

# The Effect of Student Dimension Factors on Online Distance Learning Satisfaction: Evidence from Indonesia

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## ABSTRACT

Many universities and colleges were obliged to make quick changes to make online distance learning the default mode of education given the protracted lockdown period that followed COVID-19. During those times, higher education educators and learners were confronted with a sudden new norm of entirely tech-mediated teaching and learning. In addition to the benefits that online distance learning can provide to the new normal of teaching and learning, this transformation brings with it a number of problems. In pursuit of this, this study was undertaken among undergraduate students at Indonesian universities. The data was obtained via a web-based open-ended survey and analyzed using SEM - Partial Least Squares (PLS) software. According to the findings, only the student's computer anxiety influenced the student's satisfaction with online distance learning, but not the student's attitude. The findings of this study provide academic institutions with important insights into the aspects that could be employed to promote students' online distance learning satisfaction while also increasing retention and improving the quality of online teaching and learning. Limitations and future research directions are also highlighted.

**Keywords:** Online distance learning, Attitudes, Computer anxiety, Satisfaction, Student dimension.

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## INTRODUCTION

The COVID-19 pandemic has resulted in unprecedented efforts being taken by nations around the world to protect human life, keep economies functioning, and guarantee the education system is ready to meet the demands of students. The sustainability of the education system during the pandemic is unquestionably difficult, especially at the higher learning level, in guaranteeing that undergraduate students may continue their studies through online distant learning platforms. It was discovered that in Indonesia, the end of face-to-face learning for undergraduate students owing to COVID-19 had resulted in a significant increase in the use of the online distance learning method. Learning from home using the internet and digital technology such as computers is characterized as online distance learning, often known as e-learning or virtual learning (Adams, Sumintono, Mohammed & Noor, 2018). It also employed digital applications or software to support learning processes or activities such as web-based learning, computer-based learning, and virtual classrooms (Keengwe & Kidd, 2010).

Online remote learning is described as a valuable addition to the learning environment since technology improves student and instructor efficiency (Mohammad, Mamat, & Isa, 2012). Online distance learning has various benefits that traditional advanced education does not, such as accessibility from anywhere at any time, asynchronous dialogues with peers, rapid feedback on tests, and resource flexibility. Students can also freely access course contents or assets offered by lecturers, such as recorded videos of virtual classes. Furthermore, it reduces transportation and accommodation costs (Dhawan, 2020) because students and lecturers do not need to travel to their institutions to attend physical classes. Students can also improve their computer knowledge and skills (Appana, 2008) for future benefits because the working environment nowadays requires employees to have good computer skills due to technological advancement. Nonetheless, despite the benefits of online distance learning, this strategy is not always straightforward to implement. Due to a lack of instructors' preparation for online distance learning teaching resources, a lack of access to all online infrastructures and equipment, insufficient proficiency and technological capabilities, and a failure to virtualize all courses, the implementation of online distance learning during the COVID-19 crisis could be complicated (Nugroho, 2020). Students may struggle to adjust to the abrupt transition

from face-to-face to online distance learning if they lack facilities or computer knowledge and skills, which may result in a loss of motivation to participate in online distance learning (Adams et al., 2018).

Furthermore, the medium used to conduct online distance learning affects the quality of learning, as do students' efforts to review course materials consistently, ask lecturers for assistance, and use proper time management to complete tasks or assignments given (Tareen & Haand, 2020). However, students may be unfamiliar with a particular medium or software used to conduct online distance learning since they are not prepared for rapid shifts in learning. This may take some time for them to adjust to the technologies required for online distance learning. Furthermore, Panigrahi, Srivastava & Sharma (2018) observed that in online distance learning, the class setting is not conducive to peer dialogues because they cannot see each other's body language or make eye contact. Online distance learning also places a greater emphasis on the student's emotional well-being (Ghaderizefreh & Hoover, 2018).

