



# Factors Influencing Student Satisfaction and Loyalty in Blended Learning Models: Insights from Anshan Normal University

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## Abstract

**Background and Aim:** As blended learning models gain traction in higher education, it is increasingly important to understand students' satisfaction with these models and the factors influencing them. The study aims to analyze the relationship between teacher image, student expectations, perceived quality, and student satisfaction in blended learning and to examine how student satisfaction affects student loyalty in blended learning settings.

**Methodology:** This study employed a quantitative approach by surveying 937 students participating in blended learning programs at Anshan Normal University through an online questionnaire. The data were analyzed using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to assess the relationships between various factors and their impact on student satisfaction. The questionnaire evaluated variables such as teacher image, student expectations, teaching quality, perceived value, satisfaction, and loyalty.

**Results:** The findings indicate significant positive correlations between teacher image, student expectations, teaching quality, perceived value, and student satisfaction. Specifically, a positive teacher image and high-quality teaching were strongly associated with improved student satisfaction. Additionally, the perceived value of the educational experience positively influenced satisfaction, which in turn enhanced student loyalty. The analysis shows that students' perceptions of teaching quality and their expectations significantly affect their overall satisfaction and subsequent loyalty to the educational institution.

**Conclusion:** To enhance student satisfaction in blended learning environments, institutions should focus on improving teacher image and the quality of teaching. Effective management of student expectations is also crucial. The study underscores that higher levels of satisfaction lead to greater student loyalty, highlighting the importance of delivering high-quality educational experiences to foster long-term commitment.

**Keywords:** Blended Learning; Student Satisfaction; Teacher Image; Quality Perception; Student Loyalty

## Introduction

With the continuous integration of information technology and education, the "Internet+" blended teaching based on smart teaching environments has gradually attracted widespread attention in higher education. Research indicates that "Internet+" blended teaching is becoming the "new normal" for future education. (Wasoh, F., 2016). Driscoll (2002) provides an overview of blended learning, stating that it involves a mix of teaching methods, the combination of educational technology with traditional face-to-face classroom instruction, the integration of teaching with real-world tasks, and the fusion of various online technologies to achieve effective instructional outcomes. Blended learning has rapidly developed, and research on its principles, applications, and technologies has also achieved many outcomes (Huang, Z. et al., 2019).

In the field of satisfaction research, scholars from various countries have conducted extensive studies on student satisfaction (Fornell, C. et al., 1996). In higher education, research has covered multiple aspects such as school satisfaction, teaching quality satisfaction, and teaching method satisfaction. These studies explore the factors influencing university student satisfaction and the development of evaluation index models for measuring it, such as the University Student Satisfaction Evaluation Index System (Liu, W. & Wang, X., 2019). Some scholars point out that clear instructional guidance, teaching activities, face-to-face support, collaborative skills, and the online technological environment are key factors influencing students' satisfaction with blended learning (Young, G., 2002). Additionally, teachers' professional skills, teacher support, perceived task value, achievement goal expectations, self-efficacy, learning environment, and interaction are also crucial factors affecting student satisfaction (Finn, H. et al., 2002). Some Chinese scholars have also conducted related studies. Zhao and Yuan (2010) proposed constructing a satisfaction model for blended learning with four



dimensions (student characteristics, teacher characteristics, course characteristics, and system functionality characteristics) and twelve variables. Gao (2018) developed a learning satisfaction model based on customer satisfaction models from China and the United States, including five latent variables: platform image, student expectations, quality perception, and perceived value. Pei et al (2021) expanded on consumer models from both China and the United States, subdividing perceived quality into online quality perception, offline quality perception, and blended quality perception. A structural model of learning satisfaction was established, encompassing student expectations, online quality perception, offline quality perception, blended quality perception, perceived value, satisfaction, and sustainable usage. This model illustrates the relationships and impact levels among the variables. Most of the above studies focus on the influencing factors of satisfaction and the construction of corresponding models, providing a crucial foundation for related research.

