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Analysis of Customer Value and Student Loyalty Mediated by Student Satisfaction in an Accredited Private University's Faculty of Economics: An SEM-PLS Approach

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Abstract: Changes in the landscape of higher education in Indonesia in the last decade have created new challenges for private universities, especially in the Bandung Metropolitan area. Increasingly fierce competition requires educational institutions to be able to provide valuable services to students in order to not only attract prospective students, but also retain them through continuous satisfaction and loyalty. In this context, this study examines the influence of customer value on student loyalty with satisfaction as a mediating variable. The study was conducted at the Faculty of Economics and Business of an Accredited Private University in the Bandung Metropolitan area, involving 400 students as respondents. The sampling technique used cluster proportional random sampling to ensure representation from each university studied. The research instrument was a five-point Likert scale questionnaire, and data analysis was performed using the Structural Equation Modeling-Partial Least Squares (SEM-PLS) approach using SmartPLS version 4.0. The results showed that customer value was significant and positively impacted student satisfaction and directly induced student loyalty. In addition, satisfaction among students was also found to mediate between customer value and loyalty, implying that the experience and value learned through the institution play an important part in solidifying their emotional bond with the campus. High customer value not only increases momentary satisfaction but also has effects on students' commitment to complete their studies, provide positive word-of-mouth, and continue their education at the same university. These findings reinforce empirical evidence that the creation of customer value is the main foundation in building student satisfaction and loyalty. For higher education administrators, the results of this study have practical implications in the form of the need for innovative academic and non-academic service strategies, improved support facilities, and the development of meaningful learning experiences. Thus, private universities are not only able to retain students, but also increase institutional competitiveness amid increasingly dynamic higher education competition.

Keywords: Customer Value, Student Loyalty, Student Satisfaction.

INTRODUCTION

Higher education possesses a strategic purpose in developing quality human resources that are capable of competing in the era of globalization. Private universities in Indonesia, especially in the Bandung Metropolitan area, are faced with complex challenges in assuring their survival and competitiveness. The dynamic higher education market environment and increasingly fierce competition pose particular challenges for private universities (PTS) in maintaining their competitive advantage (Mutmainah et al., 2020). This condition requires every university to continue to innovate in providing the best services to attract prospective students while maintaining the loyalty of existing students.

The low gross enrollment rates in higher education in Indonesia and the high rate of private university students dropping out are evidence of problems in maintaining student satisfaction and loyalty (Kemenristekdikti, 2022). Students as consumers of education services need to possess a certain preference and expectation, either regarding academic service quality, curriculum relevance, learning facilities, or a friendly campus environment. If the promise is not delivered, then students get disillusioned and this, in effect, impacts the loyalty of the institution.

In this context, the concept of customer value becomes crucial. Customer value represents the comparison between the benefits obtained by students and the sacrifices made, whether in terms of cost, time, or energy (Kotler & Keller, 2018). Students who perceive high customer value tend to have greater satisfaction with higher education services (Nguyen et al., 2020). This satisfaction will strengthen students' emotional bond with the institution, thereby increasing the likelihood that they will complete their studies, give positive recommendations, and continue their education to the next level at the same higher education institution.

Previous studies have shown a close relationship between customer value, satisfaction, and loyalty. (Saima et al. 2017) confirmed that high customer value perceptions have a significant effect on student satisfaction. Furthermore, student satisfaction plays an important role in shaping loyalty, both in the form of commitment to continue studying and positive recommendations to other prospective students (García-Fernández et al., 2018; Wong & Chapman, 2023). Furthermore, (Borishade et al. 2021) found that the influence of customer value on loyalty is often mediated by customer satisfaction.

Based on these phenomena, this study focuses on analyzing the influence of customer value on student satisfaction and its impact on student loyalty at the Faculty of Economics and Business of an Accredited Private University in Greater Bandung. The results of this study are expected to contribute theoretically to the development of educational service marketing studies and practically to higher education administrators in formulating strategies to increase customer value to create sustainable student satisfaction and loyalty.

Based on the theoretical framework and previous research, the hypotheses in this study are as follows:

A. H1: Customer value has a positive and significant effect on student satisfaction. Theoretical basis: High customer value increases students' perception of benefits and comfort, thereby driving satisfaction levels (Saima et al., 2017; Borishade et al., 2021).
B. H2: Customer value has a positive and significant effect on student loyalty. Theoretical basis: Students who perceive educational institutions as providing high *value for money* are more likely to be loyal, even before full satisfaction is achieved (Nguyen et al., 2020).
C. H3: Student satisfaction has a positive and significant impact on student loyalty. Theoretical basis: Satisfaction is the most influential factor that drives long-term loyalty in the sense of persistence in studies, recommending students to the campus,

and remaining committed to studying completion (Wong & Chapman, 2023; Chen et al., 2023).

