Determinants in Student Satisfaction with Online Learning: A Survey Study of Second-Year Students at Private Universities in HCMC

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ABSTRACT

Due to the development of technology and the outbreak of COVID-19, many higher education institutions have employed online learning as a measure to the urgent situation. However, the sudden shift to complete online learning has a considerable impact on students. Therefore, maintaining student satisfaction with their learning experience is a significant issue for the stakeholders. From scientific perspectives, many researchers propose the importance of identifying factors influencing student satisfaction. Although many studies are dealing with this issue, few have succeeded in identifying determinants in student satisfaction with online learning in which online learning is a part of the school ecosystem. This research aimed at tackling this problem in the context of private universities in Ho Chi Minh city. Notably, 317 students from two private universities were involved in this survey study. The data were collected via online questionnaires and analyzed by using the PLS-SEM approach to examine which factors found in the literature were more dominant. The research findings indicated three determinants, including course effectiveness, providing knowledge and skills, and the sense of belonging. This result suggested that in order to increase student satisfaction with online learning in the current situation, these three determinants should be paid more attention by the stakeholders.

Keywords: online learning, student satisfaction, private universities, PLS-SEM

Introduction

Nowadays, students' expectations, parents, and society have made a new setting for higher education institutions. Particularly, globalization has created a "marketplace" for all universities; in other words, students have more choices for their study with a possible balance between cost and quality (James, 2001). Therefore, many universities have promoted the student-customer focuses in order to meet students' expectations. Within these focuses, student satisfaction becomes the critical factor leading to the success of any higher education institution (Mark, 2013). However, student satisfaction is very complicated and varies among different

contexts (Elliott & Healy, 2001). As a result, it is necessary for any institution to examine their students' satisfaction carefully.

What is more, the whole world has witnessed a spread of pandemic Covid-19. It leads to other changes in every aspect of society, including higher education. The sudden shift from traditional classrooms to completely online classrooms has promoted online learning significantly than ever before (Candilas, 2021; Dhawan, 2020). Consequently, student satisfaction has continuously changed to adapt to the situation.

Currently, there are many studies on student satisfaction, especially at tertiary levels. Based on the form of the learning process, these researchers focus on two main areas: (1) traditionally face-to-face classrooms (Muhsin et al., 2020; Weerasinghe & Ratnayake, 2017; Weerasinghe & Fernando, 2018; Wilkins & Balakrishnan, 2013), and (2) online learning (including different forms of online learning such as blended-learning, or utter online learning, etc.) (Baber, 2020; Nortvig et al., 2018; Prifti, 2020; Rahman et al., 2020). These studies propose many factors related to student satisfaction in higher education institutions, such as teaching/learning quality, interactions within the community, quality of the facilities, etc. Nevertheless, providing that a study focuses on student satisfaction toward online learning at a particular institution, the factors listed are relevant to online learning components only. In other words, the other factors involving the whole school system are not included.

Online learning has been started in Vietnam for a long time; however, serious attention on this form of learning remains a question. Specifically, few universities have promoted this kind of learning as an essential tool in their educational ecosystem (Pham & Tran, 2019). What is more, being identical with what has happened to education worldwide during the outbreak of Covid-19, there has been a rapid increase in the employment of online learning within higher education institutions (MOET, 2020b). MOET (Ministry of Education and Training) (2020a) also confirms the quick response from private sectors to the contemporary suspended learning due to this pandemic. Because of the sudden shift in the learning form, Maheshwari (2021) states that many Vietnamese universities concern how students perceive this and how this can affect their satisfaction. In combination with all issues above, it is crucial to investigate the student satisfaction towards online learning as a part of the school ecosystem in the Vietnamese context.

Literature review

Student satisfaction

First of all, satisfaction is a complex construct of how the customers evaluate the product after using it and then make a relationship with their expectation of that product (Oliver, 1981). In education fields, especially in higher education, Elliott and Healy (2001) define satisfaction as the experience of students when they start their education until they graduate and afterward. Also, they indicate that students feel satisfied when their academic experience or performance matches their expected outcomes of choosing a particular program or institution. From another

perspective, Aldridge and Rowley (1998) categorize students' satisfaction into two main measurable domains: (1) the teaching and learning process, and (2) complete students' experience. In this research, the definition of student satisfaction is employed as the "total student experience" (Aldridge & Rowley, 1998) in the online learning environment.