The research problem addresses the need to understand the factors influencing student satisfaction and loyalty in blended learning environments, particularly in the context of higher education. As blended learning becomes more prevalent, it is crucial to examine how variables such as teacher image, student expectations, teaching quality, and perceived value impact student satisfaction and loyalty. This understanding will help institutions enhance educational experiences and ensure long-term commitment from students.

This paper investigates the satisfaction and loyalty of students at Anshan Normal University towards blended teaching. By examining the factors that drive these outcomes, the study provides insights for educational institutions to enhance the blended learning experience, thereby promoting higher student retention rates and institutional success.

## Objectives

1. To conduct confirmatory factor analysis on student satisfaction among undergraduate students at Anshan Normal University in the context of blended learning.
2. To perform structural equation modeling analysis on the factors influencing student satisfaction with blended learning.

## Literature review

### The initial model for student satisfaction in blended learning.

Customer satisfaction theory originated in the 1970s and was initially used for research in the economic field. Later, it gained widespread application and recognition in many countries around the world. Customer satisfaction theory involves studying and understanding the extent to which customers are satisfied with their experiences of products or services. These theories typically focus on identifying and explaining factors that influence satisfaction, as well as how these factors impact customer behavior and business performance. Globally, Sweden was one of the pioneers in establishing customer satisfaction theory. Subsequently, countries around the world have developed various customer satisfaction models. Among them, the American Customer Satisfaction Index (ACSI) model, due to its simple design and ease of use, is currently considered the most influential customer satisfaction model. It has become the research foundation for many satisfaction evaluation models in related fields (Pei et al., 2021). The ACSI model mainly consists of six variables, with customer expectations, perceived quality, and perceived value considered causal variables for customer satisfaction. Specifically, perceived quality, customer expectations, and perceived value are explanatory variables for customer satisfaction, while customer complaints and customer loyalty are outcome variables (Fornell, 1996). As this model's application in the economic field has matured, it has gradually been adopted in the field of education. Building on the ACSI model, China developed the China Customer Satisfaction Index (CCSI) model to fit its national context (Tang & Xian, 2009). In the CCSI model, customer complaints were removed from the ACSI, and brand image was added, creating a tailored model that addresses the specifics of customer satisfaction in the Chinese context.

Building upon the ACSI and CCSI models, this study replaces customer expectations with student expectations, adjusts customer satisfaction to student satisfaction, substitutes teacher image for brand image, and retains the perceived value variable. Finally, an initial model for student satisfaction in blended learning is established. This model includes teacher image, student expectations, perceived



quality, and perceived value as causal variables for student satisfaction, with loyalty as the outcome variable for student satisfaction, comprising a total of six latent variables.

#### **Variable analysis of the initial mode**

##### **Teacher Image (TI)**

Wijaya (2011) defines a brand as an imprint that resides deep in the consumer's mind, creating a specific meaning and feeling. Therefore, a brand is not merely a logo, name, symbol, trademark, or something attached to a product name. A brand is a promise (Morel, 2003). A brand is a relationship (McNally & Speak, 2004) — a relationship involving trust. It is an entity's sum, a connection of the mind that establishes loyalty with buyers/potential buyers, including the perceived added value (Post, 2005). Nilson (1998) mentioned criteria for describing a brand that goes beyond just a name: a brand must have clear values, be different from other brands, be appealing, and possess a distinctive identity. In this study, the term "teacher image" is used to replace "brand image." It refers to the overall impression and perception the public holds towards education practitioners, especially teachers. This image is influenced by various factors, including social culture, educational systems, media portrayal, and the behaviors and professional competence of individual teachers. The latent variable of teacher image is measured through four variables: teacher professional ethics, teacher academic proficiency, teacher's ability to organize and manage teaching activities, and teacher personality traits.