D. H4: Customer value has a positive and significant effect on student loyalty through student satisfaction as a mediating variable.

Theoretical basis: Customer value not only has a direct impact on loyalty, but also indirectly increases loyalty through satisfaction. Students who feel they have obtained optimal benefits from educational services will be more satisfied, and this satisfaction ultimately strengthens their loyalty to the institution (Rahi et al., 2020; Kasiri et al., 2017).

METHOD

This study uses a quantitative approach with descriptive and verificative research types. This was employed since it is suitable in describing empirical phenomena systematically and verifying the causal relationship between variables under research, which are student loyalty, student satisfaction, and customer value. The research venue was the Faculty of Economics and Business of a Private University Accredited in Metropolitan Bandung, one of Indonesia's centers of higher learning expansion.

The population in this study was all active students of the Faculty of Economics and Business at an accredited private university in Greater Bandung. From this population, a sample size of 400 respondents was determined using *cluster proportional random sampling*. This technique was chosen to ensure the representativeness of respondents from each university that was the object of the study, so that the results could reflect a more comprehensive condition.

The research instrument used was a Likert scale five-point questionnaire ranging from the score of 1 for "strongly disagree" to 5 for "strongly agree." It was meant to measure the three major variables of the study this is customer value (X), student satisfaction (Y), and student loyalty (Z). Each variable consists of several indicators adapted from previous theories and studies and has undergone validity and reliability testing to ensure the instrument's suitability.

The data collection process was carried out by distributing questionnaires to respondents who met the criteria. Next, the data was analyzed using the *Structural Equation Modeling–Partial Least Squares* (SEM-PLS) technique using the Smart PLS version 4.0 application. This analysis was chosen because it is capable of testing direct and indirect relationships between variables simultaneously. Before testing the independent model, data feasibility was tested through validity, reliability, r-square, and hypothesis tests.

Using this method, this study is expected to produce objective, accurate, and academically accountable results, thereby answering the research questions formulated in the introduction.

RESULTS AND DISCUSSION

Data analysis in this study began with testing the research model that had been developed based on theoretical foundations and previous research results. This research model consists of three main constructs, namely Customer Value (X), Student Satisfaction (Y), and Student Loyalty (Z). The relationship between variables in this model is designed to explain the extent to which the quality of students' experiences in obtaining educational services can increase customer value, which in turn has an impact on satisfaction levels and ultimately encourages student loyalty to the institution.

Validity Test

A validity test was conducted to determine the extent to which the statements in the questionnaire were able to accurately measure the research variables. The validity test was conducted by comparing the Outer Loading Value with the Average Variance Extracted. Based on the reference (Hair et al., 2017), a statement item is considered valid if it has an *rcount* value ≥ 0.50.

Table 1. Validity Test Results

Variables	Item	Outer Loading Value	Average Variance Extracted (AVE) > 0.5	Description
Customer Value (X)	X01	0.864		
	X02	0.880		
	X03	0.863		
	X04	0.824		
	X05	0.822		
	X06	0.595		
	X07	0.713		
	X08	0.769	0.602	Valid
	X09	0.804		
	X10	0.854		
	X11	0.872		
	X12	0.523		
	X13	0.741		
	X14	0.691		
	X15	0.718		
Student Satisfaction (Y)	Y01	0.768		
	Y02	0.800		
	Y03	0.789		
	Y04	0.832		
	Y05	0.835	0.541	Valid
	Y06	0.805		
	Y07	0.815		
	Y08	0.709		
	Y09	0.703		
	Y10	0.682		
	Y11	0.695		
	Y12	0.708		
	Y13	0.672		
	Y14	0.600		
	Y15	0.551		
Student Loyalty (Z)	Z01	0.588		
	Z02	0.815		
	Z03	0.753		
	Z04	0.731		
	Z05	0.762		
	Z06	0.836		
	Z07	0.821		
	Z08	0.767	0.562	Valid
	Z09	0.838		

	Z10	0.676		
	Z11	0.772		
	Z12	0.715		
	Z13	0.762		
	Z14	0.715		
	Z15	0.650		

Data processed by the researcher, 2025

On the basis of convergent validity test, all variables of the research model actually, Customer Value, Student Satisfaction, and Student Loyalty, also possessed an Average Variance Extracted (AVE) value that was above 0.50 (Hair et al., 2017). The AVE value is 0.602 for the Customer Value, 0.541 for Student Satisfaction, and 0.562 for Student Loyalty. This indicates that every variable can explain over 50% of the variance of the indicators that constitute it.

Thus, it can be concluded that all indicators that form each variable together are able to represent the measured variable validly. This means that all variables in this study have met the convergent validity criteria and are suitable for use in structural model analysis.