Online learning

Definition of online learning

In terms of its definition, online learning is defined by many authors. For example, Cojocariu et al. (2014) propose that online learning refers to the use of internet-connected computers to make learning happen anywhere and anytime. Therefore, this makes students the center of the learning process. Singh and Thurman (2019) share the same idea that online learning involves employing electronic devices with the Internet. In short, online learning proposes a kind of learning in which students learn in an environment created by using internet-supported devices as they learn in traditional classrooms. Within this environment, the students can have as many interactions as they can in the face-to-face classrooms.

Online learning in the new situation of Covid-19

These days, the outbreak of Covid-19 has promoted online learning worldwide. In other words, there is a considerable shift from traditional learning to partly or totally online learning (Dhawan, 2020; Hoang & Le, 2021; Tue & Le, 2021). International Association of Universities (2020) declares that the learning of nearly 1.5 billion students worldwide was postponed because of the effect of Covid-19 on the institutions. Also, the association report emphasizes the transformation of traditional classrooms into online ones as a measurement for the current situation. In the Vietnamese context, MOET (2020b) proposes that 110/240 higher education institutions have adopted online learning as a tool to make learning happen during the Covid-19 period. Significantly, among 110 institutions, approximant 70% belong to private sectors. MOET (2020b) also indicates that the in-time online training for both school staff and students assists in conducting online classroom via some popular online platforms such as Zoom, Google meet, MS Teams, and so forth. Additionally, to encourage other institutions to follow this trend, MOET (2020a) issued document No.1061/BGDĐT-GDTrH, which identifies and recognizes different forms of online learning.

Previous studies on factors influencing student satisfaction with the online learning environment

Several authors list out some factors affecting student satisfaction, including Grade Point Average (Walker-Marshall & Hudson, 1999), student and school factors (Appleton-Knapp & Krentler, 2006; Ngo, 2021), quality of teachers, facilities, and technology implementation (Wilkins & Balakrishnan, 2013)(Ly et al., 2021), school environment, study major, and learning styles (García-Aracil, 2008), and also school reputation and ease of school entrance (Beerli Palacio et al., 2002). In a recent study, Al-Sheeb et al. (2018) present in detail five determinants affecting student satisfaction: Instructional Effectiveness and Academic Experience (how students percept the faculty, the teaching methodology, and the administration of the

course/program), Citizenship Knowledge and Skills (what is needed for a student to be a successful person), Sense of Belonging (the feeling toward the supporting, connecting, being respected by other members within the institutions), Interaction with Key Members (the contact with faculty, staff, and other students), and Awareness and Utilization of Campus Resources (the attitude towards the available school services such as classrooms, campus site, dorm, library, etc.). This study refers to these factors in order to build the conceptual framework for the study.

There have been few studies on student satisfaction in the online learning environment. In other words, most research is in favor of a face-to-face setting. Arbaugh (2001) adopts the model "Community of Inquiry framework" (Garrison et al., 1999), including social, cognitive, and teaching presences. Through the research, he adds two factors to the original framework: the design of the course and the organization. Stewart et al. (2004) employed the analysis of crucial factors to identify what affects student satisfaction. They conclude that there were several factors: the usage of a web page, technological aspects, online apps and tools, the online contents, and the interaction within the online environment. More recently, Dziuban et al. (2015) proposed in their study 3 main determinants: The learning engagement (how students were stimulated in their learning via the online environment), "Agency" (students' motivation, time management, and multiple task skills), Assessment (the way students observe and self-assess as well as are assessed in online learning). Also, Bickle et al. (2019) examine the satisfaction of students with online learning. They find that the sense of belonging with the students' online group and the online course quality impact students' level of satisfaction. From the findings of these studies, it is evident that each study identifies or examines different factors affecting student satisfaction in the online learning environment. Therefore, a study needs to be conducted, which concerns all of these factors in the same online environment to see which factors are more dominant.

Research Question

In combination with the current context and the gap in the literature mentioned above, this research aims at identifying the determinants in student satisfaction with online learning in the higher education context in HCMC. In order to achieve the purpose of the study, the research question was formulated as follows:

What are the determinants in student satisfaction with online learning in private universities in HCMC?

Hypotheses on the factors influencing student satisfaction with the online learning environment

Course effectiveness

Course effectiveness refers to how students perceive teaching effectiveness, such as teaching methods, course management, and quality Navarro et al. (2005). They also indicate that course effectiveness has a considerable impact on student satisfaction. Additionally, Elliott (2002) concludes that the course effectiveness accounts for the most significant percentage of the satisfaction of their student journey in universities. Therefore, the following hypothesis is

constructed:

H1: There is a significant relationship between course effectiveness and student satisfaction.