##### **Student Expectations (SE)**

Customer expectations are the desires and needs of customers; they represent what customers feel the service provider should offer them, as opposed to the services the provider has already delivered. (Parasuraman et al., 1988). Parasuraman et al (1991) propose that service providers must recognize customer expectations and make efforts to fulfill them to achieve customer satisfaction. Customer expectations are a crucial factor in evaluating the quality of consumer services and satisfaction. (Pham & Simpson, 2006). In this study, the term "student expectations" is used instead of "customer expectations." It refers to the expectations that students have regarding the learning environment, teaching quality, and instructional resources before engaging in blended learning. A student's self-expectations impact their academic performance (Board, 2002). In this study, the design of student expectations is accomplished through expectations related to learning quality, learning platform, learning resources, and instructional design.

##### **Quality Perception (QP)**

Quality perception refers to the customer's judgment of the performance of a product or service (Zeithaml, 1987). Bitner and Hubbert (1994) propose that there is a high correlation between quality perception and satisfaction. Quality perception is a core element of overall satisfaction (Fornell et al., 1996; Oliver, 2014). In this study, quality perception refers to students' overall experience and evaluation of the online learning environment, digital learning resources, and remote teaching activities. It includes three variables: the operation of the online learning platform, the content of the platform's teaching resources, and teacher-student interaction.

##### **Perceived Value (PV)**

Value is defined as the net balance of all perceived benefits and costs or sacrifices that customers perceive from a product, service, or supplier and its usage (Sinha & DeSarbo, 1998; Flint & Woodruff, 2001). Zeithaml (1988) defines perceived value as "customers' overall assessment of a product's utility, considering their impressions of what is received and what is promised." Perceived value is described as the cost-benefit balance between "utility" and "price" (Jiménez-Castillo et al., 2013). According to Clemens et al. (2013), perceived value is also a factor in job satisfaction. In the context of blended learning, perceived value refers to students' subjective perceptions and evaluations of the teaching mode, learning experience, and educational outcomes. In this study, perceived value is measured using three indicators: knowledge objectives, peer cooperation and interaction, and the ability to independently analyze and solve problems.

##### **Student Satisfaction (SS)**

Astin (1993) defines satisfaction as the perceived value that students receive after enrolling in academic courses at an institution. Satisfaction is a state experienced by an individual after encountering performance or outcomes that meet their needs (Arif & Ilyas, 2013; Kotler & Clarke, 1987). It is a psychological or subjective state arising from the cognitive assessment of the discrepancy between

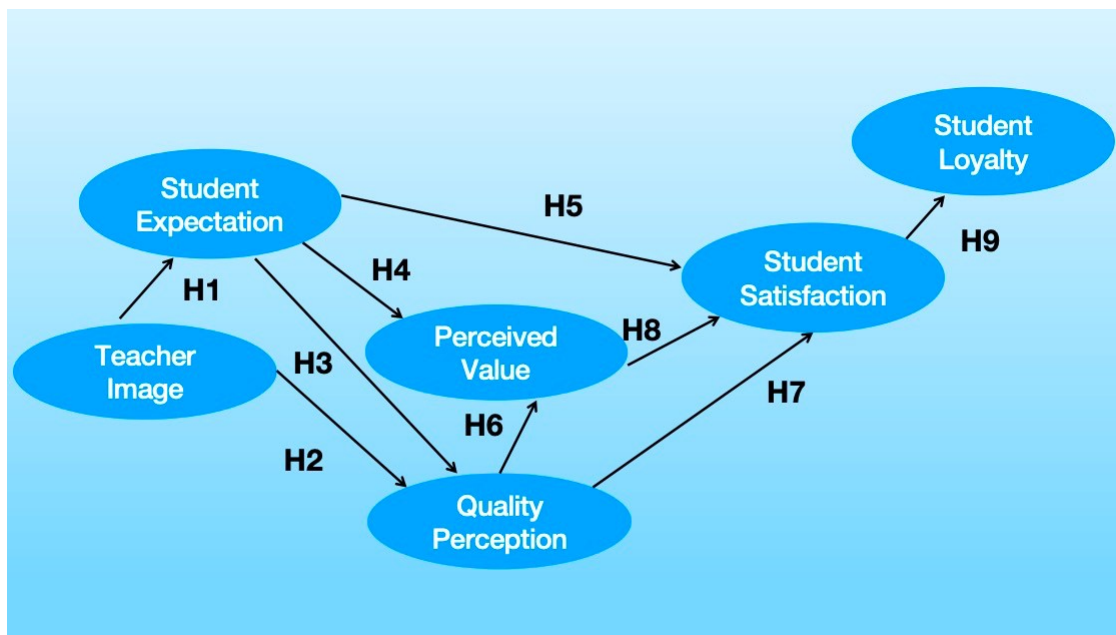
expectations and actual experiences. Satisfaction is the most commonly used metric to assess the effectiveness of the e-learning environment (Islam, 2011). It is a crucial subjective evaluation that reflects factors related to customer consumption experiences (Cronin & Taylor, 1992). In this study, student satisfaction with blended learning refers to the overall level of satisfaction students have with the blended learning model and their evaluations of its various aspects. Blended learning integrates elements of traditional face-to-face teaching and online learning. Student satisfaction reflects their approval and preference for this teaching method. This study measures satisfaction across five aspects of blended learning: course content, interface design and functionality of the teaching platform, teaching resources, instructional design, and communication between classmates and teachers.

