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Student satisfaction with online learning: A survey of HCMC private university second-year students

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Abstract---Technology advancements and the onset of COVID-19 have led many higher education institutions to implement online learning as a short-term response to the crisis. But the abrupt change to online schooling has had a significant impact on pupils. For this reason, stakeholders are concerned about ensuring that students are satisfied with their educational experience. Many scholars believe that identifying the factors that influence student happiness is critical from a scientific perspective. Only a handful of studies have been able to identify the factors that influence student satisfaction with online learning in the context of a school ecosystem. To address this issue, this study focused on private universities. A total of 320 students from two different private universities took part in this poll. Results were analyzed using PLS-SEM to determine which factors were most prominent from previous research. According to the study's conclusions, three factors contribute to a student's sense of belonging and course effectiveness. This study found three variables of student satisfaction with online learning that the stakeholders should give more attention to.

Keywords---Online Learning, Student Satisfaction, COVID- 19, Online Platforms.

Introduction

Higher education now operates in a new environment defined by the demands of students, parents, and the broader community. Furthermore, globalization has established a marketplace for all universities, which means that students have more options when balancing the expense of their education with the quality (Jaafar et al., 2022). Because of this, many institutions have emphasized customer service for students. Any university's performance is directly tied to its ability to keep students happy and engaged in their studies (Singh & Jasial, 2021). However, student happiness is a complex issue that changes greatly depending on the environment in which it is measured (Giray, 2021). Consequently, any educational institution must conduct a thorough investigation of its students' level of contentment.

In addition, the entire world has seen the pandemic Covid-19 spread. As a result, society undergoes a wide range of changes, including higher education. Online learning has significantly benefited due to the quick switch from traditional classrooms to online classrooms in most cases (Zhang et al., 2020). This has resulted in a shift in student satisfaction as a result.

There are many recent studies examining student satisfaction, particularly in higher education. These studies identify a wide range of elements that contribute to student happiness in higher education institutions, including the quality of teaching and learning, community interactions, and the quality of the infrastructure. This research focuses on two primary areas: (1) traditional classrooms (Baker & Unni, 2020) and (2) online learning (which includes many forms of online learning, such as blended learning or total online learning) (Shom & Zulkifli, 2021). Assuming that the focus of the research is on student satisfaction with an institution's online learning program, the characteristics stated above are only relevant to online learning components. To put it another way, the broader context of the educational system is excluded.

Even though online learning has been underway in China for quite some time, it is still up for debate whether or not the country will pay attention to it seriously. Only a few colleges and universities have emphasized this learning as a vital part of their educational infrastructures (Hoi et al., 2021). In addition, similar to what happened in education worldwide during the epidemic of Covid-19, online learning has seen a rapid rise in use inside higher education institutions. As confirmed by MOET, the private sector responses to the current suspension of knowledge caused by this epidemic have also been swift. It's no surprise that many colleges are worried about how their students will react to this rapid transformation in the way they learn (Verawardina et al., 2020). Considering all of the factors above, it is critical to look into how satisfied Chinese students are with online education.

Thesis statement**Students' happiness**

Satisfaction in higher education is defined as students' experience from the time they begin their studies to the time they complete their studies and later. Students are content when their academic progress or results are in line with their expectations after enrolling in a particular course of research or educational institution. A customer's level of satisfaction is based on their evaluation of the product after utilizing it and then comparing that evaluation to their expectations for the product (Wang et al., 2018). Student satisfaction can be divided into two key categories: (1) the teaching and learning process and (2) the overall student experience. (Elia et al. 2019) When it comes to online learning, "whole student experience" is used to measure satisfaction.

Online education**Learning in a virtual environment**

There are a plethora of definitions for online learning. It has been suggested that online learning refers to internet-connected computers to allow students to learn at any time and from any location. Thus, pupils are placed at the heart of their education. (Ho et al., 2022) agree that online learning requires the use of electronic devices and the Internet. It can be summarized by saying that online learning is the same as traditional classroom learning in that students learn in an environment created by using internet-supported devices. In this setting, students can engage in as many interactions as in a traditional classroom.