Reliability Test

The reliability test aims to determine the consistency of respondents' answers and stability of the research instrument. The reliability test was conducted using the Cronbach's Alpha method. A variable is considered reliable if it has a Cronbach's Alpha value of more than zero. 0.70 (Hair et al., 2019):

Table 2. Reliability Test Results

Variables	Cronbach Alpha	Composite Reliability (rho_c)	Information
Student Satisfaction	0.938	0.946	Very Reliable
Student Loyalty	0.944	0.950	Very Reliable
Customer Value	0.951	0.957	Very Reliable

Data processed by researchers, 2025

Based on this study's construct reliability tests, Cronbach's Alpha and Composite Reliability (CR) for all the used variables, i.e., Customer Value, Student Satisfaction, and Student Loyalty, are above the threshold set by (Hair et al., 2019). All the Cronbach's Alpha are higher than 0.70, which implies that all the constructs are of good internal consistency. In addition, all Composite Reliability (ρc) measures are also above the minimum of 0.70, where all the variables can be referred to as reliable variables.

R-Square Test

Table 3. R-Square Test Results

Dependent Variable	R-Square	Adjusted R-Squar	e	Category
Student Satisfaction	0.558	0.557		Moderate
Student Loyalty	0.683	0.682	Strong	

Data processed by researcher, 2025

R-Square (R^2) test is employed to determine how much independent variable can explain variation of the dependent variable. R^2 value for variable Student Satisfaction was 0.558 based on data processing result by means of SmartPLS and signifies that 55.8% variance of Student Satisfaction is explained by independent variables of the model and 44.2% is explained by the rest of the variables outside the model. This value is considered moderate.

Simultaneously, the R^2 value of the Student Loyalty variable was 0.683, meaning that 68.3% of Student Loyalty variation is accounted for by independent variables in the model, and remaining 31.7% is accounted for by variables not in the model. This value is in the strong category.

Thus, it can be concluded that this research model has good explanatory power, especially for the Student Loyalty variable.

SEM-PLS Hypothesis Testing

Table 4. Results of SEM-PLS Hypothesis Testing

Hypothesis	Path Effect	Path Coefficient	t-Statistic	P-Values	Description
H1	Student Satisfaction → Student Loyalty	0.475	5.857	0.000	Significant
H2	Customer Value → Student Satisfaction	0.747	17.854	0.000	Significant
H3	Customer Value → Student Loyalty	0.409	4.884	0.000	Significant

Data processed by researcher, 2025

Based on the results of the analysis using the SEM-PLS method through the bootstrapping process, several important findings were obtained regarding the relationship between variables in the research model. The results of the hypothesis testing can be explained as follows:

1) The Effect of Student Satisfaction on Student Loyalty
a. Path coefficient value = 0.475
b. T-statistic value = 5.857 (> 1.96)
c. P value = 0.000 (< 0.05)

These results indicate that student satisfaction has a positive and significant effect on student loyalty. In other words, the higher the level of satisfaction that students have with the education services they receive, the more likely they are to be loyal to the institution.

2) The Influence of Customer Value on Student Satisfaction
a. Path coefficient value = 0.747
b. T-statistic value = 17.854 (> 1.96)
c. P value = 0.000 (< 0.05)

These findings prove that customer value has a positive and significant effect on student satisfaction. This means that the greater the benefits, quality, and valuable experiences felt by students, the higher their level of satisfaction with the institution.

3) The Effect of Customer Value on Student Loyalty
a. Path coefficient value = 0.409
b. T-statistic value = 4.884 (> 1.96)
c. P value = 0.000 (< 0.05)

These results show that customer value also has a positive and significant effect on student loyalty. This confirms that customer value not only affects satisfaction, but also directly increases student loyalty.

Indirect Effect Test (Indirect Effect)

Table 5. Results of the Indirect Effect Test

Hypothesis	Influence Path	Original Sample (O)	t-Statistic	s P-Values	Description
H4	Customer Value → Student Satisfaction → Student Loyalty	0.355	6.214	0.000	Significant

Data processed by the researcher, 2025

The Indirect Effect of Customer Value (X) on Student Loyalty (Y) through the mediation of Student Satisfaction (Z)

a. Path coefficient value = 0.355
a. T-statistic value = 6.214 (>1.96)
b. P value = 0.000 (< 0.05)

Based on the table above, to test the indirect effect of Customer Value (X) on Student Loyalty (Y) through the mediation of Student Satisfaction (Z), H0 is rejected and H4 is accepted. This indicates that there is a positive and significant influence between Customer Value and Student Loyalty through the mediation of Student Satisfaction. From the mediation test, it can be categorized that Student Satisfaction (Z) acts as a partial mediating variable, because both directly and indirectly, the Customer Value variable has been proven to have a significant effect on Student Loyalty.