#### Student Loyalty (SL)

Kim et al. (2016) define customer loyalty as a combination of positive customer attitudes and repeat purchase behavior. Feng (2023) describes loyalty as the tendency of customers or employees to remain committed to a specific brand or organization. It is a key variable in various research fields, including marketing, consumer behavior, and organizational behavior. Oliver (1999) defines brand loyalty as a "profound commitment to repurchase or reselect a preferred product/service in the future, leading to repeated purchases of the same brand or brand set, even in situations where contextual influences and market efforts might induce switching behavior." Chaudhuri and Holbrook (2001) suggest that behavioral or purchase loyalty involves repeated buying of a brand, while attitudinal brand loyalty includes a certain degree of commitment to unique brand values. Student loyalty in blended learning refers to the degree of commitment and continued engagement students have towards the blended learning model. It measures whether students are willing to adopt the blended learning approach over the long term, as well as their trust and satisfaction with this teaching method. In this study, loyalty is measured through three variables: continued participation, recommending the method to others, and confidence in its prospects.

### Conceptual Framework

Based on the ACSI and CCSI models, this study constructs a student satisfaction model for blended learning. The model is developed in conjunction with relevant literature on seven influencing factors: Teacher Image (TI), Student Expectations (SE), Quality Perception (QP), Perceived Value (PV), Student Satisfaction (SS), and Student Loyalty (SL). The research model is illustrated in Figure 1.



Source: Constructed by the Author

Figure 1 Conceptual Framework

The proposed hypotheses are as follows:

- H1: Teacher Image is positively correlated with Student Expectations.
- H2: Teacher Image is positively correlated with Quality Perception.
- H3: Student Expectations are positively correlated with Quality Perception.
- H4: Student Expectations are positively correlated with Perceived Value.
- H5: Student Expectations are positively correlated with Student Satisfaction.
- H6: Quality Perception is positively correlated with Perceived Value.
- H7: Quality Perception is positively correlated with Student Satisfaction.
- H8: Perceived value is positively correlated with Student Satisfaction.
- H9: Student Satisfaction is positively correlated with Student Loyalty.

## Methodology

This study, based on the American Customer Satisfaction Index (ACSI) model and the China Customer Satisfaction Index (CCSI) model, takes students from Anshan Normal University participating in blended learning as the population, with a sample drawn from sophomore and junior students across different majors. A survey was conducted using questionnaires, and confirmatory factor analysis was employed to establish a structural equation model. The research constructs a blended learning student satisfaction index model to illustrate the relationships among variables and the degree to which each variable influences student satisfaction.