The practice of the aforementioned positive attitudes has a direct impact on the emotional stability of students, as the former substantially influences the latter. For example, when students react poorly to online classes, their performance and capacity to self-learn suffer as well. As a result, several studies have been undertaken to examine student learning outcome satisfaction (Cheng & Chau, 2016, Musyaffi, Rosnidah & Muna, 2021). However, few investigations on individual characteristics based on the student's dimension have been undertaken. As a result, there is a need to investigate how undergraduate students are influenced by this unusual variation in learning as a result of the drastic shift from face-to-face learning to online distance learning as a result of the COVID-19 issue. This study specifically aimed to investigate the effect of student dimensions on online student learning satisfaction among Indonesian university undergraduate students. Identifying these contributing elements is useful in proposing a suitable amount of support and the ideal student's dimension to ensure that online distance learning does not jeopardize the quality of education.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### Online Distance Learning Satisfaction

Online distance learning is a subtype of e-learning that refers to learning activities between students and lecturers that take place online using technology (Istijanto, 2021). Online distance learning can also be defined as the use of various technologies to promote education as its ultimate goal (Ullah, Khan & Khan, 2017). It is one of the mandatory components in higher education institutions around the world, yet the quality of online learning remains a problem due to student preparation as well as the availability of trained instructors and resources, particularly during times of crisis (Adams et al., 2021). Furthermore, student happiness with online learning has been a major concern for higher education institutions, particularly during the COVID-19 pandemic, when all education sectors around the world experienced abrupt transitions from physical classes to online classes.

Student satisfaction is related to the quality of knowledge and information provided during online learning; therefore, high-quality education provided by universities and instructors will result in high student satisfaction with online learning (Oduma, Onyema, and Akiti, 2019; Shehzadi, Nisar, Hussain, Baheer, Hameed, and Chaudhry, 2021). There are several factors discovered that may influence online learning outcome satisfaction depending on the environment, such as instructional material quality, workload, assessment methodologies, and communication (Li, Marsh, Rienties & Whitelock, 2016; Ghaderizefreh & Hoover, 2018). Notably, studies that assessed student factors are still limited, particularly in nations that are still developing, and earlier studies yielded inconsistent results. As a result, the current study concentrated solely on two significant characteristics, namely student attitude and student computer anxiety, which indicate the student's dimensions.

## **Student's Dimensions and Online Distance Learning Satisfaction**

Student dimensions, also known as student supports, include the student's attitude toward e-courses, IT equipment, and computer anxiety. Computer accessibility and internet connection issues are frequently raised in discussions about student satisfaction with online learning. In terms of Web-based technology accessibility, students consistently stated that contact and assistance from their facilitator and other students had a significant impact on their online learning (Adewole-Odeshi, 2014). In addition, lecturers serve as a liaison between students and course materials, as well as between students and technology (Ali & Ahmad, 2011). Students claimed that informative and constructive comments from their facilitators, as well as clarity of faculty objectives and course requirements, increased their engagement in learning activities (Asoodar, Vaezi, & Izanloo, 2016). Students prefer courses that provide "effective, comprehensive, and appealing curriculum materials" since they can help them increase their self-learning ability (Wang et al., 2019). However, there are still students who are unable to receive the assistance they require from lecturers and peers, despite the fact that "An instructor has a definite role in making the online environment successful" (Ali & Ahmad, 2011). As a result, their role in adopting e-learning was hampered.

## **Student's Attitude and Online Distance Learning Satisfaction**

Maintaining students' behavioral attitudes is one of the most important factors for all higher education institutions in determining student satisfaction with online learning (Shehzadi et al., 2021). The willingness of a student to participate in online learning activities through the use of technology is termed as student attitude. A positive student attitudes toward online learning were identified as a result of its feasibility and novel method of learning, but negative attitudes were connected with low computer abilities, low motivation, and technology phobia (Ullah et al., 2017). Prior experience from physical classes can also influence a student's attitude toward online learning. Furthermore, online learning exposes students to more learning resources, which leads to positive attitudes toward online learning (Ismaili, 2020). However, consistent training and adequate instructions are required for students to properly use online learning technologies. The pressure of

online learning also helps students become more autonomous and rely on themselves, which contributes to a favorable attitude toward new online learning experiences (Malkawi, Bawaneh & Bawa'aneh, 2021). Student attitudes toward technology have a large influence on their satisfaction with their online learning experience (Wong & Fong, 2014), and technology that is user-friendly will be able to pique students' interest in using the technology or online platform effectively.