Provided Knowledge and Skills

Knowledge and skills, in this case, propose the essential things that students attain when they choose a particular program for study. As a result, providing knowledge and skills refer to what a program/courses in a specific institution can equip their students to meet their needs and ensure their success in the future (Al-Sheeb et al., 2018). What is more, Nguyen (2016) finds out in her study that this factor strongly contributes to student satisfaction, especially in online courses. Hence, the second hypothesis is formulated:

H2: There is a significant relationship between provided knowledge and skills and student satisfaction.

The sense of belonging

The sense of belonging indicates students' perception of receiving help from the college community and connecting and being connected with others (Al-Sheeb et al., 2018; Singh & Thurman, 2019). Additionally, Freeman et al. (2007) and Fan et al. (2021) agree that the sense of belonging positively affects students' experience in their college. In other words, this factor manipulates student satisfaction in various ways. Consequently, the third hypothesis is built:

H3: There is a significant relationship between the sense of belonging and student satisfaction.

The interaction with important people

Important people refer to the members of faculty or higher education institutions. Endo and Harpel (1982) propose the possible impacts of the interaction with influential people on student satisfaction. Recently, Elliott (2002) and Billups (2008) have confirmed the positive effects of this factor on students' continuity of studying at a particular institution and their satisfaction. As a result, the fourth hypothesis is made:

H4: There is a significant relationship between the interaction with important people and student satisfaction.

The utility of available facilities

The utility of available facilities refers to the students' awareness and use of the school facilities such as online learning system, library, student service center, etc. Nasser et al. (2008) and Hanssen and Solvoll (2015) present that the more students utilize these facilities, the more satisfied they are in their college experience. Therefore, the last hypothesis is constructed:

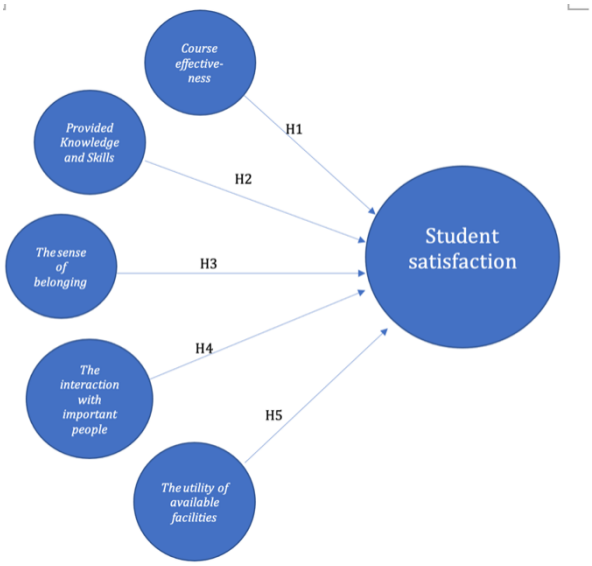
H5: There is a significant relationship between the utility of available facilities and student satisfaction.

Conceptual framework

Based on the previous studies on student satisfaction in general and in according to the student satisfaction with the online learning environment, the conceptual framework of the study was built as below:

Figure 1.

The factors affecting student satisfaction with online learning



As the figure presents, there are five factors that influence student satisfaction, including (1) course effectiveness, (2) provided knowledge and skills, (3) the sense of belonging, (4) the interaction with important people, and (5) the utility of the available facilities. The literature concluded these factors with the adaptation to the online learning context.

Methods

Pedagogical Setting & Participants

This research was conducted at two private universities in Ho Chi Minh city Vietnam, Van Lang, and Hoa Sen University. These two universities offer various majors to students from engineering, technology, and social science. Moreover, within the current situation of Covid-19, Van Lang and Hoa Sen University have adopted online learning as an effective adaptation.

The convenience sampling method was employed in this study. According to Edgar et al. (2017), convenient sampling is the most popular kind of non-probabilistic sampling. This kind of sampling method makes use of contact with samples within the neighborhood or via the Internet. Regarding the benefits of this sampling method, Creswell (2014) and Edgar et al. (2017) indicate that convenience sampling is suitable for exploring attitudes and testing hypotheses.

