning tools.

Characteristic	Total (N = 900)		Male (n=233, 25.9%)		Female (n=667, 74.1%)		P-value
	n	%	n	%	n	%	
Using experience							0.381
Less than 1 year	245	27.2	67	28.7	178	26.7	
From 1-2 years	416	46.2	109	46.8	307	46.0	
More than 2 years	239	26.6	57	24.5	182	27.3	

Table 2 shows that most students have experienced online learning for one to two years, accounting for 46.2%. This is completely consistent with the evolution of the Covid-19 pandemic, which has lasted for nearly two years (from the end of 2019 to the end of 2021), causing students to switch to online learning for extended periods. In addition, after performing an independent T-test, the study identified that there was no statistically significant difference between respondents of different genders in the experience of using the online learning platform (P-value = 0.381 > 0.05).

The study is also interested in the satisfaction of students of different genders who are using online learning tools. Respondents were surveyed to agree on satisfaction factors in the process of using online learning. The scale is designed with a score of 1 (strongly disagree) to 5 (strongly agree). Table 3 below shows the average satisfaction scores of students of different genders in the process of using online learning through an independent sample T-test (test value = 3).

Table 3. The average satisfaction scores of students of different genders in the process of using online learning media.

Satisfaction	Average rating			*P* values
	Total	Male	Female	
1. Maintain learning progress	3.65	3.64	3.66	0.864
2. Improve student morale and academic performance	3.53	3.50	3.54	0.646
3. Enhance students' computer skills and technology practice	3.84	3.77	3.86	0.236
4. Easy to share with many different people	3.85	3.79	3.87	0.287
5. Contribute to the digital transformation in education	3.72	3.71	3.73	0.791
6. Contribute to the assessment of teachers' online teaching skills	3.79	3.76	3.80	0.577

The results shown in Table 3 indicate that six independent variables all have average values above 3 (greater than test value), with the lowest value being 3.53 and the highest 3.85. This shows that most of the students participating in the survey feel satisfied with using the online learning platform. The factors "easy to share with many different people (3.86)" and "enhance students' computer skills and technology practice (3.84)" were chosen by more students, showing the platform that they are using is easy to use while also improving students' digital skills, especially in the context of the industrial revolution 4.0. In addition, after performing the test, the Sig. Levene's Test of all variables is greater than 0.05; the P-value (0.236 - 0.864) of all variables is also large at 0.05, showing no significant difference in the statistics on the satisfaction of respondents of different genders.

4.2. Impacts of Online Learning on Economics Majors

4.2.1. Checking the Reliability of the Scale

The research model includes three independent concepts and a first-order unidirectional dependent concept. Each concept is measured indirectly and has at least three sets of questions (observed variables). Table 4 below presents the results of Cronbach's Alpha coefficient analysis of the observed variables to check the reliability of the scale.

Table 4 shows that the coefficients of Cronbach's Alpha of the concepts are all large at 0.6 (the lowest is 0.897), and the correlation coefficients of the total variables of the questionnaires are all greater than 0.3 (the lowest is 0.738). This result shows that the scale is reliable, and no observed variables are excluded from the scale. After that, the study carried out exploratory factor analysis to check whether the observed variables of the scale converge on the measurement factor or not.

Table 4. Cronbach's Alpha coefficient analysis results.

Variables	Number of items	Overall Cronbach's Alpha	Corrected item-total correlation	Cronbach's Alpha if item deleted
Learning conditions (CON)	4	0.897	0.758 - 0.795	0.858 - 0.872
Learning software (SOF)	5	0.960	0.827 - 0.913	0.945 - 0.959
Learning devices (DEV)	6	0.944	0.738 - 0.890	0.927 - 0.947
Satisfaction (SAT)	6	0.951	0.822 - 0.882	0.938 - 0.945

4.2.2. Exploratory Factor Analysis

The statistics of the analysis of the rotation matrix and the Exploratory Factor Analysis (EFA) are presented in Table 5. The results of the EFA analysis show that the KMO value = 0.956 and the Chi-Square of Ballett's Tests = 14237.64 at the 1% level of significance. There are three extracted factors with the smallest loading factor of 0.688, and no items were excluded due to meeting the convergence and discriminant value conditions.