Online education in the post-Covid-19 era

The recent epidemic of Covid-19 has led to an increase in online learning worldwide. Put another way, there has been a significant movement from classroom-based instruction to the instruction delivered in part or entirely online (Adnan & Anwar, 2020). Because of Covid-19, approximately 1.5 billion students worldwide have been put on hold, says the International Association for University Education (IAUE). A vital indicator of the current state of affairs, according to the report, is the shift away from traditional classrooms to online ones. During the Covid-19 era, MOET estimates that 110/240 higher education institutions in China have used online learning to facilitate learning. It's notable that out of the 110 institutions, almost 70 percent belong to the private sector. Students and school personnel alike can benefit from MOET's in-time online training, which can be accessed through Zoom, Google meet, MS Teams, and other popular platforms. This tendency is being encouraged by MOET's document No.1061/BGDT-GDTrH, which recognizes various online learning forms.

Students' happiness with online learning environments has previously been studied

The study's conceptual framework is based on the variables above. For example, a high GPA (Venkatesh et al., 2020) and other student and school factors

(Taghizadeh et al., 2021) as well as teacher quality, facilities, and technology implementation (Al Mulhem, 2020) and the school's reputation and ease of admission (Ammigan & Jones, 2018) are all mentioned by several authors as having an impact on student happiness and academic performance (Tandilashvili, 2019). Five factors influence student satisfaction: Instructional Effectiveness and Academic Experience (how students perceive the faculty; teaching methodology and administration of 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, and being respected by other members of the community) (the attitude towards the available school services such as classrooms, campus site, dorm, library, etc.).

Research on student satisfaction in online learning environments is scarce. To put it another way, the overwhelming majority of research supports the use of face-to-face meetings. According to Heilbron & Lakhali, 2020, the "Community of Inquiry framework" (Flock, 2020) incorporates all three of these presences into its paradigm. The study he does adds to the basic structure two new elements: the course's layout and its hierarchy. To determine what influences student happiness, (Alqurashi, 2020) used a study of critical factors. As a result, they believe various elements were at play: a web page's use, technological aspects; apps; online tools; content; and engagement in an online environment. "Agency" (the ability of students to manage their motivation, time, and numerous tasks) and "Learning Engagement" (how students were motivated in their online learning) were recently proposed in a study by Al Mamum et al. (2020). (the way students observe and self-assess and are assessed in online learning). There is also research into whether students are happy with their online education experience (Dinh & Nguyen, 2020). According to researchers, students' satisfaction is influenced by their sense of belonging to an online community and the quality of their online courses. Students' happiness with online learning is evident from the outcomes of these studies, which each identify or explore various elements. To determine which of these elements is most important, a study involving all of these variables should be undertaken in the same online setting.

Inquiry into the matter

An essential objective of this study is to determine what factors contribute to students' happiness with online learning in HCMC's higher education system, given the existing situation and the knowledge gap described above. The following was the research question formulated to meet the study's goals:

Why do students at private universities in HCMC enjoy their online courses?

Students' perceptions of the effectiveness of online education:

Student perceptions of teaching effectiveness, such as methods, administration, and quality, are all part of determining course effectiveness (Tartavulea et al., 2020). There is a strong correlation between student satisfaction and the quality of the course. Hassan et al. (2021) also found that the effectiveness of the methods students took was the most critical factor in their overall happiness with their university experience. In light of this, the following idea is proposed:

There is a correlation between student satisfaction and course effectiveness.

Knowledge and skills were imparted

Choosing a course of study is a significant decision for many students, and it's important to know what they'll get out of it. As a result, imparting information and skills refers to how a program/course in a specific institution can help students achieve their needs and assure their success in the future (Lowell & Moore, 2020). Regarding student satisfaction in online courses, this component is essential to Almusharraf and Khahro (Almusharraf, 2020). As a result, the following theory is proposed:

H2: There is a strong link between students' pleasure and the knowledge and skills they receive.