Design of the Study

The survey study was employed in this research. According to Check and Schutt (2011), a survey study is a scientific procedure in which data are collected via the participants' responses to a set of questions. They also emphasize that this type of research could apply to quantitative or qualitative research, depending on the research purposes and natures. Regarding the use of survey study, Straits (2005) states that exploring human attitudes, opinions, and behaviors towards a phenomenon is one of the most significant usages. This study aimed at investigating the most influenced factors on student satisfaction. Thus, the survey study was a suitable research design.

Research Instrument

Due to the nature of the survey study and the purpose of this research, a questionnaire was used as the primary research instrument. Rowley (2014) explains that questionnaires are primarily used in conducting quantitative research, especially when the researcher wants to explore the behaviors, attitudes, frequency, or opinions on a particular scale. Moreover, Creswell (2014) concludes that using questionnaires could help the researcher collect massive data in a short time. What is more, Creswell (2014) proposes that questionnaires could be in various forms such as in paper, mail, or an online form with eligible costs for the study. The questionnaires were designed in Google forms and sent to participants via the Internet in this study.

In terms of designing the research instrument, the questionnaire was adopted and adapted from the study of Al-Sheeb et al. (2018). The adjustments were made to be suitable for the research. Particularly, the questionnaire consisted of 7 sections, mainly focusing on 6 constructs indicated in the conceptual framework. The first section was about demographic information, which was the gender of participants. Then the second section was about the students' overall satisfaction with 5 items. Following was the third section on course effectiveness, including 7 items. In the fourth section, there were 4 items concerning the construct of provided knowledge and skills. The sixth section was about the sense of belonging, which had 3 items.

Regarding the construct of the interaction with important people, 5 items were included. Last but not least, there were 6 items under the construct of the utility of available facilities. All the information was summarized in the following table:

Table 1.

Constructs included in the questionnaires

No.	Constructs	Number of items
1	Demographic features	1
2	Students' overall satisfaction	5
3	Course effectiveness	7
4	Provided knowledge and skills	4
5	The sense of belonging	3
6	The interaction with important people	5
7	The utility of available facilities	6

The responses for section 1 were collected via multiple-choice answers. The responses were recorded from sections 2 to 5 via a 5-point Likert scale, ranging from "1" strongly disagree to "5" strongly agree. For the last two sections, the participants answered the questions by giving the number identical with frequency, from (1) never to (5) daily.

Data collection & analysis

The online questionnaires were delivered to the target participants via some common online platforms such as Facebook, MS Teams, and the LMS from the schools after they had finished their semester. Efthymiou and Antoniou (2012) state that online platforms are suitable for distributing questionnaires and collecting data. After distributing the online questionnaires, 317 responses were collected and coded for the analysis process.

The data were analyzed by using the PLS-SEM approach, which was conducted via the SmartPLS software. Hair et al. (2013) and Sarstedt et al. (2017) indicate that PLS-SEM is an appropriate way of exploring the relationship between exogenous and endogenous variables. Also, it provides great tools for evaluating both measurement and structural models with high accuracy. Following this approach, three main stages were involved in analyzing the data: coding the data, assessing the measurement model (outer model), and assessing the structural model (inner model).

Firstly, all the constructs and indicators of each were coded to import to the software. All of the codes are presented in the following table:

Table 2.

Codes used in the data analysis procedures

No.	Constructs	Code of items/indicator
1	Demographic features	GEN
2	Students' overall satisfaction	SAT_1, SAT_2, SAT_3, SAT_4, SAT_5
3	Course effectiveness	CE_1, CE_2, CE_3, CE_4, CE_5, CE_6, CE_7
4	Provided knowledge and skills	SKN_1, SKN_2, SKN_3, SKN_4
5	The sense of belonging	BEL_1, BEL_2, BEL_3
6	The interaction with important people	INT_1, INT_2, INT_3, INT_4, INT_5
7	The utility of available facilities	FAC_1, FAC_2, FAC_3, FAC_4, FAC_5, FAC_6

Secondly, the measurement model (outer model) was tested to confirm the constructs' reliability and validity. As listed in the instrument section, there were 5 main constructs examined in the study, including (1) overall student satisfaction, (2) course effectiveness, (3) provided knowledge and skills, (4) the sense of belonging, and (5) the interaction with important people, and (6) the utility of available facilities.

