LEVEL OF STUDENTS' SATISFACTION WITH TEACHING ACTIVITIES: A CASE OF URGENT SHIFT FROM OFFLINE TEACHING TO ONLINE TEACHING

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Received:	**24/8/2022**	Online teaching is the world widely used form of teaching, especially in the period when the whole society has been greatly affected by the Covid 19 pandemic. This form of teaching requires good preparation, both the teaching staffs' professional qualifications and technology devices and equipment. This study was conducted to determine the factors affecting students' satisfaction with online teaching activities. The data used in this study is the online feedbacks collected from 917 full-time students who completed their studies in semester 1, academic year 2021-2022 in Dong Thap University. Research results show that there are 03 factors that affect the students' satisfaction with online teaching activities including technology, interaction, and the students themselves. Among them, the students have the strongest influence on the students' satisfaction with online teaching activities. In addition, technology related factors have a positive effect on the students' satisfaction, while interaction has a negative effect on students' satisfaction with online teaching activities.
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MỨC ĐỘ HÀI LÒNG CỦA NGƯỜI HỌC VỚI HOẠT ĐỘNG DẠY HỌC: TRƯỜNG HỢP CHUYỂN ĐỔI KHẨN CẤP TỪ HÌNH THỨC TRỰC TIẾP SANG TRỰC TUYẾN

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THÔNG TIN BÀI BÁO		TÓM TẮT
Ngày nhận bài:	**24/8/2022**	Dạy học trực tuyến là một hình thức dạy học được sử dụng phổ biến hiện nay trên thế giới, đặc biệt là trong giai đoạn xã hội bị ảnh hưởng lớn bởi đại dịch Covid 19. Hình thức dạy học này đòi hỏi sự chuẩn bị tốt về các thiết bị công nghệ và trình độ chuyên môn của đội ngũ giảng viên. Nghiên cứu này được thực hiện nhằm xác định các yếu tố ảnh hưởng đến sự hài lòng của người học với hoạt động dạy học trực tuyến. Dữ liệu được sử dụng trong nghiên cứu này là kết quả phản hồi từ 917 người học hệ chính quy đã hoàn thành việc học tập trong học kỳ 1, năm học 2021-2022 tại Trường Đại học Đồng Tháp bằng hình thức trực tuyến. Kết quả nghiên cứu cho thấy có 03 yếu tố có ảnh hưởng đến sự hài lòng của người học với hoạt động dạy học trực tuyến gồm công nghệ, tương tác và người học. Trong đó, yếu tố người học có mức ảnh hưởng mạnh nhất đến sự hài lòng của họ với hoạt động dạy học trực tuyến. Ngoài ra, yếu tố công nghệ có ảnh hưởng cùng chiều đến sự hài lòng của người học, trong khi đó yếu tố tương tác có ảnh hưởng ngược chiều đến sự hài lòng của người học với hoạt động dạy học trực tuyến.
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1. Introduction