Ullah et al., (2017) concluded that students who do not receive adequate support from institutions have a negative attitude toward online learning. Although the majority of students prefer face-to-face contacts due to prior experience, attitudes, and motivation in learning (Ismaili, 2020), the majority of them nevertheless express good attitudes regarding the online learning experience, especially at the end of the course. This will support effective online learning practices, which may increase student satisfaction. Malkawi et al. (2021) discovered that during the COVID-19 epidemic, students showed significant levels of satisfaction and a good attitude toward online learning. This is due to universities' efforts to give constant support to students, particularly during the pandemic, in order to improve student learning and keep them safe. As a result, students with positive views are more likely to engage in online learning activities than students with negative attitudes. Based on the above discussion, this study proposed:

H<sub>1</sub>: There is a significant positive relationship between student's attitude and online distance learning satisfaction.

### **Computer Anxiety and Online Distance Learning Satisfaction**

Computer anxiety can be defined as an overwhelming dread of using computers that causes physical symptoms such as sweaty hands, a beating heart, dizziness, or shortness of breath (Chien, 2008). It also relates to people's unfavorable reactions to computer use. It is one of the most important criteria for predicting student satisfaction with online learning (Galy, Downy, & Johnson, 2011). Computer anxiety in students can be caused by a variety of factors, including technological difficulties, a lack of support from instructors and classmates, and a sense of isolation, all of which contribute to the student's happiness with online learning (Ghaderizefreh & Hoover, 2018; Ullah et al, 2017). Computers have been recognized as one

of the most effective educational tools, requiring students to be computer literate. However, some students may find it difficult to use computers, resulting in dread and anxiety (Chien, 2008). As a result, sufficient guidance from professors is critical, as students are hesitant to utilize the computer because they are afraid of making mistakes, particularly when using new computer applications (Saadé & Kira, 2009). Self-efficacy and attitude toward computer use are other important elements that influence computer anxiety. As a result, students' computer fears will impair their online learning experience by influencing their self-efficacy.

Computer phobia can have an impact on a student's learning experience (Chien, 2008). Anxiety decreases student computer performance and happiness with online learning. Furthermore, knowledge of computer use will result in a good attitude toward technology, which will increase student happiness with online learning. As a result, students must develop their computer skills, which are crucial for online learning. According to Saadé, Kira, Mak, and Nebebe (2017), 30% of students experience anxiety during online learning, which negatively affects their performance. However, Galy et al. (2011) discovered that students' computer anxiety had no effect on their performance. Thus, based on the above discussion, this study proposed:

H<sub>2</sub>: There is a significant negative relationship between student's computer anxiety and online distance learning satisfaction.

## **Population and Samples**

This study's population included 370 undergraduate accounting students from three Indonesian private universities in Jawa Tengah, Indonesia. Sampling was done at random, with as many as 295 students responding to the Google form and filling it out entirely. This number exceeded the sample size of 191 proposed by Krejcie and Morgan (1970). This was a quantitative study that used a questionnaire in the form of an online survey utilizing Google Form Media to reach a large number of respondents in the general population.

## Measurement of Variables

The variables in this study (student’s attitude, student’s computer anxiety and online distance learning satisfaction) were adopted and adapted from previous research that are relevant to the context of this study. Details for the measurement for the constructs mentioned above are presented in the Table 1 below:

**Table 1: Measurement Variables**

Variable	Measurement	Source
Student’s attitude	The extent student’s attitude toward e-courses such as IT, IT equipment towards predictor of student satisfaction	Kim & Glassman (2013)
Student’s Computer anxiety	The extent of student’s computer anxiety that could influence their learning satisfaction	STAI (1980)
Online distance learning Satisfaction	Student’s learning outcome satisfaction is to measure the degree to which individual student sensed a positive association between the courses they have taken and overall distance learning experiences	Shin (2002), Baldassarrae et al, (2018)