Discussion

The results of this study indicate that customer value has a positive and significant effect on student satisfaction and a direct effect on student loyalty. In addition, student satisfaction has been proven to be a factor that strengthens student loyalty to the institution. These findings provide empirical evidence that the value students perceive from the educational services provided by the campus is one of the main factors determining their level of satisfaction and loyalty.

The influence of customer value on student satisfaction is in line with the findings of a study (Willy Chaindra et al. 2024) which found that high service quality and positive customer value assessments contribute significantly to customer satisfaction and loyalty among students. A similar finding was reported in a study (Sulistyan et al., 2017; Sulistyan et al., 2018), which found that service quality and the value perceived by students play an important role in shaping satisfaction and maintaining the sustainability of the relationship between students and educational institutions. Similarly, (Marfuah & Puteri 2016) measured student satisfaction levels with academic services at private universities and found that students were quite satisfied with responsive services and the provision of academic knowledge.

Student satisfaction arises when higher education services are able to meet or exceed expectations, which are influenced by factors such as price, location, and service quality (Rahardi, Karamang, & Mubarak, 2024). This satisfaction then forms the basis for loyalty, which is reflected in the continued use of services, potential repeat purchases, and positive

recommendations from students. The dimensions of loyalty are described by (Mujahid 2025) as including satisfaction, continuance intention, and positive word of mouth. Thus, student satisfaction and loyalty are closely related in strengthening the competitiveness of higher education institutions.

Research on student satisfaction and loyalty in higher education has produced consistent findings across various studies. Student satisfaction has a positive effect on student loyalty, as confirmed by several investigations. (Wijayanti 2023) found that student satisfaction significantly affects student loyalty and functions as a partial mediator between service quality and loyalty. Similarly, (Murtiningsih & Wahyudi 2021) showed that student satisfaction influences student loyalty, even when other factors such as service quality, trust, and perceived value do not show a direct influence on loyalty.

Furthermore, the finding that customer value directly influences student loyalty suggests that students do not only assess momentary satisfaction but also consider the long-term benefits gained from their educational investment. (Hukama 2024) confirms that institutional image positively influences student satisfaction, which in turn affects student loyalty, with student satisfaction acting as a mediating variable in the relationship between institutional image and loyalty. This relationship goes beyond satisfaction and directly influences customer loyalty, as demonstrated in the educational environment where customer value positively influences student loyalty both directly and through satisfaction as a partial mediating variable (Yurasti, 2018).

Overall, the results of this study emphasize that customer value is an important foundation in building student satisfaction and loyalty. This is consistent with many contemporary studies that place perceived value as the main determinant of consumer behavior in the service sector, including higher education. (Iswara & Pratomo 2018) shows that academic aspects, non-academic aspects, and reputation positively influence student satisfaction, although surprisingly, student satisfaction does not directly influence loyalty. These findings also emphasize that higher education institutions need to seriously consider strategies for creating value for students, whether through the quality of academic services, supporting facilities, or memorable learning experiences, as these aspects have been proven to drive satisfaction and shape student loyalty in the long term.

CONCLUSION

This study provides empirical evidence that customer value and student satisfaction are important factors that shape student loyalty at the Faculty of Economics and Business of an accredited private university in Greater Bandung. SEM-PLS analysis shows that customer value has a significant effect on both student satisfaction and loyalty, both directly and through the mediating role of satisfaction. Students who perceive high benefits from academic and non- academic services in line with the costs and efforts they incur tend to be more satisfied, and this satisfaction ultimately strengthens loyalty in the form of intention to complete studies, provide positive recommendations, and continue education at the same campus.

In addition, the mediation test results confirm that student satisfaction acts as a partial mediator in the relationship between customer value and loyalty. This means that although customer value can directly encourage loyalty, its influence will be stronger if students are satisfied with their academic experience. The R-Square analysis also shows that customer value and student satisfaction can explain most of the variation in loyalty, so that both can be seen as major determinants in maintaining a sustainable relationship between students and institutions. However, other factors outside the scope of this study, such as institutional image, trust, and the quality of interactions with lecturers and educational staff, still have the potential to influence student loyalty and could be the focus of further research.

In practical terms, these findings imply that university administrators need to develop comprehensive customer value enhancement strategies. The focus should not only be on academic services, but also on providing modern facilities, learning technology support, and creating a conducive campus climate. By striking a balance between the costs incurred by students and the benefits they receive, student satisfaction can be improved, which in turn strengthens loyalty. Thus, this study confirms that customer value is the main foundation for creating student satisfaction and loyalty, and is a key strategy for private universities to maintain sustainability and competitiveness amid increasingly dynamic higher education competition.

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