The strong development of science and technology has brought useful experience to Internet users in many fields, including education. Specifically, learners can use many different forms of learning, especially online learning to achieve their learning goals. This is a form of learning in which there is a gap in terms of time and space between students and lecturers [1]; there is the application of technology to create, deliver, select, administer, support, and extend traditional learning activities [2]. In addition, lecturers and students can communicate with each other via the Internet in the form of e-mail, online discussion (chat), forums, video conferences,... In addition, the learning contents can be transmitted through modern electronic tools or channels such as computers, satellite networks, the Internet, websites,... [3]. This form of learning has some outstanding advantages such as: flexibility, accessibility; richness of learning contents; cost and time saving; globalization; and the possibility of meeting the students' diversified learning needs [3], [4]. According to Moore *et al.* (2003), online training consists of four basic elements in all teaching and learning situations, namely the lecturer, the students, the knowledge transmission system, and the learning contents [5]. Bolliger (2004) argued that the factors related to lecturers have the most important role when it comes to students' satisfaction in an online learning environment, specifically, the communication between the lecturer with the students, the preparation of the learning contents and teaching methods, and the professionalism in teaching. According to the author, two other factors that are also important in explaining student satisfaction in online teaching are technology and interaction. That is, students should be able to have access to reliable devices during the learning process, especially opportunities to participate in discussions so that they feel involved and want to participate in an online course [6]. In addition, Selim (2007) pointed out three main groups of factors affecting the success of online learning, including the lecturers with such characteristics as personal ability to use technology, teaching style, and attitude; the students including a sense of individuality, time management and technology skills; technology factors and others such as transmission lines, security, video, etc. [7]. Moreover, Musa *et al.* (2012) showed that Internet browsing speed and the teaching staff's participation in discussion groups are the most important factors in the online learning process [8]. Meanwhile, some other reasons why online learning fail are the lack of technical support, students' anxiety about the teaching-learning system and the convenience use of that teaching-learning system. Furthermore, the lecturers' attitude, the flexibility of the online learning system, the quality of the designed lessons and course, the diversified system of student assessment all have strong impacts on the students' satisfaction in online learning process [9]. According to Doherty *et al.* (2018), the main barriers affecting the implementation of online learning include time constraints, poor technical skills, inadequate infrastructure, no organizational strategy and support, negative attitudes of the involved parties [10]. Therefore, for online learning to be effective and successful, it is important to realize that students are not passive receptors of lecturer-defined information, but that they are active, capable individuals who are competent and independent in learning [11].

In Vietnam, some studies have been carried out to identify factors affecting students' satisfaction with online teaching activities. Specifically, the study by Vu *et al.* (2013) found three groups of factors that affect learners' satisfaction with online teaching activities, including contents and personalization, users' interface and learning community. Among them, the contents and personalization have the strongest influence and the group of learning community have the lowest influence on students' satisfaction with online teaching activities [12]. In addition, Pham (2020) stated that two main groups of factors affecting students' satisfaction with an online foreign language course include the course-related factors and the students-related factors. In which, the factors related to the course include the effectiveness, the interaction between the students with the contents and the quality of the Internet connection; the factors related to students including their self-study and learning ability [13]. Moreover, according to Pham (2020), the students have the strongest influence and the teaching contents have the lowest influence on students' satisfaction

with online teaching activities [14]. Meanwhile, Bui *et al.* (2021) showed inconsistent results in comparison with the above-mentioned findings. Specifically, the course contents have the strongest influence on students' satisfaction while the factor related to technical issues and technology have the lowest influence on the online teaching process. On that basis, the authors believe that universities and colleges should pay special attention to improve the quality of training programs as well as enriching online teaching contents [15]. Furthermore, according to Pham *et al.* (2021), the types of interaction between students and students, between students and lecturers, and between students and the contents are all predictive of the students' satisfaction with online teaching and learning activities. The authors recommend that in the future, online teaching should be combined with offline one to provide a more optimal learning experience for students [16]. In another approach, Le *et al.* (2021) have successfully applied the model of technology acceptance and information systems theory into analyzing the factors affecting students' satisfaction with online learning services. Research results show that there are 08 factors having positive influence on students' satisfaction, including perception of convenient use, usefulness, information quality, system quality, instructors, support services, subjective norms, and behavioral control [17].

To sum up, the literature review shows that studies on the factors affecting students' satisfaction with online teaching activities have attracted many authors' attention and interests. However, the level of influence by the commonly mentioned factors on students' satisfaction is different in these studies. This depends on different objective and subjective conditions, especially the organization of online teaching activities by each educational institution. In the context that teaching activities must urgently shift from offline learning to online learning due partly to the impact of the Covid 19 pandemic, this study was conducted to determine the factors affecting satisfaction of full-time students in Dong Thap University and the influence of those factors on teaching-learning activities. The research results functions as a useful information channel for Dong Thap University to improve its online teaching activities, contributing to improving the training quality of the University.