## Data Analysis

In this study, preliminary data analysis utilized the Statistical Package for Social Science (SPSS), while advanced data analysis utilized Partial Least Squares of Structural Equation Modeling (PLS-SEM) via SmartPLS. SPSS commonly used by social science researchers as a data analysis technique, particularly in screening the data for missing data (i.e., using descriptive analysis), outliers (i.e., using boxplots, Mahalanobis D2 distance), normality (i.e., using skewness and kurtosis), and exploratory factor analysis (EFA). PLS-SEM was used for both stages of validation of the measurement model and evaluation of the structural model, including the analysis of path modeling and bootstrapping to investigate the standard error of the estimate and t-values (Hair, Hult, Ringle, & Sarstedt, 2014).

## RESULTS AND DISCUSSION

### Respondent's Profile

The profile of respondents as many as 295 undergraduate students throughout Indonesia was as follows, male gender is 71.5% and female is 28.5%. The age of respondents: 35.6% aged 18-20 years, 41% aged 21-24 years and 23.4% aged 25-30 years. Most of the respondents came from the Faculty of Economics and Business with 68.5%, Faculty of education 7.8%, Faculty of Agriculture 6.1% and Faculty of engineering 3.7%. For Grade Point Average / GPA: 61.4% with 3.0 – 3.5, 26.8% got GPA 3.6 – 4.0 and 9.5% got GPA 2.6 – 3.0. For the question of how the internet connection was, 50.8% of respondents answered moderate, 33.9% answered smoothly and 11.2% answered that the internet connection in their area was not smooth. For the question of experience before online learning, 40% of respondents answered that they had experience using e-learning for 1 year and 47.5% of respondents answered that they did not have e-learning experience at all. For the initial computer skills question, 74.2% of respondents answered intermediate and 21.7% answered novice

### Evaluation of the Measurement Model

Measurement model analysis was performed to describe the relationship between the indicator block and its latent variables. The evaluation of the measurement model in this study was based on the Rule of Thumb Evaluation of the Reflexive Measurement Model proposed by Ghozali (2016). This stage was used to determine the validity and reliability of linking indicators with latent variables. The indicators in this study were reflective because the indicators of the latent variables affect the indicators. For this reason, three stages of measurement were used, namely as follows.

#### ***Convergent validity***

Convergent validity measured the magnitude of the correlation between the construct and the latent variable. In evaluating the convergent validity of individual examinations, it can be seen from the Loading or Outer Loading Factors. Outer loading describes the magnitude of the correlation between each measurement item (indicator) and its construct. The measurement can be said to be valid if the existing outer loading had

a value > 0.6 for each indicator in explanatory research. Table 1 shows all indicators with a value of > 0.6 so that it can be said to be able to represent the constructs well. Meanwhile, the value <0.6 was deleted because it did not comply with the applicable rules. Average Variance Extracted(AVE) was also used to measure convergent validity where the value must be > 0.50 for both confirmatory and explanatory research. Thus, items with values that did not match these rules were deleted. Table 1 shows the indicator items from each exogenous variable consisting of Attitudes towards Behavior, Subjective Norms, and Perceptions of Control over Behavior that passed the validity test. As for the endogenous variables, both internal and external whistleblowing intentions, all indicator items were valid where the loading factor, AVE, and communality values were greater than the suggested rules.

**Table 2: Measurement Model**

Construct	Measurement Items	Loadings	AVE	CR
Student's Attitude	SA1	0.786	0.586	0.939
	SA2	0.746		
	SA3	0.721		
	SA4	0.783		
	SA5	0.712		
	SA6	0.772		
	SA7	0.805		
Student's Computer Anxiety	CA1	0.878	0.768	0.930
	CA2	0.919		
	CA3	0.929		
	CA4	0.717		
Online Distance Learning Satisfaction	OLS1	0.824	0.761	0.941
	OLS2	0.866		
	OLS3	0.896		
	OLS4	0.901		
	OLS5	0.872		