Accordingly, factor 1 (X1) corresponds to the concept of learning devices, including variables DEV1, DEV2, DEV3, DEV4, DEV5, and DEV6, factor 2 (X2) corresponds to the concept of learning conferencing software, including variables SOF1, SOF2, SOF3, SOF4, and SOF5, and factor 3 (X3) corresponds to the concept of learning conditions and includes variables CON1, CON2, CON3, and CON4.

Next, the research carried out an EFA analysis for the dependent factor of satisfaction. The results show the EFA analysis for dependent factors with KMO = 0.910 (greater than 0.5) and the Sig. test value. Bartlett's Test = 0.000 (less than 0.05), Eigenvalue = 4.831 (greater than 1), data extracted 1 factor with total variance extracted is 80.5% (greater than 50%). The results from the factor matrix show that there is one factor extracted with the smallest loading factor coefficient of 0.875, and no observed variables are excluded from the EFA analysis. Thus, the dependent factor (Y) corresponding to the concept of satisfaction includes variables SAT1, SAT2, SAT3, SAT4, SAT5, and SAT6.

Next, the research evaluates the regression equation of factors affecting satisfaction when using online learning.

Table 5. Rotation matrix table and exploratory factor analysis.

Items	Factor analysis [a]		
	1	2	3
DEV_6	0.816		
DEV_2	0.801		
DEV_4	0.796		
DEV_3	0.792		
DEV_1	0.778		
DEV_5	0.707		
SOF_3		0.837	
SOF_2		0.829	
SOF_4		0.804	
SOF_5		0.800	
SOF_1		0.722	
CON_2			0.808
CON_3			0.795
CON_1			0.757
CON_4			0.688
Eigenvalue	4.726	4.306	3.057
Total variance extracted	0.788	0.861	0.764

Note: [a] KMO value = 0.956 and the Chi-Square of Ballett's Tests = 14237.64 at the 1% level of significance.

4.2.3. Regression Results

Before performing a regression equation estimation, the study calculates the correlation coefficient between the pairs of independent variables and the VIF index to test the model for any violation of multicollinearity. The estimated results of the correlation coefficient and VIF index are shown in Table 6, the correlation matrix table below.

Table 6. Correlation matrix.

Research variable	Y	X_1	X_2	X_3	D_1	VIF
Y	1.000					------
X_1	0.734***	1.000				2.507
X_2	0.797***	0.743***	1.000			2.773
X_3	0.747***	0.686***	0.723***	1.000		2.357
D_1	0.269***	0.186***	0.188***	0.207***	1.000	1.127
D_2	0.163***	0.102***	0.061*	0.079**	0.273***	1.086

Note: *** level of significance 1%; ** level of significance 5%; * level of significance 10%.

The estimated results in Table 6 show that the correlation coefficient between the two independent variables, X1 and X2, has the highest value (r = 0.743) and the highest VIF index is 2.773 < 3. This result confirms the regression model does not violate the multicollinearity assumption. Specifically, VIF values start at 1 and have no upper limit. A VIF value between 1 and 2 indicates that there is no correlation between this independent variable and any other variable. A VIF between 2 and 5 suggests that there is a moderate correlation, but it is not severe enough for the researcher to seek remedial measures. A VIF greater than 5 represents a high correlation, the

coefficient is poorly estimated, and the p-values are questionable. VIF > 10 is multicollinear. Next, the regression results are presented in Table 7.

Table 7. Regression results.

Observed variables	Y: Satisfaction			
	β	Std. Error	Beta	t. stat.
Constant	0.190**	0.075	-------	2.515
X_1: Learning devices	0.214***	0.029	0.207	7.507
X_2: Learning software	0.445***	0.030	0.424	14.610
X_3: Learning conditions	0.266***	0.026	0.276	10.327
D_1: There is no difference between online and offline learning	0.145***	0.037	0.073	3.952
D_2: Interest in online learning	0.180***	0.044	0.074	4.072
Number of observations	900			
Adjusted R^2	72.7%			

Note: *** level of significance 1% and ** level of significance 5%.