Notably, the statistical indexes used to validate the measurement model were Outer Factor Loading (to determine and keep/terminate the contribution of each indicator to the constructs), Construct Reliability (CR) (to test the reliability of the indicators of each construct), Convergent

Validity (AVE), and Discriminant Validity (to test the validity of the indicators of each construct). The reason for using these indexes is because the constructs were measured via a reflective model.

Then, the structural model (inner model) was assessed to examine the relationship between the exogenous and endogenous variables. At this step, all the hypothesized relationships (H1 to H5) were evaluated to determine the path loading. Last but not least, bootstrapping was employed with the scale of 5000 re-sampling in order to assess the t-test value. This index would point out whether the hypothesized relationships were of significance or not.

Validity & Reliability

To assure the validity and reliability of the study, some techniques were employed in the study. Thing first technique was piloting the research instrument. As stated in the "research instrument" section, the questionnaire was adapted and adjusted from the study of Al-Sheeb et al. (2018). Then, to identify the measurement power of all the items, the questionnaire was piloted for 50 participants. The following table indicated the reliability of the questionnaires in the pilot process:

Table 4.

The composite reliability (CR) of the questionnaire items.

	Composite Reliability
BEL	0.85
CE	0.904
FAC	0.934
INT	0.890
SAT	0.878
SKN	0.93

According to Hair et al. (2013), the reliability of the questionnaire could be assessed via composite reliability. Also, they recommend a standard value of above 0.708. from table 4, it is apparent that all the items of the questionnaire were reliable.

After the piloting process, minor adjustments were made to create the final version of the questionnaires. Other techniques related to the statistical index in the software will be explained in the finding section.

Results/Findings

Descriptive Statistics

Table 3.

Demographic features of the participants

	Number	Percent (%)
Male	101	31.9
Female	216	68.1

In the study, there were 317 participants. Among these, females made up the larger percentages than males. However, the gender variable was not the focus of this research.

The Assessment of the Measurement Model

As told in the previous section, the constructs of SAT, CE, SKN, and FAC were built based on the reflective model. Therefore, the first step was to examine the outer factor loading.

The factor loading of each indicator should be above 0.7. As a result, the four indicators, "SKN_3", "INT_4", "FAC_1, and "INT_2" were removed in the next step of data analysis. Then, the second step was to examine the construct validity. According to Hair et al. (2013), the construct validity can be tested via composite reliability, convergent validity, and discriminant validity. The following tables summarized the result of these:

Table 5.

The composite reliability (CR) and convergent validity (AVE) of the measurement model

	Composite Reliability	Average Variance Extracted (AVE)
BEL	0.845	0.645
CE	0.924	0.635
FAC	0.921	0.7
INT	0.897	0.744
SAT	0.893	0.625
SKN	0.903	0.757

As Hair et al. (2013) suggest, the CR must be above 0.708, and the AVE should be 0.5 or higher. In Table 3, the result of CR and AVE of the measurement model met these requirements. In terms of discriminant validity, it is said that the square root of a particular construct in the cross-loadings should be higher than any correlation of it with any other construct (Hair et al., 2013). As shown in table 4, all the indexes satisfied this standard.

Table 6.

The cross-loadings of the measurement model

	BEL	CE	FAC	INT	SAT	SKN
BEL_1	*0.799*	0.483	0.333	0.288	0.629	0.595
BEL_2	*0.77*	0.28	0.216	0.248	0.404	0.311
BEL_3	*0.838*	0.388	0.166	0.248	0.509	0.365
CE_1	0.388	*0.816*	0.318	0.242	0.556	0.605
CE_2	0.358	*0.807*	0.28	0.207	0.555	0.525
CE_3	0.419	*0.71*	0.179	0.164	0.462	0.431
CE_4	0.329	*0.86*	0.258	0.186	0.543	0.564
CE_5	0.537	*0.772*	0.265	0.222	0.601	0.552
CE_6	0.327	*0.798*	0.37	0.307	0.522	0.695
CE_7	0.392	*0.803*	0.442	0.338	0.551	0.701
FAC_2	0.26	0.31	*0.788*	0.464	0.273	0.397
FAC_3	0.206	0.35	*0.826*	0.407	0.315	0.445
FAC_4	0.276	0.346	*0.858*	0.522	0.321	0.395
FAC_5	0.255	0.255	*0.833*	0.468	0.278	0.354
FAC_6	0.29	0.325	*0.875*	0.503	0.321	0.419
INT_1	0.336	0.259	0.414	*0.886*	0.318	0.4
INT_3	0.264	0.309	0.55	*0.863*	0.234	0.43
INT_5	0.229	0.203	0.535	*0.839*	0.207	0.362
SAT_1	0.45	0.68	0.271	0.246	*0.739*	0.526
SAT_2	0.542	0.529	0.29	0.201	*0.842*	0.479
SAT_3	0.533	0.593	0.343	0.34	*0.797*	0.615
SAT_4	0.534	0.457	0.27	0.221	*0.796*	0.471
SAT_5	0.55	0.406	0.245	0.171	*0.775*	0.417
SKN_1	0.411	0.688	0.457	0.397	0.515	*0.892*
SKN_2	0.409	0.7	0.425	0.382	0.525	*0.89*
SKN_4	0.596	0.536	0.378	0.416	0.615	*0.825*