***Discriminant validity***

The next evaluation was to look at the relationship between indicators and their constructs compared to the relationship between these indicators and other constructs. The measurement model was assessed based on the measurement of cross-loading indicators with their constructs compared to indicators with other constructs. If the correlation of the construct with each indicator was greater than the size of the other constructs, then the latent construct predicted the indicator better than the other constructs. According

to Ghozali (2016), it is highly recommended if the cross-loading value is greater than 0.6 for the indicator value of the construct. Based on Table 3, it was found that the cross-loading value for all indicators of the construct was  $>0.6$  and the value was greater than the other constructs, so that it can meet the requirements of convergent validity. With the fulfillment of convergent validation conditions, all variables were declared valid for testing. Based on Table 3, the cross-loading value was  $> 0.60$  for each variable. Thus, the item shown was valid.

**Table 3: Discriminant Validity**

	Student's Computer Anxiety	Online Learning Satisfaction	Student's Attitude
Student's Computer Anxiety	0.876		
Online Distance Learning Satisfaction	-0.188	<b>0.872</b>	
Student's Attitudes	-0.138	0.627	<b>0.780</b>

### **Composite reliability**

To determine composite reliability, if the composite reliability value is  $> 0.8$ , it can be said that the construct has high or reliable reliability, and  $> 0.6$  is said to be quite reliable. The value of composite reliability in Table 1 showed a value of  $> 0.70$ . Thus, this meant that all items of the research variables shown were reliable. In PLS, the reliability test is strengthened by the presence of Cronbach's alpha, where the consistency of each answer is tested. Cronbach's alpha is said to be good if it is 0.5, and it is said to be sufficient if it is 0.3. The Cronbach alpha value produced by all constructs in Table 3 can be said to be very good, namely  $> 0.6$ , so it was concluded that all reflective construct indicators were reliable or met the reliability test.

**Table 4: Reliability Test**

Construct	Measurement Items	Cronbach's	Loading range	Number of Items
Student's Computer Anxiety	CA1, CA2, CA3, CA4	0.904	0.771 – 0.929	4
Student's Attitudes	SA1, SA2, SA3, SA4, SA5, SA6, SA7	0.892	0.742 – 0.814	7
Online Distance Learning Satisfaction	OLS1, OLS2, OLS3, OLS4, OLS5	0.921	0.824 – 0.901	5

## Evaluation of the Structural Model

The structural model was evaluated using R-square ( $R^2$ ) for the dependent construct and its independent.  $R^2$  can be used to assess the effect of the independent latent variable on the dependent latent variable and whether it had a substantive effect. The criteria for limiting the value of  $R^2$  were in three classifications: 0.67, 0.33, and 0.19. Goodness of fit was used to evaluate measurement models, structural models, and simple measurements for the overall model prediction. The GoF index value was obtained from the root of the average communality index multiplied by the average value of  $R^2$ . GoF values ranged from 1 to 0, with value interpretations of 0.1 (GoF small), 0.25 (moderate GoF), and 0.36 (GoF large).

**Table 5: Total Effects**

Variable	Total Effects
Student's Computer Anxiety → Online Distance Learning Satisfaction	0.097
Student's Attitudes → Online Distance Learning Satisfaction	0.420

**Table 6: R-Square Value**

Variable	R-Square Nilai Value
Online Distance Learning Satisfaction	0.424

Based on Table 5, information was obtained that online distance learning satisfaction was partially influenced by student's computer anxiety by 9.7%, so there were still 90.3% of other variables that influenced it. Whereas, online distance learning satisfaction was partially influenced by student's attitudes (42%), leaving 56% of other variables that influenced it. Based on Table 6, it can be seen that the R-Square value for the online distance learning satisfaction variable was 0.424. This meant that 42.4% of the total variance around the average online distance learning satisfaction was explained through the relationship between student's computer anxiety and their attitude, while 57.6% was explained by other unexplained factors.