### Instrument Development

Based on existing models and previous research, this study designed a scale. The scale was developed according to the model, with all items measured using a 5-point Likert scale. During the data collection process, Item-Objective Congruence (IOC) and Cronbach's Alpha tests were employed to verify the validity and reliability of all scale items for the variables. Data were collected through an online survey from 985 participants. The questionnaire was divided into three parts: screening questions, measurement items using a 5-point Likert scale, and demographic information. The researchers used Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to analyze the collected data to assess the model's fit and test the hypotheses.

In the validity and reliability tests, Item-Objective Congruence (IOC) involved experts assigning a score of 1 (clearly measures), -1 (clearly does not measure), or 0 (degree of unclear measurement) for each objective. The results showed that all scale items passed the evaluation by three experts, with scores of 0.6 or above. The reliability test using Cronbach's Alpha was conducted with a sample of 30 participants, and the results indicated that the internal consistency of all constructs was above 0.7 (George & Mallery, 2003), with scores above 0.8 considered very good and above 0.9 considered excellent. The results were as follows: Teacher Image (0.985), Student expectations (0.955), Quality Perception (0.956), Perceived Value (0.963), Satisfaction (0.975), and Student Loyalty (0.971). All data were above 0.9, indicating excellent reliability.

### Participants

The study targeted sophomore and junior undergraduate students at Anshan Normal University who have participated in blended learning. The researchers used a stratified random sampling method based on a defined population range (Etikan & Alkassim, 2016). The sample included 12 secondary schools, covering 25 majors across three major disciplines: Science Engineering, Humanities Social Sciences, Physical Education, Music, and Arts. According to research by MacCallum et al. (1999), Structural Equation Modeling (SEM) typically requires at least 100 or 200 samples. To best reflect students' real experiences with current blended learning, 985 questionnaires were collected, with 937 valid responses, yielding an effective response rate of 98.1%.

### Analysis

This study employed Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to validate the fit of the satisfaction model and the relationships between its variables.

## Results

The research results reveal significant positive correlations between teacher image, student expectations, teaching quality, and perceived value of student satisfaction. It was found that teacher

image and high-quality teaching have the most substantial impact on improving satisfaction. Additionally, the perceived value of the educational experience not only enhances satisfaction but also contributes to greater student loyalty. These results underline the importance of teacher performance and course design in fostering long-term commitment from students in blended learning programs.

### Demographic Information

The demographic results of the 937 questionnaires are shown in Table 1. Among the respondents, 18.04% were male, and 81.96% were female. In terms of academic year distribution, sophomore and junior students accounted for 51.76% and 48.24%, respectively. Regarding the distribution by major discipline, 34.58% of the students were from Science Engineering, 59.98% from Humanities and Social Sciences, and 5.44% from Physical Education, Music, and Arts.

**Table 1** Demographic Profile

Demographic Characteristics (N=500)		Frequency	Percentage
Gender	male	169	18.04%
	female	768	81.96%
Year of Study	Sophomore	485	51.76%
	Junior	452	48.24%
Major category	Science Engineering	324	34.58%
	Humanities Social Sciences	562	59.98%
	Physical Education, Music, and Arts	51	5.44%

### Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) was utilized to verify both convergent and discriminant validity. Previous studies have employed CFA to assess measurement models within the framework of Structural Equation Modeling (SEM). The results of the CFA indicated that all factors were statistically significant, with factor loadings confirming discriminant validity. Following the guidelines recommended by Hair et al. (2007), the significance of each factor loading was evaluated, and acceptable goodness-of-fit values were determined. Factor loadings greater than 0.50 and p-values less than 0.05 were considered acceptable. Additionally, according to Fornell and Larcker (1981), a Composite Reliability (CR) exceeding 0.7 and an Average Variance Extracted (AVE) value above 0.4 were deemed satisfactory.