Finally, to prove that indicators of a particular construct were separate from each other, the HTMT matrix was employed, as presented in table 5. It was apparent that all the indexes in the HTMT matrix of the measurement model were smaller than 0.85. Therefore, the discriminant validity was achieved (Henseler et al., 2015).

Table 7.

The HTMT matrix of the measurement model

	BEL	CE	FAC_	INT	SAT
CE	0.583				
FAC	0.366	0.42			
INT	0.402	0.342	0.67		
SAT	0.809	0.767	0.411	0.343	
SKN	0.657	0.844	0.557	0.547	0.743

Hence, based on the validity and reliability test, the measurement model of this research was valid.

The Assessment of the Structural Model

In order to test the structural model, Sharma and Aggarwal (2019) propose that the most important thing to consider is to evaluate the predictive ability of the model. Hair et al. (2013) present the process of evaluating the structural model: (1) Collinearity, (2) R^2 explanation of endogenous latent variables, (3) Predictive relevance Q^2, and (4) $f^2$and q^2effects size of path coefficients. This was the procedure employed to analyze the data.

Firstly, the indexes of Inner VIF value were examined to ensure there was no risk of available collinearity of all the constructs. In the current model, the VIF was smaller than 3; therefore, no collinearity was available. Secondly, the coefficient of determination (R^2) was considered. After running the PLS-SEM software, the R^2 of this model was 0.613. According to Hair et al. (2013), the current model had moderate power of predictivity, which was acceptable. Next, the Q^2 was assessed via the blindfolding procedure. Based on the required procedure, the Q^2, of the model was 0.369. The result confirmed the R^2 result; in other words, the predictive power of this model was accepted as moderate. In addition, the f^2 (effect size) was assessed to see whether the effect of predictive construct on the endogenous latent construct. In this case, the f2 was presented in table 6. It was readable that only three factors BEL, CE, and SKN, significantly affected the construct SAT (f2>0,15).

Table 8.

The effective size results

	SAT
BEL	0.26
CE	0.17
FAC	0.004
INT	0.001
SKN	0.021

The Hypothesis Test Results

After validating the measurement and structural model, the hypothesis test results were conducted via the Bootstrapping technique with 5000 re-sampling and significance of 0.05. To sum up, there were 5 statistical hypotheses that identified the relationship between 5 factors to the constructs of Student satisfaction in the research. Notably, they were:

H1: There is a significant relationship between course effectiveness and student satisfaction.

H2: There is a significant relationship between provided knowledge and skills and student satisfaction.

H3: There is a significant relationship between the sense of belonging and student satisfaction.

H4: There is a significant relationship between the interaction with important people and student satisfaction.

H5: There is a significant relationship between the utility of available facilities and student satisfaction.

The results of the hypothesis tests are summarized in table 8.

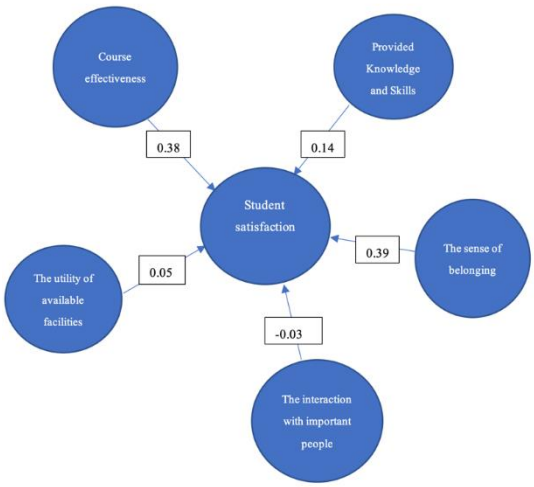
Table 9.