## Hypothesis Testing

Hypothesis testing used full SEM model analysis with SmartPLS. In this model, apart from predicting the model, it also explained whether

or not there was a relationship between latent variables. Decision-making on the acceptance of the hypothesis in this study was carried out with the provision that the determined value of the t-table two-tailed test was 1.96 for a significance of 0.05. Furthermore, the t-table value was used as the cut-off value for the acceptance or rejection of the proposed hypothesis, namely:

1. If the weighted relationship value between latent variables showed a direction with a t-statistic value above the t-table value of 1.96 for a significance of 0.05, the hypothesis is accepted.
2. If the weighted relationship value between latent variables showed a direction with a t-statistic value below the t-table value of 1.96 for a significance of 0.05, the hypothesis is rejected.

**Table 7: Path Coefficient and Hypothesis Testing**

Effect to OLS		Hypothesis	t-value	Results
Student's Computer Anxiety	→ Online Distance Learning Satisfaction	H1	2.054	Accepted
Student's Attitude	→ Online Distance Learning Satisfaction	H2	1.891	Rejected

Referring to Table 7, only hypothesis 1 was accepted, so that it can be concluded that student's computer anxiety affected online distance learning satisfaction. On the other hand, H2 was rejected so that it can be concluded that student's attitudes had no effect on online learning satisfaction among the Indonesian respondents.

According to the above findings, students believed that online learning can boost their enthusiasm for studying and help them reach their academic goals. The typical student enjoyed the online distance learning format and would suggest it to others. According to the respondents' responses, their fear of computers had an impact on the factors that determine their satisfaction with online distance learning. In addition, they mentioned in spite of having adequate computer abilities and literacy, which allowed them to be satisfied with their online learning experiences but not with their attitudes.

These findings can be deduced from the respondents' responses in terms of student attitudes, where they found it difficult to understand lectures

delivered via the online distance platform without proper guidance, as well as the sessions of face-to-face interactions between students and lecturers. They also claimed that their attitudes were influenced by a slow computer and a bad internet connection. These findings contradict with the previous studies such as Mata et al., (2021), Adewole-Odeshi, (2014), Liaw (2011) that found positive significant findings on the effect of students' attitude and their online learning satisfaction. In terms of computer anxiety, students generally agreed that they were concerned about using computers because they were frightened of making serious mistakes, even though they were not afraid of computers. The findings of this study corroborate those of Hutauruk and Sidabutar (2020), Kucuk (2010), Ashwin (2003), Chen et al. (2010), and Rahmawati (2016).

## **CONCLUSION**

This current study examined the effects of student dimensions namely, student's attitudes and student's computer anxiety on online distance learning satisfaction in Indonesia. The results of the study revealed that only students' computer anxiety had a significant effect on the student's online distance learning satisfaction, but not the student's attitude. The findings of this study must be viewed in light of its limitations. Firstly, given the use of the questionnaire technique, which has some subjectivity in the responses, it would be interesting if respondents could mention elements that they believe influence their satisfaction with online distance learning. Future studies could use a qualitative study or a mixed-methods approach as their research methodology to obtain similar responses. Secondly, this study focused primarily on the student's dimensions, which are based on the student's attitude and computer anxiety, and does not include other student dimensions. As a result, this study recommended that future studies investigate other critical student aspects such as efficacy and factors connected to student learning support such as teaching aid support, instructional support, and peer support. These types of student learning supports are also thought to help students learn better in any learning environment.

Academic institutions might use the implications of these findings to ask the government for more technological support in the form of

widespread internet access that could provide students with a reliable internet connection, particularly in remote areas. Indirectly, the activities may serve to increase students' abilities and computer literacy, resulting in their happiness with online learning. Furthermore, it is suggested that the government provides more online support to kids as well as introduce computer and internet skills subjects in schools in order to foster their talents so that students are accustomed to and ready to use computers and the internet. It is also suggested that, in order to improve online learning at a higher level, the use and application of online learning should be user-pleasing. According to the data, the majority of students had limited access to online learning and frequently struggled with using online learning-related technology. Faculty, on the other hand, could devise techniques such as a series of online module trainings and appropriate incentives to improve higher-level online learning.

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