A feeling of inclusion

Perceived aid from the campus community and relationships with others are indicators of students' sense of belonging (Museus et al., 2018). Furthermore, (Gopalan & Brady 2020) concurs that the purpose of belonging positively impacts students' college experience. To put it another way, this variable has a lot of influence on how happy students are. This leads to the third hypothesis:

H3: There is a strong correlation between student satisfaction and a sense of belonging.

Interactions with influential individuals

If you're talking about faculty or students at a university, you're talking about "important individuals." According to (Pham et al., 2019), influential persons could impact student happiness. Recently, (Al-Samarraie et al., 2018) have shown that this aspect affects students' retention and satisfaction at a particular institution. In this way, the fourth hypothesis can be made, which is:

H4: Student satisfaction is closely linked to their interactions with influential persons.

The usefulness of the facilities that are already in place

Students' awareness and use of school amenities such as the online learning system, library, student support center, etc., are referred to as the usefulness of available facilities. More students who take advantage of these resources are happier with their college experience, according to (Eze et al., 2018). Thus, the final hypothesis is formulated as follows:

H5: Students are more satisfied if they have access to helpful amenities.

The theoretical framework

The following conceptual framework was developed for the study based on past research on student satisfaction in general and about student satisfaction with the online learning environment:



Figure 1. Online learning student happiness is influenced by a variety of factors

Student happiness is influenced by various factors, including the following: the efficiency of a particular course, the knowledge and skills supplied, a student's sense of belonging, interactions with notable individuals, and the usefulness of the school's facilities. The research has linked these factors to the shift to online learning.

Pedagogical Methods & Students

This investigation used two private institutions in Ho Chi Minh City, China, Van Lang and Hoa Sen, and this. There are a variety of degrees available to students at these two universities, including engineering, technology, and social science. Online learning has been a successful adaption for Van Lang and Hoa Sen University in the current condition of Covid-19.

Convenience sampling was used in this investigation. When conducting non-probabilistic sampling, convenient sampling is the most used method (Sutadji et al., 2021). In this type of sampling technique, samples are collected by establishing direct contact with them, either in person or through the Internet. Regarding the advantages of convenience sampling, (Nagabandi et al., 2018) say that it may be used to test hypotheses and explore attitudes.

Plan of the Research

In this investigation, we used a survey to gather data. Survey research, by definition, is a scientific technique in which data is collected by participants' responses to a series of questions. It's important to note, as well, that this approach can be used for both quantitative and qualitative research. One of the most important uses of survey research is to examine people's attitudes, opinions, and behaviors regarding a topic. Studying what influences student satisfaction was the goal of this research. Thus, a survey study was an appropriate method of conducting the research.

An instrument for Scientific Investigation

We used a questionnaire as our primary research tool because it was designed for a survey study. It states that questionnaires are primarily employed in quantitative research, especially when the researcher wishes to investigate a given scale's behavior, attitudes, frequency, or opinions. It also indicates that questionnaires can help researchers collect data quickly. It also proposes that questionnaire forms include paper, mail, or an internet version, all of which have reasonable costs for the study. In this study, questionnaires were created in Google forms and sent to participants via the Internet.

When developing the questionnaire, it was based on a previous study's questionnaire. Research-appropriate modifications have been made. The questionnaire was divided into seven sections, and each concentrated on one of the six constructs identified in the conceptual framework. These included a section on demographics, which included information on the gender of the participants. The students were asked to rate their overall happiness with five different aspects in the second section. There were four items in section four as far as knowledge and skills are concerned. Among the three items in the sixth part was the topic of belonging. The final portion of course effectiveness included seven things.

Five items were included in the construct of interactions with influential persons. Six things were grouped into the utility of available facilities created. Following is a table with all of the relevant data:

Table 1. A list of the questionnaire's questions and answers.