2. Research methods

2.1. Research model and hyperthesis

In this study, the authors propose a model of 5 potential factors affecting students' satisfaction with online teaching activities, including Course design, Technology, Interaction, Lecturers and Students. The choice of the factors and observation variables is done by taking reference on the previous research projects. Specifically, Design Courses factor is based on the research projects [12], [14], [18]-[23]. Technology factor is based on the research projects [6], [14], [15], [20]. Interaction factor is based on the research projects [6], [16], [19], [24], [25]. Lecturer factor is based on the research projects [6], [14], [17], [18], [21]. Student factor is based on the research projects [7], [14], [16], [18], [24]. The research model is shown in Figure 1.
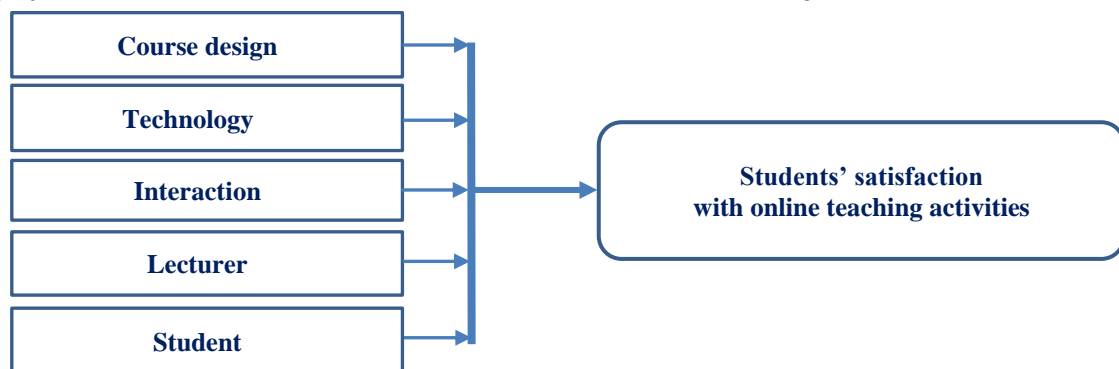

Figure 1. *Suggested research model*

Based on the identified research model, the author proposes 5 research hypotheses including:

(1) Course design has a positive influence on students' satisfaction with online teaching activities.

(2) Technology has a positive influence on students' satisfaction with online teaching activities.

(3) Interaction has a positive influence on students' satisfaction with online teaching activities.

(4) Lecturers have a positive influence on students' satisfaction with online teaching activities.

(5) Students have a positive influence on students' satisfaction with online teaching activities.

In addition, the testing of research hypotheses is carried out and conclusions are made based on the results of linear regression analysis of the independent and dependent variables.

2.2. Data collection instrument

Based on the reviewed research projects [6], [7], [12], [14], [16]-[25], a questionnaire with two main sections is designed to collect feedback from students. The first part is for the students' personal information and their use of technology devices in online learning process. The second part consists of question items subdivided in 06 groups, corresponding to five independent and dependent variables in the research model to collect the students' opinions on factors related to online teaching activities. The independent variables were measured through 33 observed variables and the dependent variable was measured by 6 observed variables. The number of observed variables and the specific contents of each variable are shown in Table 1.

Table 1. *Contents of online survey on students' opinion about online learning activities*

Item	Contents
	Course design
Des1	The courses are proportionally designed for learning
Des2	The courses are designed in a friendly manner with students
Des3	The courses provide students with necessary information
Des4	Teaching materials are constantly updated and supplied by lecturers
Des5	Teaching materials are in good accordance with teaching contents
Des6	Teaching materials are appropriate with students' education level and competence
	Technology
Tech1	Students can easily log into the online teaching system
Tech2	Students can easily log into the online teaching system for their courses
Tech3	The online teaching system operates properly without any interruption
Tech4	The online teaching system is compatible with students' electronic devices and gadgets
Tech5	Students can interact with lecturer and each other easily during the learning process
Tech6	Students can submit quizzes, homework,… to lecturers via the online teaching system
	Interaction
Inter1	Students' arising problems are timely detected and handled by lecturers
Inter2	Prompt answers or feedbacks are given to students' enquiries or questions
Inter3	Favorable conditions are created for students to take part in the lessons or give ideas
Inter4	Students are given opportunities to interact with others in the class
Inter5	Students are given opportunities to give remarks, comments on others' ideas
Inter6	Easy access to the lecturers' teaching materials is ensured
Inter7	Teaching materials for the courses are alluring to students
	Lecturers
Lec1	Lecturers are well-qualified
Lec2	Lecturers use a wide range of teaching methods
Lec3	Lecturers are enthusiastic and friendly with students
Lec4	Lecturers pay close attention to students' progress
Lec5	Lecturers encourage students to ask questions during the teaching process
Lec6	Lecturers announce the results of tests, assessment in timely manner to students
	Students
Stu1	Students are able to receive help on how to use the online teaching system
Stu2	Students are psychologically prepared for online learning activities
Stu3	Students are comfortable with online learning activities