**Table 2** Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Factor	Items	Factors Loading	SE.	CR	AVE
TI	TI1	0.978	-	0.985	0.942
	TI2	0.975	0.010		
	TI3	0.965	0.011		
	TI4	0.964	0.012		
SE	SE1	0.887	-	0.956	0.843
	SE2	0.916	0.023		
	SE3	0.939	0.021		



Factor	Items	Factors Loading	SE.	CR	AVE
QP	SE4	0.931	0.022	0.956	0.880
	QP1	0.939	-		
	QP2	0.934	0.017		
	QP3	0.941	0.017		
PV	PV1	0.939	-	0.963	0.897
	PV2	0.949	0.017		
	PV3	0.953	0.016		
SS	SS1	0.950	-	0.975	0.888
	SS2	0.932	0.016		
	SS3	0.936	0.017		
	SS4	0.942	0.016		
	SS5	0.952	0.016		
SL	SL1	0.964	-	0.971	0.918
	SL2	0.947	0.015		
	SL3	0.964	0.013		

The measurement model and corresponding index values are detailed in Table 3, with all index values meeting the required standards. The final results were as follows: CMIN/df = 4.213, GFI = 0.927, AGFI = 0.905, NFI = 0.997, CFI = 0.982, TLI = 0.979, and RMSEA = 0.059. The measurement model demonstrated a good fit.

**Table 3** Goodness of Fit for Measurement Model

Fit Index	Acceptable Values	Statistical Values
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	4.213
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.927
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.905
NFI	≥ 0.80 (Wu & Wang, 2006)	0.977
CFI	≥ 0.80 (Bentler, 1990)	0.982
TLI	≥ 0.80 (Sharma et al., 2005)	0.979
RMSEA	< 0.08 (Pedroso et al., 2016)	0.059
Model summary		Acceptable Model Fit

Remark: CMIN/DF = The ratio of the chi-square value to the degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, TLI = TuckerLewis index, and RMSEA = Root mean square error of approximation



According to Fornell and Larcker (1981), discriminant validity is assessed by comparing the square root of each Average Variance Extracted (AVE). In this validity test, the standardized correlation coefficients between each pair of dimensions are all less than the square root of the corresponding AVE values. This indicates that the model exhibits good discriminant validity between the dimensions.

**Table 4** Discriminant Validity

	TI	SE	QP	PV	SS	SL
TI	<b>0.970</b>					
SE	0.554	<b>0.918</b>				
QP	0.565	0.715	<b>0.938</b>			
PV	0.580	0.701	0.921	<b>0.947</b>		
SS	0.586	0.690	0.907	0.931	<b>0.942</b>	
SL	0.548	0.717	0.877	0.889	0.909	<b>0.958</b>

Note: The diagonally listed value is the AVE square roots of the variables

### Structural Equation Model (SEM)

The fitness of the structural equation model was tested using goodness-of-fit indices. As shown in Table 5, the model achieved acceptable index values: CMIN/df = 4.558, GFI = 0.920, AGFI = 0.899, NFI = 0.974, CFI = 0.980, TLI = 0.977, and RMSEA = 0.062. The measurement model demonstrated a good fit.

**Table 5** Goodness of Fit for Structural Model

Fit Index	Acceptable Values	Statistical Values
CMIN/DF	< 5.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	4.558
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.920
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.899
NFI	≥ 0.80 (Wu & Wang, 2006)	0.974
CFI	≥ 0.80 (Bentler, 1990)	0.980
TLI	≥ 0.80 (Sharma et al., 2005)	0.977
RMSEA	< 0.08 (Pedroso et al., 2016)	0.062
Model summary		Acceptable Model Fit

Remark: CMIN/DF = The ratio of the chi-square value to the degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, TLI = TuckerLewis index, and RMSEA = Root mean square error of approximation

### Hypothesis Testing Result

Structural Equation Modeling (SEM) combines the measurement structure from factor analysis with the framework of path analysis by setting latent variables and unobserved constructs. It distinguishes between the measurement model and the structural model (Lefcheck, 2015)—the former involves the observed variables that measure concepts, while the latter builds relationships between constructs and includes mediation paths within the structural model. Meanwhile, path coefficients measure the correlations between exogenous and endogenous latent variables in the SEM. According



to Table 6, the hypothesis testing results show that H1, H2, H3, H6, H7, H8, and H9 were supported, while H4 and H5 were rejected. A detailed explanation of the hypothesis tests is provided in Table 6.