No.	Constructs	Number of items
1	Features of the population	2
2	Overall student satisfaction	6
3	The efficiency of the program	8
4	Educated students on the subject matter	5
5	Feeling a part of something	4
6	Interactions with influential individuals	6
7	The value of readily available resources	7

Section 1 responses were gathered with the use of multiple-choice questions. A five-point Likert scale was used for parts 2 through 5, with "1" indicating strongly disagree and "5" indicating strong agreement. Sections three and four involved answering questions with a number from (1) never to (5) daily, which was a frequency scale.

The collection and analysis of data

They were sent to participants via social media platforms like Facebook, MS Teams, and the school's Learning Management System (LMS) after they had completed their semester. Web-based questionnaire distribution and data collection are recommended by (Wea & Kuki, 2021). There were 320 replies after the online surveys were distributed and coded for the analysis process.

A PLS-SEM technique was used to examine the data, and SmartPLS was used to carry it out. PLS-SEM (Huang, 2021) can be used to investigate the relationship between exogenous and endogenous variables. The high-precision tools it gives for analyzing measurements and structural models are also a huge benefit. Code the data, evaluate the measurement model (outer model) and consider the structural model (inside model) were three of the primary stages of data analysis in this approach (inner model).

Before importing the data, all of the appropriate constructs and indicators were coded to do so. Here is a complete list of the codes:

Table 2. The coding system for analyzing the collected information

No.	Constructs	Code of items/indicator
1	Features of the population	GEN
2	Overall student satisfaction	SAT_1, SAT_2, SAT_3, SAT_4, SAT_5
3	The efficiency of the program	CE_1, CE_2, CE_3, CE_4, CE_5, CE_6, CE_7
4	Educated students on the subject matter	SKN_1, SKN_2, SKN_3, SKN_4
5	Feeling a part of something	BEL_1, BEL_2, BEL_3
6	Interactions with influential individuals	INT_1, INT_2, INT_3, INT_4, INT_5
7	The value of readily available resources	FAC_1, FAC_2, FAC_3, FAC_4, FAC_5, FAC_6

Second, the measurement model (outer model) was validated to ensure the validity and reliability of the constructs in question (e.g., Overall student satisfaction, course effectiveness, offered knowledge and skills, a sense of belonging, engagement with key people, and the usability of available facilities were all investigated in the study's instrument portion.

As a result of these tests, we were able to confirm the accuracy of our measurement model. Specifically, we looked at Outer Factor Loading, Construct

Reliability, Convergent Validity, Discriminant Validity, and Discriminant Validity (to test the validity of the indicators of each construct). These indexes were necessary because the constructs were measured using a reflecting model.

Then, the structural model (inner model) was evaluated to examine the link between the exogenous and endogenous variables. At this point, all of the hypotheses (H1-H5) were tested to establish the path loading. Last but not least, to determine the t-test value, bootstrapping was used with a re-sampling scale of 5000 times. This index would indicate whether or not the hypothesized correlations were significant.

Authenticity & Consistency

To ensure the study's validity and reliability, specific procedures were used. The research instrument was piloted as the initial technique. The questionnaire was adapted and altered from (Al-Sheeb et al. 2018) work for our study. Afterward, the questionnaire was piloted with 50 people to determine the item's measurement power. Following the pilot process, the questionnaires were rated on their reliability:

Table 4. A measure of the questionnaire questions' overall reliability (CR).

	Composite Reliability
BEL	0.89
CE	0.906
FAC	0.938
INT	0.895
SAT	0.879
SKN	0.95

The questionnaire's reliability can be evaluated using the composite reliability method. It's clear from table 4 that the survey's items were all valid and validated. In addition, an expected value above 0.708 is recommended.

The questions were fine-tuned when the piloting procedure was completed. The finding section will present various methods for using the software's statistical index.

Results/Findings Analysis of Variance (ANOVA)

Table 3 shows the demographic characteristics of the participants.