Item	Contents
Stu4	Students are proactive in reading the learning materials provided by lecturers
Stu5	Students are always active in their learning activities
Stu6	Students can use Internet well during online learning process
Stu7	Students' electronic devices can meet the requirements of online learning
Stu8	Students' Internet connection is strong enough to serve online learning activities
	Students' satisfaction
Sat1	They can take part in online courses easily
Sat2	They are interested in taking part in online learning
Sat3	They consider online learning as effective as offline learning
Sat4	They think online learning activities meet their learning expectations
Sat5	They are satisfied with the results brought about by online learning
Sat6	They are in favor of online learning activities in the future

Each observed variable in Table 1 is measured on a Likert scale with 5 levels of 1 - Total disagreement, 2 - Disagreement, 3 – Neutral, 4 - Agreement and 5 - Total agreement. Moreover, the identification of observed variables in each independent and dependent variable is done based on the results of Cronbach's Alpha reliability analysis and the results of exploratory factor analysis (EFA) through data analysis by the statistical software SPSS.

2.3. The characteristics of research sample

Online feedback from 917 full-time students who have experienced online teaching activities at Dong Thap University in the 1st semester of the 2021-2022 school year are used in this study. The specific characteristics of the students participating in their feedback are shown in Table 2.

Table 2. *Description of the research sample*

Characteristics		Frequence	Percentage
Gender	Male	263	28.68
	Female	654	71.32
Learning time in university	First year	499	54.42
	Second year	247	26.94
	Third year	128	13.96
	Fourth year	43	4.69
Total		**917**	**100.0**

(Source: Analysis results from the author's data, 2022)

Although there is no balance in the research sample in terms of their characteristics such as gender and study time, the sample includes information about the participation of male, female students and students from the first to the fourth year. Among them, the highest proportion by gender is female with 71.32% and according to the study time, first-year students account for the highest rate with 54.42%. In addition, the statistics of devices used by students during online learning are shown in Table 3.

Table 3. *Devices, equipment and Internet connection used in online teaching*

Characteristics		Frequence	Percentage
Internet connection	Wi-Fi connection	781	75.39
	3G, 4G transmission	233	22.49
	Direct connection	22	2.12
Devices	Laptop	586	45.36
	Desktop	36	2.79
	Smartphone	660	51.08
	Tablet	10	0.77
Number of devices in use	Only one device	456	49.7
	Two devices as combination	58	6.3
	One or two devices depending on situations	396	43.2
	More than two devices	7	0.8

(Source: Analysis results from the author's data, 2022)

Statistics show that most students used Internet connection via Wi-Fi during online learning process reach the rate of 75.39%. Besides, the popular electronic devices used by students in offline learning process were smart phones and laptops with the rates of 51.08% and 45.36% respectively. In addition, in the process of online learning, the majority of students frequently used 1 device and sometimes used 2 devices with the corresponding rate of 49.7% and 43.2%, while students using 2 devices and more than 2 devices accounted for a low percentage, 6.3% and 0.8% respectively.