The regression results in Table 7 show that the regression coefficients of X1, X2, X3, D1, and D2 all have positive signs and are statistically significant at a 1% significance level. This result shows that learning devices, learning software, learning conditions, there is no difference between online and offline learning, and interest in online learning have a positive influence on satisfaction when using online learning. The factor that has the greatest impact on student satisfaction in the process of using online learning is learning software with a Beta value = 0.424. In addition, offline learning is still the first choice of students after the pandemic ends with the rate of 79.3%, 3.8 times higher than the number of people choosing online learning.

Using the regression results, the study further performed ANOVA analysis to test the difference in satisfaction between respondents with different user experiences. The results are presented in detail in Table 8:

Table 8. ANOVA analysis of the satisfaction of users with different experiences.

ANOVA descriptives						Tukey HSD's Multiple Comparisons of mean differences			
User experience (I)	Mean	Std. Deviation	N (900)	F	P-value	Cluster number of case (J)	Mean difference (I – J)	Std. error	P-value
*Group (1)	3.661	0.959	245	3.533	0.030	(2)	- 0.028	0.079	0.932
						(3)	- 0.213**	0.089	0.045
Group (2)	3.689	0.971	416			(1)	0.028	0.079	0.932
						(3)	- 0.185	0.080	0.054
Group (3)	3.874	1.026	239			(1)	0.213**	0.089	0.045
						(2)	0.185	0.080	0.054

Note:
*Group 1 (Less than 1 year), Group 2 (From 1 – 2 years), Group 3 (More than 2 years).
** The mean difference is significant at the 0.05 level.

The results of the ANOVA test shows that Sig. Levene's Test = 0.746 > 0.05 and a P-value = 0.030 < 0.05 indicates that there was a statistically significant difference in satisfaction between people with different user experiences. At the same time, the mean values of the three user groups differ and follow an increasing trend. The group of people with less than one year of experience has a lower mean value (3.661) than the other two groups. It can be understood that people who have less than one year of experience in using online learning platforms often face many difficulties in online learning, including the ability to use tools, work-related skills technology, no motivation to learn online, and difficulty interacting with instructors. These subjects are usually first-year students who have just moved from a traditional learning environment to a university environment, so they have not fully adapted to such changes. From the above data, the study continues to conduct One-way ANOVA in-depth analysis to find out which pairs of values show differences. Since Sig. of Levene's Test = 0.746 > 0.05, the study uses the Tukey test in One-way ANOVA in-depth analysis. The results show that the pair of values 'less than one year' and 'more than two years' have P-value = 0.045 < 0.05, which means that there is a difference in satisfaction between students who have been using online learning for less than one year and the group with more than two years of user experience with a mean difference of 0.213 at 0.05 significance level. The remaining pairs of values show no difference in satisfaction because all have P-value > 0.05.

5. Discussion

In this study, we explored the relationship between the factors of online learning and students' perceived level of satisfaction with their training quality. The quantitative research findings show a positive correlation. The level of student satisfaction with the influencing factors in the study is in the positive direction. This reflected positive feedback from students during the last online learning period. Most students had a sufficiently high level of satisfaction with online learning conditions and learning conferencing software and equipment. In the context that Ho Chi Minh City is implementing social distancing and lockdowns, students still have a close interest in learning and improving their self-study capacity. Although the effects of Covid-19 are still around, e-learning has become increasingly popular among students, and applying e-learning to maintain learning results is a step of constant advancement in the education industry.

Online meeting software such as Google Meet and Zoom helps teachers and students see each other. Teachers can directly teach online, and students can listen to lectures and communicate directly, either verbally or in writing, with teachers. Using a computer or telephone with an internet connection, students can easily view the teacher's lecture. Neither application requires students to have an account, both can be used directly on the web, and both work stably on different types of devices. LMS covers the entire e-learning ecosystem when it integrates various functions of learning management, e-learning, online interaction, review, etc. This software is also user-friendly with

mobile devices and easy to integrate on different operating systems. Several studies on e-learning platforms show that Google software is widely used in universities. Zoom is the platform that would be perfect to adopt, while LMS is more difficult.