	Number	Percent (%)
Male	109	32.3
Female	218	68.6

Three hundred seventeen people participated in the study. In this group, women outnumbered men by a wide margin. However, in this study, gender was not a primary factor in the findings.

Evaluation of the Measuring Model (EM)

According to the previous section, the reflecting model served as a foundation for creating SAT and CE. In other words, the first thing we did was check how much the external factors were loading on the model.

It is recommended that each indication have factor loadings greater than 0.7. Thus, four signs were omitted from the following stage of data analysis: SKN 3 (INT 4), FAC 1 (INT 2), and "INT 2" (SKN 3). The validity of the construct was then examined as the next step. Tests for construct validity include dependability, unity, and discrimination. These were summarized in the following tables:

Table 5. The measuring model's combined reliability (CR) and convergent validity (AVE)

	Composite Reliability	Average Extracted (AVE)	Variance
BEL	0.847	0.648	
CE	0.926	0.	
FAC	0.924	0.9	
INT	0.899	0.748	
SAT	0.896	0.629	
SKN	0.907	0.758	

CR and AVE both need to be more than or equal to 0.708. CR and AVE result from the measuring model in Table 3 matched these criteria. In terms of discriminant validity, it is said that the square root of a given construct in the cross-loadings should be more significant than any correlation it has with any other construct. These criteria were met by all of the indices, as indicated in table 4.

Table 6. The measuring model's cross-loadings

	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

The HTMT matrix was used to show that the indicators for each construct were distinct from one another. All of the HTMT indexes in the measurement model matrix were less than 0.85. In this way, the discriminant validity was attained in this study."

Table 7. Indicator-to-target-to-measurement transposability

	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

Consequently, this research's measurement model was valid by the validity and reliability of test results.

Analyzing the Structural Design

Zhang et al. (2019) proposed that the most significant consideration in testing the structural model is to evaluate its prediction capacity. There are four steps in evaluating a structural model: checking for collinearity, checking for endogenous latent variables' R2 explanation, checking for predictive relevance Q2, and checking for the path coefficients' f2 and q2 impacts. Analyzing the data was accomplished through the use of this method.

All of the constructs' indexes of Inner VIF value were scrutinized for any collinearity. There was no collinearity in the current model because the VIF was less than 3. This was followed by a look at the R2 coefficient of determination. A value of 0.613 for R2 was obtained after running the PLS-SEM model. Hair et al. (2013) found that the existing model's prediction power was adequate, with a modest capacity for prediction. The Q2 was then evaluated while the subject was blindfolded. The model's Q2 was 0.369, according to the needed technique. A moderate predictive power for this model was acceptable based on the R2 result. To evaluate if the predictive construct impacted the endogenous latent construct, the f2 (effect size) was calculated. F2 was shown in table 6 in this situation. As can be seen, only three elements, BEL, CE, and SKN, were essential in the construct of SAT.

Table 8. The outcome of the effective size

	SAT
BEL	0.26
CE	0.17
FAC	0.004
INT	0.001
SKN	0.021

The Findings of the Hypothesis Testing

The hypothesis test results were carried out using the Bootstrapping approach with 5000 resamplings and a significance level of 0.05. Five statistical hypotheses linked five elements to conceptions of student happiness in this study. They included:

There is a correlation between student satisfaction and course effectiveness.

H2: There is a strong link between students' pleasure and the knowledge and skills they receive.

H3: There is a strong correlation between student satisfaction and a sense of belonging.

H4: Student satisfaction is closely linked to their interactions with influential persons.

Students are more satisfied if they have access to valuable amenities, according to hypothesis 5.

Table 8 summarizes the outcomes of the hypothesis testing. Table 9 shows the results of hypothesis testing.