Hypotheses testing results

Hypothesis	Path loadings	T-values	P-values	Status
H1	0.38	5.985	0.000	Supported
H2	0.14	2.000	0.046	Supported
H3	0.39	8.985	0.000	Supported
H4	-0.03	0.691	0.490	Not supported
H5	0.05	1.100	0.271	Not supported

Figure 2.

The model with path loadings



Providing that a hypothesis was supported, the t-value should be higher than the threshold of 1.96, and the p-value was less than 0.05 (Hair et al., 2019; Kock, 2016). Thus, the determinants that influenced student satisfaction in the study context, i.e., course effectiveness, provided knowledge and skills, and the sense of belonging.

Discussion

This study aimed at identifying the determinants of student satisfaction with online learning at private universities in Ho Chi Minh city. Through the literature, five hypothesized relationships were established between 5 different factors: course effectiveness, providing knowledge and skills, the sense of belonging, the interaction with important people and the utility of available facilities, and student satisfaction. Based on the hypotheses testing results shown in table 7, it was concluded that there were three determinants to student satisfaction in the online learning environment. Firstly, course effectiveness has a substantial impact on student satisfaction. This finding is consistent with the studies of Elliott (2002), Navarro et al. (2005), Elliott (2002), Al-Sheeb et al. (2018); Wilkins and Balakrishnan (2013). In both offline and online learning environments, the course effectiveness, which could be manifested as teaching quality and management, course outcomes, etc., is likely to be considered when students think about their school. The second determinant is provided knowledge and skills. In any learning environment, especially online, students are constantly seeking something useful for their educational experience and future. This assumption is similar to the findings of Nguyen (2016) and Al-Sheeb et al. (2018). Lastly, another factor that shows a strong relationship with student satisfaction is the sense of belonging. Many researchers have concluded that when students study at a particular institution, the connection with other people in the community, the feeling of being connected, respected, and cared for positively affect student satisfaction (Al-Sheeb et al., 2018; Fan et al., 2021; Freeman et al., 2007; Singh & Thurman, 2019).

Besides these similarities, this research has indicated some significant points. The first thing to mention is that this research was conducted in the context of COVID-19, which would strongly affect student perceptions and satisfaction towards their university (Le & Truong, 2021; Maheshwari, 2021). Additionally, as mentioned in the introduction and literature review sections, despite many studies in the tract of student satisfaction in the online learning environment, they mainly focus on online courses separate from other elements of the school ecosystem. Hence, this study proposes that the determinants were different when considering the student satisfaction with online learning in a whole school ecosystem. Finally, due to the predictive power of the study, it is suggested that the stakeholder should pay more attention to improving course effectiveness, providing knowledge and skills, and the sense of belonging to enhance student satisfaction with online learning.

Conclusion

The study addressed the determinants in student satisfaction with online learning at private universities in Vietnam. 317 participants were involved via the convenience sampling method. Based on the previous studies, five statistical hypotheses were proposed and tested via online questionnaires. In particular, the online questionnaires were responded to identify which of the factors, including course effectiveness, provided knowledge and skills, the sense of belonging, the interaction with important people, and the utility of available facilities, had the more robust relationship with the student satisfaction. From the data analysis by using the PSL-SEM approach, among five factors, there were three determinants: course effectiveness, providing knowledge and skills, and the sense of belonging, which meet the requirements to strengthen student satisfaction. Other factors had no significant relationship with student satisfaction in the research context. As a result, the study suggested that to increase student satisfaction. The stakeholders should focus on improving the course quality, equipping students with essential knowledge and skills, and promoting the sense of being a part of the university community.

Besides these findings, the study remained some limitations. First of all, due to the limit in reaching the participants in other private universities and the time constraints, the number of participants in the study did not as many as expected. Therefore, the result of the study might not be applicable in other contexts. Moreover, the study aimed at identifying the determinants of student satisfaction with online learning based on the factors found in the previous study. Hence, it is potential that there are other available determinants. Finally, the research results point the determinants out of examined factors; however, the question of whether the effects of which determinant would be larger still remained unanswered.

From all the limitations, it is recommended that other researchers working on the same topic would employ a larger size of participants from different universities to make the result more generalizable. Finally, more exploration studies could be conducted to identify more determinants of student satisfaction with online learning as a part of the school ecosystem.

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