2.4. The reliability of collected data

The evaluation of the data's reliability in this study is done based on the results of Cronbach's Alpha analysis. Specifically, the scale shows satisfactory reliability when the Cronbach's Alpha value of the scale reaches 0.60 or more [26]. In addition, observed variables in each scale are accepted when the value of the total correlation coefficient reaches 0.30 or more [27], [28]. Statistical results show that the observed variables in each component scale have the total correlation coefficient value greater than 0.30 (the lowest value is 0.575) and the Cronbach's Alpha value of the scales is larger than 0.60 (the lowest value is 0.825). Thus, the component scales all record satisfactory reliability coefficients, and the observed variables in each scale generate a good correlation with the corresponding representative scale. However, the statistical results show that when the variable Inter7 was removed from the Interaction scale, the Cronbach's Alpha value of the scale increased from 0.917 to 0.923. Besides, when the variable Sat1 was removed from the Satisfaction scale, the Cronbach's Alpha value of the scale also increased from 0.918 to 0.921. Therefore, the authors decided to remove the two observed variables Inter7 and Sat1 before proceeding to the next work of data statistics and analysis in the study.

3. Findings and discussions

The results of exploratory factor analysis (EFA) in Table 4 created five factors. Of which, the first factor (X1) includes eight observed variables Stu1, Stu2, Stu3, Stu4, Stu5, Stu6, Stu7, Stu8; the second factor (X2) includes six observed variables Lec1, Lec2, Lec3, Lec4, Lec5, Lec6; the third factor (X3) includes six observed variables Des1, Des2, Des3, Des4, Des5, Des6; the secondary factor (X4) includes six observed variables Inter1, Inter2, Inter3, Inter4, Inter5, Inter6; the fifth factor (X5) includes six observed variables Tech1, Tech2, Tech3, Tech4, Tech5, Tech6. In addition, the KMO and Bartlett tests show that the KMO value = 0.957 satisfies the quotation $0.5 \le KMO \le 1$. Besides, Bartlett test results with Sig value. = 0.000 < 0.05 show that the observed variables in the scale are all correlated with the corresponding representative factors. Finally, the total extracted variance reaches 64.130% > 50%, showing that 64.130% of the significance of the scale is explained by the component factors.

Table 4. *Rotated Component Matrix*[a]

	Component				
	1	**2**	**3**	**4**	**5**
Stu2	0.745				
Stu5	0.738				
Stu6	0.716				
Stu3	0.713				
Stu7	0.699				
Stu8	0.674				
Stu4	0.623				
Stu1	0.513				
Lec4		0.770			
Lec3		0.760			
Lec5		0.745			
Lec2		0.693			

	Component				
	1	**2**	**3**	**4**	**5**
Lec1		0.691			
Lec6		0.685			
Des5			0.768		
Des6			0.758		
Des2			0.752		
Des3			0.736		
Des4			0.671		
Des1			0.657		
Inter3				0.756	
Inter4				0.753	
Inter5				0.751	
Inter6				0.622	
Inter2				0.621	
Inter1				0.602	
Tech3					0.724
Tech2					0.722
Tech1					0.623
Tech4					0.553
Tech5					0.461
Tech6					0.451

(Source: Analysis results from the author's data, 2022)

Additionally, the results of EFA analysis for the observed variables in the dependent variable Y (students' satisfaction) have the KMO value = 0.896 > 0.5 and the Bartlett test results with the Sig value. = 0.000 < 0.05 show that the data agree with the EFA analysis. In addition, the total extracted variance by 76.362% > 50% show that the extracted factor explains 76.362% of the data variation of the observed variables. Besides, the factor loading coefficient values of the observed variables from 0.790 to 0.915 are all greater than 0.5, so the five observed variables are kept in the dependent variable's scale to perform the correlation and linear regression analysis.

Table 5. *Coefficients*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	**Std. Error**	**Beta**			**Tolerance**	**VIF**
1	(Constant)	0.395	0.205		1.933	0.054		
	X_1	0.908	0.054	**0.608**	16.861	0.000	0.528	1.893
	X_2	0.029	0.062	0.019	0.464	0.642	0.417	2.400
	X_3	-0.048	0.057	-0.030	-0.832	0.406	0.528	1.894
	X_4	-0.200	0.070	**-0.127**	-2.863	0.004	0.352	2.845
	X_5	0.151	0.057	**0.106**	2.651	0.008	0.431	2.321

a. Dependent Variable: Y

(Source: Analysis results from the author's data, 2022)

The results of the regression coefficient test in Table 5 show that among the independent variables, two independent variables including the variable X_2 (lecturer) with the value Sig. = 0.642 > 0.05 and variable X_3 (course design) with value Sig. = 0.406 > 0.05 do not have a statistically significant effect on the dependent variable. Meanwhile, 03 independent variables including X_1 (students), X_4 (interaction) and X_5 (technology) all have a statistically significant influence on the dependent variable Y due to Sig values < 0.05. In addition, the VIF values are all less than 3, indicating that there is no multicollinearity between the independent variables.