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

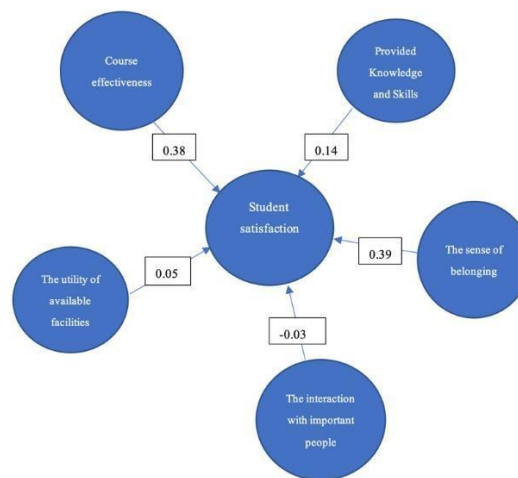


Figure 2. The model with loadings on the paths

The t-value must be greater than 1.96 and the p-value is less than 0.05 to show that the hypothesis was correct. It was found that students were more likely to be satisfied with their education if they felt like they had a place to belong.

Discussion

Student satisfaction with online learning at private colleges in Ho Chi Minh City was the primary goal of this research. Course efficacy, imparting information and skills, a sense of belonging, interaction with key people, and the utility of available facilities were all projected to affect student satisfaction through the literature review. Three factors contributed to student satisfaction in an online learning environment, according to the results of the hypotheses testing displayed in table 7. First and foremost, the quality of a course has a significant effect on student satisfaction. According to the studies, this is the case. For both online and offline learning environments, students are likely to examine the quality and administration of their teachers and the outcomes of their courses when evaluating their institution. Provided knowledge and abilities serve as a secondary

determining factor. Students in any learning setting, online or otherwise, are always looking for ways to improve their educational experience and prospects. According to the findings, this is a reasonable assumption. As the last point, the experience of belonging is a powerful predictor of student satisfaction. Student satisfaction is favorably influenced by a student's sense of belonging to a larger community when they attend an institution of higher learning, studies say.

Apart from the commonalities, this study has revealed other significant findings. The first thing to note is that this study was done in the context of COVID-19, which has a substantial impact on student perceptions and happiness with their university. Although there have been numerous studies on student happiness in the online learning environment, most have focused on online courses alone rather than on the entire school ecosystem, as noted in the introduction and literature review sections. When looking at student satisfaction with online learning as part of a larger school ecosystem, this study found different variables. For this reason, it has been recommended that the stakeholder focus more on enhancing course efficacy, offering knowledge and skills, and the sense of belonging to increase student satisfaction with online learning.

Conclusion

An investigation into student satisfaction with online learning at private universities in Vietnam was conducted. Three hundred seventeen people participated in the convenience sample approach. Based on earlier research, five statistical hypotheses were proposed and tested by online surveys. Online questionnaires were used to see which aspects, such as course efficacy, knowledge and skill provision, belongingness, connection with significant individuals, and the usability of on-campus facilities, had a more vital link to student happiness than others. PSL-SEM analysis revealed that among five criteria, the course's effectiveness, imparting information and skills, and fostering a sense of belonging were all critical to student happiness. According to the findings of this study, student happiness was not linked to any other variables. As a result, the study's findings show that improving student happiness is a good idea. Focusing on increasing course quality, providing students with vital knowledge and skills, and encouraging them to feel a part of the university community are essential goals for stakeholders in higher education institutions.

However, the study still had a few flaws, such as the following: To begin with, the study's number of participants was smaller than projected due to a lack of access to volunteers at other private colleges and time constraints. So the findings of this research may not apply to different situations. It also intended to determine the characteristics that contributed to students' online learning satisfaction based on results from a prior study. It has been determined that certain elements have a more significant impact than others, but it has not been determined which factors are more critical in terms of overall impact. Because of this, there may be other determinants.

This study's limitations suggest that future researchers working on the same topic should recruit individuals from many colleges to increase the generalizability of their findings. Finally, more research studies might be carried out to find

additional drivers of students' happiness with online learning as a part of the school's ecosphere.

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