However, these are the three most used platforms in universities (Fuady et al., 2021). A'yun et al. (2021) did additional studies on the choice of suitable learning mediums to reply to the pandemic. The results show that platforms consisting of Google Classroom, Zoom, and Google Meet are powerful in coaching, learning, and religious meetings, keeping human beings safe from the unfolding Covid-19 virus. While LMS is more difficult to apply than the other platforms, most students at private universities in Ho Chi Minh City have been exposed to this platform since the moment they enrolled. In addition to online learning, LMS is a powerful platform that integrates various functionalities such as show schedules, exam schedules, study programs, transcripts, etc. LMS has gradually become more popular and has a positive impact on student learning outcomes and educational management at universities (Yildiz et al., 2018).

Most students use smartphones and laptops or desktops for online learning because of their convenience. On the other hand, these can be considered as two essential devices that every college-level student should be equipped with (see Figure 1). In contrast, tablets are usually more expensive than phones and quite bulky, so they are rarely used by students, although their efficiency is not inferior to smartphones. Wilkinson and Barter (2016) studied the fantastic effects of tablet use (iPad) on university education. The results indicate that iPads have a positive effect on school attendance, performance, and progress, highlighting the need for a framework for integrating tablets to maximize the learning experience. Therefore, we can infer that even though tablets aren't widely used due to the high product cost, it's undeniable that tablets combine many capabilities and functions better than smartphones, including a large enough screen, high enough resolution to increase interactivity during use, a large capacity to store documents, more available applications and software, a longer battery life, etc.

The article by Baber (2020) pointed out the factors affecting learning outcomes and student satisfaction (India and Korea) in the online learning process, including classroom interaction, student motivation, faculty knowledge, lecture structure, etc. Although there is no significant difference in learning outcomes and student satisfaction in the two countries, the study also contributes to helping educational managers improve learning outcomes and student satisfaction during the pandemic. From the results of the above article, the research found that teachers' knowledge and skills at online teaching are also important factors affecting student satisfaction in the process of using the platform for online learning (see Table 3). In the learning process, if the lecturer has good skills at using technology and software, it will have a positive impact on the quality of lessons, create a learning motivation for students, help students improve their skills in using technology, and demonstrate the capabilities of the lecturer.

The results in Table 8 show that the variable X2 (learning software) has a stronger impact than the other variables, creating an influence on the online learning process of university students. Specifically, while the students rated factors such as learning conditions or learning equipment relatively equally, the learning conferencing software factor was much more prominent. This proves that in the e-learning process, the effectiveness of the learning platform is the leading determining factor.

It's impossible to know when the pandemic will end; therefore, experiencing learning platforms and improving them now and in the future is of primary concern. An effective learning platform will bring significant benefits to students, helping to improve learning quality and student outcomes and helping students maintain their learning progress without being delayed by Covid-19. In addition, students' good assessment of factors affecting online learning conferencing software in the learning process will narrow the difference between online and offline learning. It also contributes to assessing the status of user satisfaction, contributing to improving the quality of the learning platform, and making students more interested in this form of learning, especially during the pandemic.

Johnson, Aragon, and Shaik (2000) studied students' satisfaction with the distinction between online and offline learning for college students' learning experience. The outcomes show that student satisfaction with the learning experience tends to be slightly more positive for college students in the conventional course format even though no distinction in learning quality takes place. The article by Pei and Wu (2019) evaluated the difference between online and offline learning to improve students' learning quality. The process of analysis and synthesis showed a statistically significant difference between online and offline learning on the post-test scores, mainly based on professional results and complete competence. Research shows that online learning is as powerful as offline learning and is considered a potential teaching method in universities. The article by Singh, Rylander, and Mims (2012) used the DEA method (Data Envelopment Analysis) to estimate a model of student effectiveness in evaluating studying overall performance amongst college students enrolled in an online course with college students enrolled in an offline course. The results show that by using the DEA method the author has discovered sufficient proof to state that students taking online courses are more effective than offline learners. There is no age limit for online studying allowing mature students to study either full- or part-time, and internet-savvy college students can study at any time, thereby supporting the value and potential of online courses when compared with conventional learning.