By the above results, innovated linar regression equation is established as follow:

$$Y = 0.608X_1 - 0.127X_4 + 0.106X_5$$

The linear regression equation shows that the independent variable X_1 (students) has the strongest and positive influence on learners' satisfaction about online teaching activities. In addition, there is a significant difference in the degree of influence on learners' satisfaction with online teaching activities between the variable X_1 and the variables X_4 and X_5. Specifically, the influence of the variable X_1 on the dependent variable Y is 5 times larger than the influence of the variables X_4 and X_5 on the dependent variable. In addition, there is no significant difference between the variable X_4 and X_5. Although, there is no significant difference in magnitude, there is a difference in the direction of the influence of variables X_4 and X_5 on the dependent variable Y. Specifically, the variable X_5 has the same effect on the dependent variable, while the variable X_4 has a negative effect on the dependent variable. Thus, the results of the linear regression analysis showed in detail the influence of the independent variables on the dependent variable. Specifically, the learner factor (X_1) has a very strong and positive influence on their satisfaction with online teaching activities. That is, factors related to students such as psychology, readiness, activeness as well as the devices used by students in the online learning process have a very strong influence on their satisfaction with online teaching activities. This result is similar and supportive to the research results shown in [13], [14]. In addition, the higher the satisfaction level of students with technology (X_5) in the online learning process becomes, the higher their satisfaction with online teaching activities increases. This supports the results of studies shown in [6]-[8], [15]. Meanwhile, the interaction factor (X_4) has a negative effect on students' satisfaction in the online learning process. That is, the higher the level of student's satisfaction with the interactive element in the learning process gets, the lower their satisfaction with online teaching activities becomes.

This is an interesting finding in this study and may not be consistent with previous studies. It may probably be the sudden shift of teaching activities from offline to online teaching mode, which put pressure on students, so they were not ready for the new form of learning. Having to perform a lot of interaction in the learning process, especially interaction between students can cause certain difficulties for the students themselves because they do not see each other directly in the learning process, in their discussions or other group work tasks. This is a big difference between online learning and offline learning. Thus, 03 hypotheses in this study were rejected, in which the interaction has a negative effect on students' satisfaction. In addition, 02 accepted research hypotheses include technology that has a positive influence on students' satisfaction and students that have a positive influence on their satisfaction with online teaching activities.

4. Conclusion

The urgent need to adjust and shift the teaching activities from traditional mode to online one has created significant changes in the training activities of educational institutions. Therefore, educational institutions should collect students' feedback, especially analyze and evaluate their satisfaction with online teaching activities. On that basis, this study examines the factors affecting students' satisfaction when they participated in online learning at Dong Thap University. Through statistical analysis methods based on a survey on students' responses, especially multivariate linear regression analysis method, the study has identified three factors namely Lecturers, Technology and Interaction that affect students' satisfaction with online teaching activities. A telling finding in this study compared with previous studies is that factors directly related to learners have a very strong influence on their satisfaction in the online learning process. That is, in order for online teaching to be effective, students must be psychologically comfortable, ready, positive and proactive in online teaching activities. In addition, the technology devices used by students in the online learning process play an important role in effective teaching and learning and have a great influence on the effectiveness of online learning activities, especially students' satisfaction. While technology related factors have a positive influence on students' satisfaction, the other finding in this study is that interaction has a negative

effect on students' satisfaction with online teaching-learning activities. This shows that students may have difficulty or are not well-prepared to perform interactions in the online learning process, leading to a negative effect on students' satisfaction. This is important and meaningful information for higher education institutions, especially Dong Thap University, in adjusting and improving online teaching activities, thereby bringing better and richer experiences to students.

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