**Table 6** Hypothesis Results of the Structural Equation Modeling

Hypothesis	$\beta$	SE	z	p	Result
H1: TI→SE	0.571	0.026	19.269	0.000	Supported
H2: TI→QP	0.248	0.021	9.008	0.000	Supported
H3: SE→QP	0.604	0.027	19.940	0.000	Supported
H4: SE→PV	0.028	0.018	1.335	0.182	Rejected
H5: SE→SS	0.019	0.015	1.066	0.287	Rejected
H6: QP→PV	0.939	0.024	37.165	0.000	Supported
H7: QP→SS	0.218	0.059	3.694	0.000	Supported
H8: PV→SS	0.742	0.061	12.763	0.000	Supported
H9: SS→SL	0.939	0.018	52.982	0.000	Supported

### Conclusion

This study explores the relationships among teacher image, student expectations, quality perception, perceived value, student satisfaction, and student loyalty in the context of blended learning. The researchers used Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to analyze the collected data, assess the model fit, and test the hypotheses. The results confirmed that teacher image has a significant positive impact on student expectations and quality perception, student expectations have a significant positive impact on quality perception, and quality perception has a significant positive impact on both perceived value and student satisfaction. Perceived value significantly positively affects student satisfaction, and student satisfaction significantly positively affects student loyalty. However, student expectations do not impact quality perception or perceived value.

This research contributes to both theory and practice by demonstrating how teacher image, student expectations, perceived quality, and perceived value significantly influence student satisfaction and loyalty in blended learning. The study provides a framework for institutions to enhance these factors, ultimately leading to improved educational experiences and stronger student retention.

### Discussion

H1 shows a significant positive correlation between teacher image and student expectations, consistent with the views presented by Zhou (2022) and Ali (2011), which suggest that teacher behavior and professional competence influence student expectations.

H2 demonstrates a significant positive correlation between teacher image and perceived quality (Zhou,2022; Jiang, 2018). The teacher's image influences students' trust and respect for the teacher, which in turn affects their perception of teaching quality.

H3 shows a significant positive correlation between student expectations and perceived quality (Snijders et al., 2020; Pei et al.,2022). The level of student expectations can influence their perception of actual teaching quality, with higher expectations typically leading to greater sensitivity to and recognition of high quality.

H6 shows a positive correlation between perceived quality and perceived value, consistent with previous studies (Jahmani et al.,2020; Jeong, & Kim, 2020; Uzir et al., 2021). High-quality services or products typically enhance people's evaluation of their perceived value.

H7 reveals a significant positive relationship between service quality and student satisfaction, which has also been reflected in previous research (Dagger et al., 2007; Hsu et al., 2008; Wang & Liao, 2008). When students encounter doubts or problems, service quality directly affects their satisfaction.

H8 indicates a significant impact of perceived value on student satisfaction. Chen et al. (2009) and Cenfetelli et al. (2005) also confirmed that perceived value is an important factor influencing student satisfaction with the platform.

H9 suggests that student satisfaction positively impacts loyalty, and this view is supported by the data. This aligns with findings reported by other researchers (Arif & Ilyas, 2013; Chong & Ahmed, 2012).

## Recommendation

Firstly, schools should enhance the teacher image by strengthening teacher training and optimizing the teacher evaluation system, which in turn will improve student expectations and perceptions of quality.

Secondly, communicating course objectives and setting reasonable expectations will help manage student expectations. Continuous improvement of teaching quality and attention to student feedback are crucial for enhancing perceived value.

Finally, focusing on student needs, regularly assessing and adjusting, will increase student satisfaction.

Additionally, establishing a positive learning community and providing rewards can enhance student loyalty.

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