Regarding learning devices, Eggermont, Bloemendaal, and van Baalen (2013) studied and predicted students' mobile phone usage for online learning anytime and anywhere. Yilmaz (2016) analyzed the functionality of mobile phones concerning students' needs and attitudes towards installing an e-learning platform for study. At the same time, the article additionally factors out the benefits of learning devices to the learning process of college students, helping students to optimize their learning easily. Learning conditions are a decisive element for the quality of online learning.

Irawan, Dwisona, and Lestari (2020) studied the psychological effects on students' online learning. Research suggests that students are easily bored when learning online. Also, accessing online learning can be extremely difficult for low-income families as fear of the pandemic along with no stable study space turns conditions upside down. Dinh and Nguyen (2020) compared university student satisfaction with online and face-to-face courses on the following aspects: content knowledge, learning activities, pedagogical teaching, the interaction between students, student-faculty interactions, methods of assessing student learning, and overall satisfaction with the course. Participants reported internet connection difficulties or internet quality issues, but they were more satisfied with the face-to-face lessons.

In general, students still prefer traditional forms of learning to online learning. However, this does not fully reflect the quality of online education; it is impossible to compare which form is better than the other. Each form has its advantages and limitations, especially in the context of the pandemic, and students have no choice but to maintain their studies (Pontoh, Sadeli, & Fadli, 2021; Radha, Mahalakshmi, Kumar, & Saravanakumar, 2020).

It can therefore be assumed that educational managers need a multi-dimensional, holistic view and at the same time, must develop appropriate policies to maintain and improve the quality of teaching and learning in schools. As the above-mentioned factors influence student satisfaction in online study, this requires education managers of private universities in Ho Chi Minh City to quickly record the use of learning platforms and student satisfaction in the online learning process for relevant factors. In addition, school leaders must update and develop learning conferencing software to create an optimal and efficient learning environment for students, thereby reducing the differences between online and face-to-face learning. Schools could publish emulation and commendation policies for groups and individuals with outstanding academic performance during the e-learning process and support for those who have not been provided with online learning equipment. At the same time, the school could organize training sessions for teachers in dealing with unexpected situations or technical problems to ensure that each problem can be solved satisfactorily and to prevent unintended issues from arising. Teachers can consider honing their online teaching skills, improving examples and classroom activities to encourage students' learning and creativity, and confiding often with students to resolve problems with psychology, study, etc. that the students may have.

6. Conclusion

In summary of the research results, economics and business majors' perceived level of satisfaction at private universities in Ho Chi Minh City concerning online learning is relatively good as satisfaction scores are all high. This shows that private universities in Ho Chi Minh City have adapted very well to the inconveniences caused by Covid19. However, due to the recent complex developments of the Covid-19 pandemic and the city's lockdown, education managers must closely monitor this process to develop appropriate policies to maintain and create motivation in learning for students.

Based on analytical techniques, the study also demonstrates a positive correlation between factors of online learning and student satisfaction with their training quality. Accordingly, the factor of learning conferencing software stood out as having the most influence. This shows that learning conferencing software largely determines the learning process and learning outcomes. Therefore, the school must regularly monitor, correct, and improve the quality of the learning platforms it uses. Private universities in Ho Chi Minh City in particular, and Vietnamese universities in general, should pay attention to improving student satisfaction in the learning process associated with the following factors: learning conditions, learning equipment, and learning conferencing software.

Although according to research findings, offline learning is still the first choice of students after the pandemic ends, the study also helps private universities in Ho Chi Minh City properly assess the status of student satisfaction in the process of using online learning tools, thereby helping to review and improve learning quality while the city is in lockdown, supporting education administrators to develop appropriate policies to promote student learning and improve the teaching quality. In the future, this research can be further extended to different academic disciplines at universities across Vietnam.

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